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Editors

School of Management:
Prof Hamish Laing, Dr Helen Yu, Dr Roderick Thomas, Dr Dan Rees, Prof Nick Rich, Mr Ram Gurumoorthy

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VBHC Academy,
School of Management,
Swansea University,
Bay Campus,
Fabian Way,
Swansea, SA1 8EN, UK

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Mr Edward Miller

Foreword

It is a pleasure to introduce the inaugural volume of **Value-Based Academy** research papers for 2024, an open-access collection that highlights exemplary work from learners on the *MSc Advanced Health & Care Management (Value-Based)* programme. This volume brings together projects that demonstrate how value-based principles can be translated into meaningful improvements across health and care systems.

The contributions presented here focus on three core dimensions of value-based healthcare:

- **Improving outcomes that matter to people and communities**
- **Designing services around value rather than activity**
- **Leading sustainable, system-oriented transformation across health and care**

Each project is deeply grounded in the learners' professional settings, ensuring direct relevance to practice. This embeddedness allows for rigorous academic inquiry to sit alongside measurable and context-specific impact, an approach central to value-based healthcare education. Across the volume, the authors engage critically with contemporary challenges in health system redesign, innovation, service transformation, and leadership, offering both conceptual development and actionable insights.

Collectively, the work reflects a clear alignment with national strategic priorities. The projects embody the principles set out in ***A Healthier Wales: our plan for health and social care*** (Welsh Government, 2018), with its emphasis on whole-system integration and sustainable models of care. They also resonate with the ***Innovation Strategy for Wales*** (Welsh Government, 2023), which promotes mission-oriented innovation, stronger translational pathways, and research that delivers societal and economic benefit. Taken together, these contributions support Wales's long-term ambition to build a resilient, equitable, and value-based health and care ecosystem.

The interdisciplinary nature of the cohort, spanning health and social care, the third sector, and the wider life sciences and industry landscape, has enriched the intellectual and practical insights captured in this volume. This diversity fosters robust analysis, strengthens knowledge exchange, and reinforces the collaborative ethos that defines the programme.

For policymakers, the work provides grounded evidence and insights that can inform strategy and system design; for academics and researchers, it offers practitioner-embedded case studies demonstrating rigorous inquiry and applied impact; and for students and professionals, it serves as a rich resource for understanding how research and leadership intersect in high-value care.

The *Innovation Academy Research Series* reaffirms the shared mission of Swansea University's Value-Based Health & Care Academy and the All-Wales Intensive Learning Academy for Innovation in Health and Social Care: to advance innovation scholarship, promote open access, and contribute to knowledge that informs policy, practice, and the future of value-based healthcare.

Warm regards,

Editorial team

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Assessing Inherited Metabolic Disorder Community's Readiness to use Patient Reported Outcome Measure (PROM) in Acid Sphingomyelinase Deficiency (ASMD).

Carl Lander

Registered Nurse | Rare Disease Advocate | Patient Advocacy Leader

Email: carl.lander@pkdia.org

Abstract:

Measuring quality of life changes in people with an inherited metabolic disorder is an area that has received little attention to date. This paper focuses upon how the National Institute for Health and Care Excellence (NICE) appraises therapies for use in these disorders. Consideration of a value-based healthcare approach supports the discussion on how a more effective appraisal process may be enacted. Rare disease trials have small trial cohorts which lead to a less reliable evidence base. The use of disease specific patient report outcome measures is considered, concluding that NICE processes are not currently value based overall, and further work is required to better use PROMs in evidence collection on the benefits of novel therapies for IMDs. It is recommended that further work is undertaken to explore how holistic PROMs may be developed for individual IMDs or a subset of diseases or symptoms. Further, case-adjustment of PROM data linked to individual values is worthy consideration.

Keywords: Value-based Healthcare, Patient-reported Outcome Measure, Rare Disease, Inherited Metabolic Disorder.

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Introduction

Those living with a rare disease face a wide range of difficulties throughout their life. This may start with a delay in a definitive diagnosis, regular medical interventions, reduced family income or an inability to interact with society as others would do (Esquivel-Sada & Nguyen, 2018). Therefore, it is imperative that health technologies (HTs) are available for use by those for whom benefit will be derived.

Acid Sphingomyelinase Deficiency (ASMD) (Niemann-Pick Disease) is a rare inherited metabolic disorder. People with ASMD lack the enzyme acid sphingomyelinase, which leads to a build-up of sphingomyelin (McGovern et al., 2017). The impact of this disease is devastating, often leading to death from respiratory failure or a lack of white cells. The disease also has a significant impact on the spleen, causing it to become dangerously enlarged.

A drug to combat the effects of ASMD, olipudase alfa, has been developed for both the AB and B types of the disease. Due to the nature of this disease, it is postulated that the trial process used to assess the benefit of this HT may not have effectively demonstrated its positive impact on someone's quality of life. This report examines the process of measuring the impact on quality of life and how this was assessed by the body that approves HTs to be funded by the NHS, the National Institute for Clinical Excellence (NICE).

This paper will consider the use of Patient Reported Outcome Measures (PROMs) in this drug trial and discuss the evidence base surrounding the use of PROMs in rare diseases.

This is a novel situation, and there appears to be no academic consideration of the evidence base relating to olipudase alfa quality-of-life assessments. The purpose of this paper is not to draw a conclusion that PROMs development must always be aimed at achieving a positive NICE appraisal, but rather to consider how the use of PROMs can produce valid results. This paper considers two key areas of interest: rare disease and the measurement of outcomes encapsulated by the concept of value-based healthcare.

To contextualise this review, the background to rare disease is required. A disease is classified as rare in the European Union if it affects 1 in 2,000 people, and in the US if it affects fewer than 200,000 people (Slade et al., 2018).

Aims of the study

A drug to combat the effects of ASMD, olipudase alfa, has been developed for both the AB and B types of the disease. This drug is in use within the NHS but without NICE approval. This means that those being treated with the drug can continue to have treatment, but no new patients can access the drug ((National Institute for Health and Care Excellence, 2024b) and (National Institute for Health and Care Excellence, 2024a). This was carried out using new guidance issued by NICE on the review of health technologies, which took effect from 2020 onwards.

The NICE committee examining the efficacy of this drug concluded that there was a clinical benefit in the short term. Still, concerns were raised regarding the long-term benefits of olipudase alfa. The Scottish Medicines Consortium came to a similar conclusion, noting the very high cost and lack of data demonstrating both clinical and quality-of-life improvements (Scottish Medicines Consortium, 2023). However, the Scottish Medicines Consortium raised concerns that although olipudase alfa demonstrated an improvement in quality of life in the paediatric trial, they had concerns that the cohort size is small.

NICE also uses quality of life improvement as a criterion for reviewing the impact of any health technology. In this situation, patient-reported outcome measures (PROMs) were used during the trial (National Institute for Health and Care Excellence, 2024b). These are EQ5D and SF-36, the EQ5D-3L being the preferred assessment tool for quality-of-life assessment by NICE (National Institute for Health and Care Excellence, 2022b).

In 2021, the then Westminster Government, along with Wales, Northern Ireland, and Scotland, published the first UK Rare Diseases Framework, which consisted of four priorities. The latter of these priorities is to improve access to better specialist care, treatments and drugs (Department of Health and Social Care, 2021). The approval of olipudase alfa fits with this priority. The impact of this priority is the drive for NICE to approve this new therapy.

Problem statement, hypothesis, and research questions

Problem statement

Rare disease health technology appraisals, particularly for inherited metabolic disorders, do not accurately assess the changes in the quality of life following the administration of a new health technology. Therefore, cost-effectiveness versus quality-of-life improvement methodologies lead to a refusal by public health systems to make funds available for these technologies.

Hypothesis

'Generic' non-disease-specific patient-reported outcome measures are not an effective method for measuring quality of life changes in health technology trials for rare diseases.

Research Questions

RQ1: Can 'generic' PROMs (in particular EQ5D and SF-36) be used effectively in health technology assessments in rare diseases?

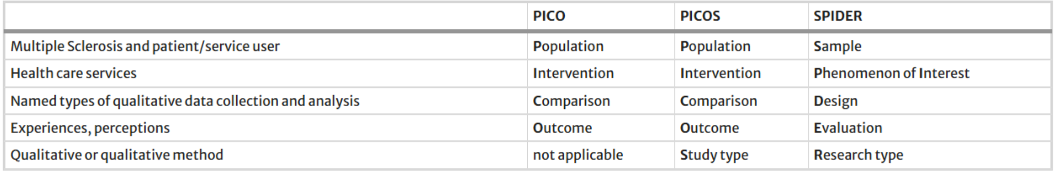
RQ2: Are disease-specific PROMs more effective in health technology assessments for rare diseases?

RQ3: Is the NICE highly specialised health technology process sensitive to changes in quality of life as measured by PROMs?

RQ4: Are there grounds to consider the development of a PROM across a range of inherited metabolic disorders?

RQ5: Does the NICE review process adhere to principles of value-based healthcare?

The research questions were derived using the PICO model – see Figure 1 below for a description of this model compared other others (Methley et al., 2014).



	PICO	PICOS	SPIDER
Multiple Sclerosis and patient/service user	Population	Population	Sample
Health care services	Intervention	Intervention	Phenomenon of Interest
Named types of qualitative data collection and analysis	Comparison	Comparison	Design
Experiences, perceptions	Outcome	Outcome	Evaluation
Qualitative or qualitative method	not applicable	Study type	Research type

Figure 1: Overview of PICO, PICOS and SPIDER Models. Source: (Methley et al., 2014).

UK Rare Diseases Framework

The UK Rare Diseases Framework was published in 2021, for the first time setting out a way of working to support and manage the health of those with a rare disease (Department of Health and Social Care, 2021). The framework set out four priorities:

1. **Priority 1 – helping patients get a final diagnosis faster:** The issue of gaining a final diagnosis is often known as the 'diagnostic odyssey' (Schuermans et al., 2022). This process can be improved by the publication of international guidelines, for example, those for a particular rare anaemia published in 2024 (Al-Samkari et al., 2024).
2. **Priority 2 – increasing awareness of rare diseases among healthcare professionals:** Knowledge of rare diseases is often lacking and there is a need for increased education amongst healthcare professionals. This again leads to the lengthening time to diagnosis (Rohani-Montez et al., 2023).
3. **Priority 3 – better coordination of care:** This coordination of care is imperative; however, it must be individualised to the individual situation (Walton et al., 2022).
4. **Priority 4 – improving access to specialist care, treatments, and drugs:** The lack of ability to access specialist care arises both from a lack of diagnosis and expert centres to offer diagnosis or treatment (Priedane et al., 2017).

Value-Based Healthcare

Value-Based Healthcare (VBHC) first found prominence in 2006 when Michael Porter and Elizabeth Teisberg published their work 'Redefining competition in healthcare'. Within this work, the concept of improving value for the patient was proposed (Porter & Teisberg, 2006). This concept turns on its head the purist method of merely reducing costs to increase cost-effectiveness. The underlying principle is that if the cost is reduced but outcomes worsen, there is no value to the patient receiving care. The following formula was developed to measure value.

$$\textbf{Patient value} = \frac{\text{patient-relevant } \textbf{outcomes}}{\textbf{costs} \text{ per patient to achieve these outcomes}}$$

Figure 2: The Porter and Teisberg value formula. (Porter & Teisberg, 2006)

This in itself is a blunt tool and does not consider the details of what an outcome is. This issue has been debated further, leading to Michael Porter noting that there are three forms of value (Porter, 2010). The Outcome Measures Hierarchy (Figure 3 below). These outcomes apply to both individuals with any particular health condition and to a population when related to primary care. The model below relates to individual health conditions. Each tier has two levels, the first level being the primary driver, followed by a secondary level where further recovery takes place. Porter further proposes that the time for each level to take place is a value measure, not a process measure and intrinsic to the value achieved. Tier 3 may well be particularly applicable to the use of olipudase alfa, as there are no long-term studies yet, which is a key factor in the non-approval of this drug by NICE.

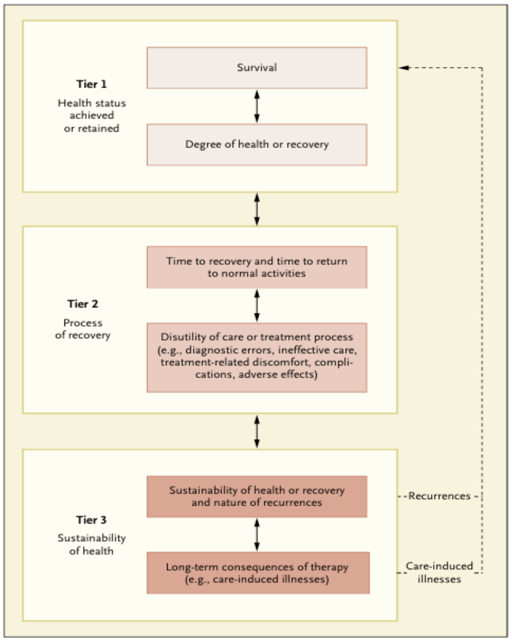


Figure 3: Outcome Measures Hierarchy. (Porter, 2010)

The Centre for Evidence-Based Medicine proposes a useful definition of value-based healthcare.

> *'Value-based healthcare is the equitable, sustainable and transparent use of available resources to achieve better outcomes and experiences for every person.' (Hurst et al., 2019).*

In the situation of a rare disease, this definition offers a significant challenge. The issue is that the use of resources is likely to be inequitable in financial terms, but potentially equitable in terms of achieving a better outcome. However, there is a risk that when NICE approves a number of therapies of this nature, the NHS becomes less sustainable.

When considering definitions of VBHC, the geographical location of the health system under review is needed. The US view of VBHC is said to be 'value-based pricing' (Gray, 2017). This view does not appear to lead to a major change in the delivery of services in terms of what a publicly funded healthcare system requires. Where there is payment by self or an insurance provider, it is likely to lead towards improved outcomes for the individual, but not necessarily on a population basis.

The European Union brought together an expert panel to define value in ‘value-based healthcare.’ This work made the following proposal:

‘The EXPH, therefore, proposes to define “value-based healthcare (VBHC)” as a comprehensive concept built on four value pillars: appropriate care to achieve patients’ personal goals (personal value), achievement of best possible outcomes with available resources (technical value), equitable resource distribution across all patient groups (allocative value) and contribution of healthcare to social participation and connectedness (societal value).’ (The European Union, 2019).

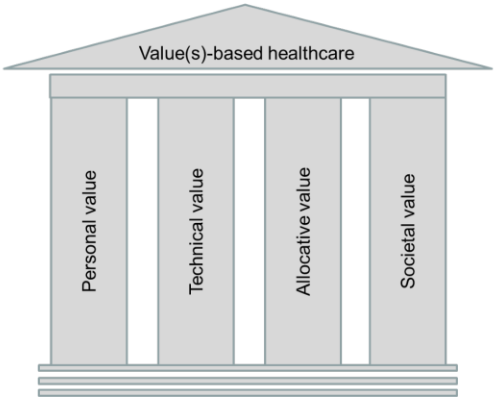


Figure 4 – The European Model of Value-based Healthcare. (The European Union, 2019)

This definition has much to recommend it, as it takes a holistic approach to consider for both the individual and the broader community that funds the resources or requires a form of benefit from the support that the individual receives. The expert panel goes on to note that clinicians should be held responsible for only carrying out care that is high value and work to remove unwarranted variation. In terms of how to use resources, the European Union expert panel states that the underuse of effective resources results in health inequity, contrary to any concept of rationing, whilst overuse leads to waste (The European Union, 2019).

Patient Reported Outcome Measures applied to the olipudase alfa trial.

The EQ5D PROM is designed to measure general health and well-being; it was developed by EURODIS, a research organisation that was created in 1987 to develop an instrument that could be used across all health conditions. The EQ5D comprises five dimensions as noted in Figure 5 below. The variant of this PROM used in this trial was the EQ5D-5L (Wasserstein et al., 2022), which has five options for each question. The responses available for each question in the EQ-5D-3L range from ‘I have no problems’ to ‘I am unable.’ In the EQ-5D-5L questionnaire, there are options to select more sensitive options, such as slight or severe problems (Euroquol, 2021). The questionnaire can be found in Appendix A. NICE notes in its guidance that the EQ5D-5L should not be used, preferring the three-response EQ5D-3 tool (National Institute for Health and Care Excellence, 2022b).

Figure 5: The EQ5D dimensions. (EURODIS, 2018)

The PROM is intended to be straightforward to answer and take little time to complete.

The second PROM that was used in this trial is the SF-36, which was developed by QualityMetric. This PROM measures both physical and mental health components over 36 metrics. QualityMetric is clear that this tool calculates two separate scores that cannot be combined (Lins & Carvalho, 2016).

Measure Eight Health Domains

A widely used PRO tool, the SF-36v2® Health Survey measures a range of symptoms, experiences and patient health outcomes across eight domains in thirty-six items to close measurement gaps in product lifecycles and patient care.

- Physical Function
- Role-Physical
- Bodily Pain
- General Health
- Vitality
- Social Function
- Role-Emotional
- Mental Health

Figure 6: The eight domains of the SF-36 PROM. (QualityMetric, Unknown)

This particular questionnaire appears more complex than the EQ-5D-5L in that is measures a wider range of health quality indicators, and Lins and Carvalho conclude in their review of this PROM that it cannot be used as a single score result (Lins & Carvalho, 2016). A review of the SF-36 concluded that this tool can produce variable results in trials but not in a way that affects the overall results of the trial outcomes (Contopoulus et al., 2009). There is evidence to demonstrate that this PROM can be used effectively to demonstrate a change in health quality in the field of orthopaedics (Clement et al., 2022). Appendix Three contains an explanation of the SF-36.

NICE review process

The NICE approval process is regulated by legislation via a Statutory Instrument approved by the UK parliament in 2018. The conclusion of a review is a recommendation. NICE can make one of four recommendations:

1. Can be used.
2. Can be used during either:
    a. A managed access period (for technology appraisals and highly specialised technologies (HST)), or
    b. evidence generation period (for medical technologies, diagnostics, early value assessments and interventional procedures).
3. More research is needed.
4. Should not be used.

All health technologies must be approved by a regulatory body (Medicines and Healthcare Products Regulatory Agency) for use in England and Wales, before review by NICE (National Institute for Health and Care Excellence, 2022a). The process for reviewing an HST differs from that of a standard technology appraisal. Olipudase alfa is considered an HST due to the rarity of ASMD and its significant impact. The highly specialised technology route is taken when the relevant disease is deemed rare and has a serious life-limiting impact that affects small numbers of patients, limited or no treatment options, and the ability to collect real-world evidence is challenging.

The threshold for approval of a new health technology lies between £20,000 to £30,000 cost per quality-adjusted life year (QUALY) improvement (National Institute for Health and Care Excellence, 2024c). For highly specialised technologies, this threshold is £100,00 per QUALY (Charlton, 2022). This cost is not the absolute cost of the health technology per annum, but the additional cost the health technology would incur over and above 'standard' therapy. This poses the conundrum of how to assess this, as no true standard therapy exists beyond supportive treatments aimed at reducing the symptom burden alone.

The calculation method appears somewhat opaque but is related to the improvement in quality of life as measured through PROMs (National Institute for Health and Care Excellence, Unknown-a). Fundamental to the NICE methodology is value, not merely cost. It is notable that the final incremental cost-effective ratio value is redacted in the NICE documentation (National Institute for Health and Care Excellence, 2025b).

Carer Disutility

In the case of ASMD the ‘burden of care’ is significant. NICE considers the level of ‘carer disutility’ in its review of health technologies. This concept relates to the impact of the spillover of illness upon family members or other carers (Wittenberg & Prosser, 2013). The benefit of measuring this impact is that it considers the broader effects of the disease. However, there can be flaws in the assessment methodology. For example, in the case of the olipudase alfa review, the original panel deemed that improved clinical indicators would reduce the disutility impact (National Institute for Health and Care Excellence, 2025b).

Methodology

This report presents both a review of the current evidence base surrounding the use of patient-reported outcome measures (PROMs) and an examination of the application of PROMs in evaluating a therapy for a rare disease. The figure below (Figure 7) is a representation of an evidence hierarchy, sub-figures B and C represent a revised framework where the majority of evidence is seen through the lens of systematic review (Murad et al., 2016).

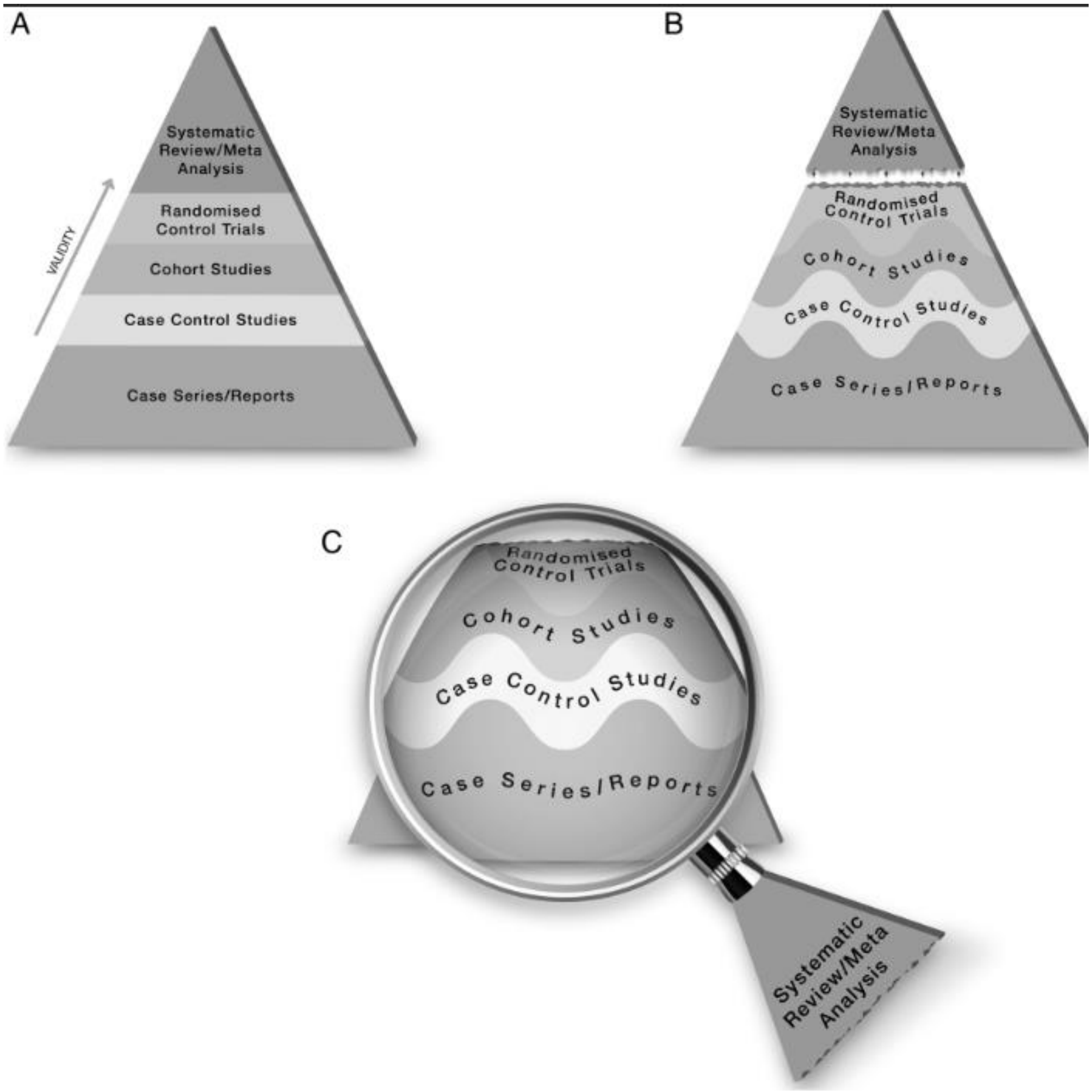


Figure 7: A hierarchy of evidence. (Murad et al., 2016)

When evaluating the quality of evidence presented, it is essential to utilize the highest quality evidence available. The figure below (Figure 8) sets out a process for quality assurance of reviews.

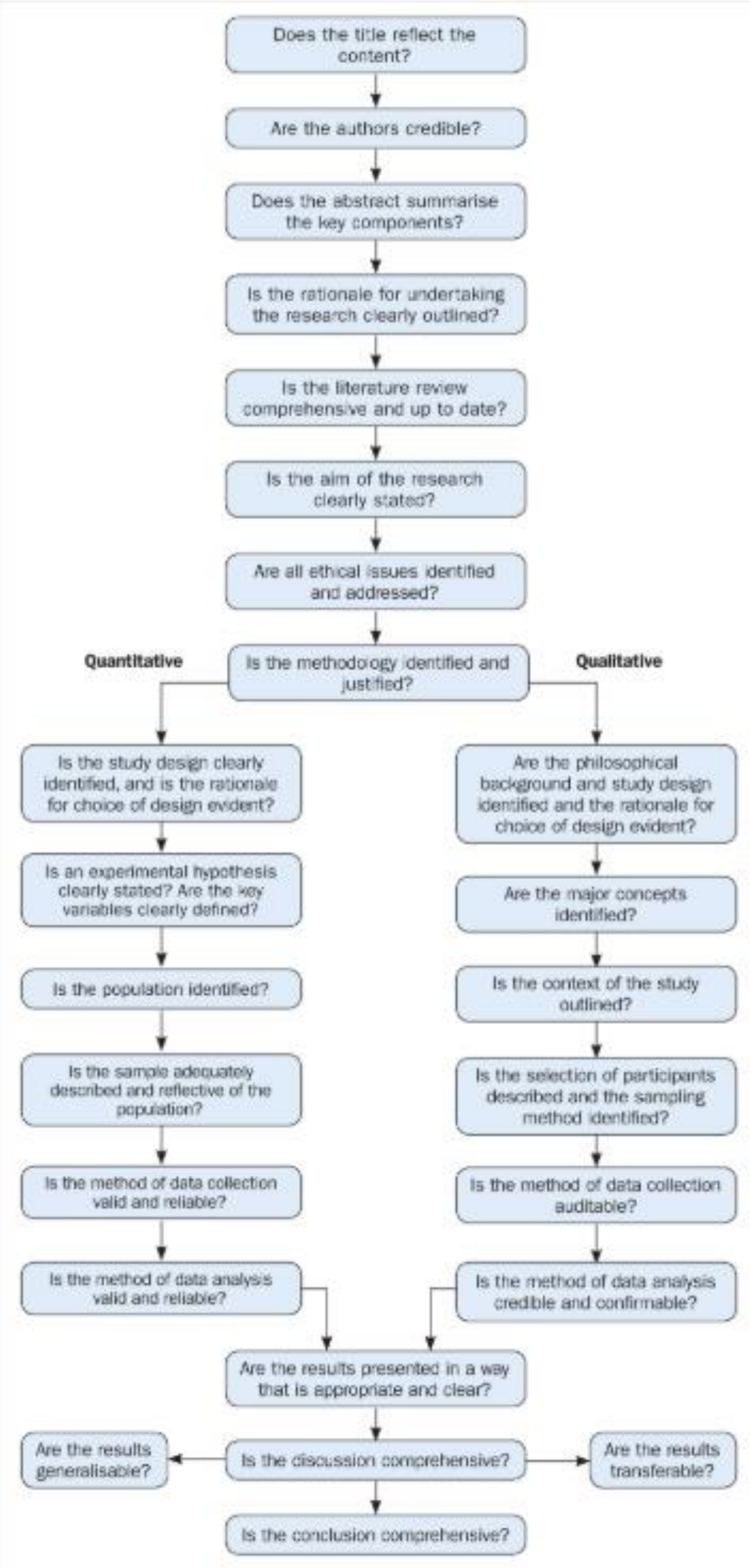


Figure 8: Process for quality assuring reviews.

Figure 9 below sets out the search terms used, databases accessed and results of these searches. These search terms were selected to ensure the widest coverage across all four research questions.

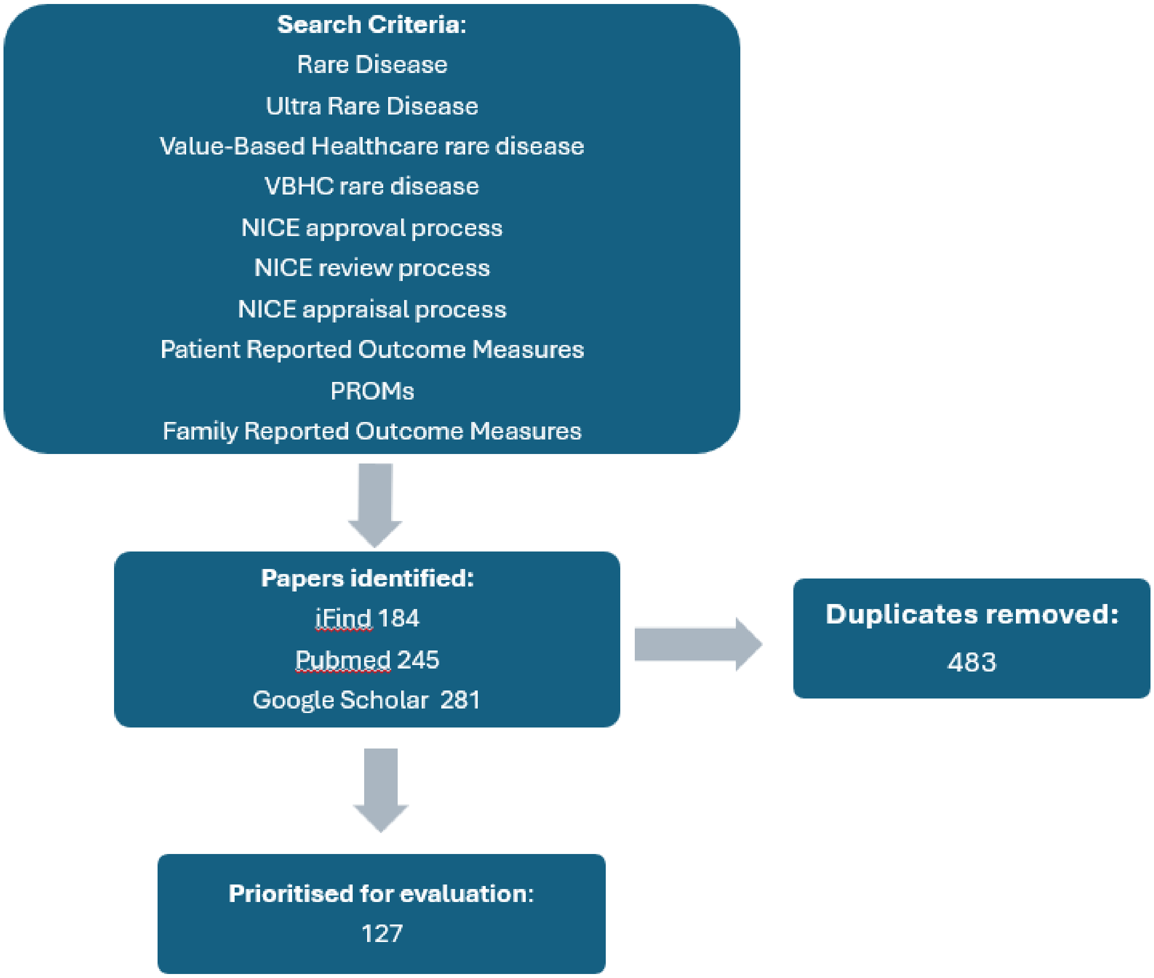


Figure 9: Databases searched along with search terms.

Literature Review

The literature review focused on two key themes: Value-Based Healthcare within the NICE appraisal process and the use of PROMS within rare diseases, in particular inherited metabolic disorders. These themes were selected to enable an in-depth review of VBHC to be undertaken, along with the requirement to explore how PROMs can be used within the rare disease sphere. This inquiry is designed to help better understand why the PROMs used in the NICE review of olipudase alfa may not have elicited a clearer benefit in terms of the outcomes that were expected.

PROMs are deemed a useful tool in the measurement of outcomes; however, Humer and Bosch note that a measurement of quality of life requires a holistic review of the quality of life, both physical, mental, and social well-being. A concern is raised that any disease-specific PROM may not encompass these factors effectively. (Huemer & Bösch, 2023). For example, a person may have poor physical health but have a high level of social well-being. Meaning that their overall quality of life scores well.

One issue that frequently arises within the literature is the heterogeneous nature of rare disease. This means that symptom burden is variable across a population with a single disease. When this issue falls alongside small numbers of individuals leading to small sample sizes, the assessment of outcomes becomes less valid (Murray et al., 2023). Murray et al. go on to state that specific disease-related measurement approaches are required.

There is an array of other issues affecting the use of PROMs in randomised drug trials in rare diseases. These include a lack of knowledge about the disease, including disease progression, issues that are important to patients are not captured, and PROM validation is hard to obtain (Whittal et al., 2021).

Patient Reported Outcome Measures applied to rare diseases

The use of PROMs for specific diseases that are more common is reasonably well understood. Their use within trials is becoming more frequent and increasingly important (McGee, 2020). However, it is less clear if PROMs are effective in the sphere of rare disease. In the case of Cushing's Syndrome, two disease-specific PROMS have been developed. it is still not clear how effective they are in detecting changes in health status (Knoble et al., 2018).

There is a concern that the use of data gathered from PROMs is sometimes not useful in rare diseases (Meregaglia et al., 2023). The evidence for this came from the EU Horizon 2020 project IMPACT-HTA. Meregaglia et al. also reported that there are methodological limitations in the use of PROMS in rare disease, due to the many people with these disorders who are young, have a cognitive disability or have a varied array of symptoms.

The development of PROMs is fraught with difficulty in rare diseases. Slade et al. consider the issue of PROMs in rare disease. They examined the types of PROMs and found that a number of generic and specific PROMs are commonly used (Slade et al., 2018). At the macro level, there is evidence that PROMs can be used in rare diseases only in certain disease processes. For example, a PROM set has been developed to monitor health and well-being in people with brittle bone disease (Nijhuis et al., 2021). As yet, there appear to be no results published on the impact of using this PROM set.

One of the disease-specific PROMS in use has been developed and validated for use in the inherited metabolic disorder Anderson-Fabry Disease (FD) (Ramaswami et al., 2012). The PROM was developed to monitor the progression of a disease that affects between 1 in 40,000 and 60,000 males. This particular PROM (Fabry-specific Paediatric Health and Pain Questionnaire was validated initially as a 40-item questionnaire, leading to a final 23-item questionnaire being published.

A further study in the use of PROMs signalled that they may be beneficial in the management of a rare form of diabetes (Derks et al., 2024). The results of this study must be considered with a degree of caution as the PROM in use was not formally validated.

A review of NICE appraisal reports was undertaken by Meregaglia et al. which considered the use of PROMS across the range of disease processes covered (Meregaglia et al., 2023). The findings were varied as described in the Table 1 below:

Table 1: Discussion of findings comparing NICE appraisal reports and PROM usage studies in rare disease. Adapted from Meregaglia et al. (Meregaglia et al., 2023).

Rare disease	Inherited Metabolic Disorder	PROMs used	Commentary
Cystic fibrosis	No	EQ-5D Alternative techniques	Overall limited sensitivity recommended other tools including the SF-36. Unable to differentiate disease severity, or unsuitable for paediatric patients. Additionally, one study did demonstrate effectiveness in those willing to accept risk.
Idiopathic pulmonary fibrosis	No	EQ-5D	Deemed effective overall other than in those with milder symptoms.
Duchenne muscular dystrophy	No	EQ-5D	Generally negative views, in particular the tool was unable to differentiate walking speed.
Fabry disease	Yes	EQ-5D-3L	Limited as only three levels assessed.
Hereditary transthyretin amyloidosis	No	EQ-5D	Found to be both valid and appropriate.
Inherited retinal dystrophies	No	EQ-5D	Not deemed effective

Rare disease	Inherited Metabolic Disorder	PROMs used	Commentary
Mucopolysaccharidosis type Iva	No	EQ-5D-5L	Lacks sensitivity relating to pain assessment.
X-linked hypophosphatemia	Yes	EQ-5D-5L	Validated for a sample population, not necessarily this specific population.
Spinal muscular atrophy	No	EQ-5D-Y	Not validated for children, therefore, not deemed as valid.
Severe refractory eosinophilic asthma	No	EQ-5D Asthma Symptom Utility Index	It may not be useful due to many values being at the lower end of the scale.
Limbal stem cell deficiency	No	EQ-5D-3L	Deemed unreliable due to sample size.
Hereditary angioedema	No	HAE-BOIS EQ-5D-5L	Conceptually overlapped the EQ-5D dimensions. Suitable to assess the quality of life

Caution must be taken considering the above results due to both small sample sizes and, in some cases, a single review was explored.

The literature offers a further basis to consider that ‘off the shelf’ PROMs are not always suitable for rare disease therapy evaluations (Basch & Bennett, 2014). However, this does not mean that PROMs cannot be used in these settings. Elstein et al. strongly supports the belief that disease-specific PROMs are fundamental to the management of rare diseases (Elstein et al., 2022). However, there needs to be caution when considering the use of a disease-specific PROM across a range of similar disease processes. For example, a PROM developed for Gaucher Disease 1 is not appropriate for use with people with Gaucher disease 2 or 3 (Narita et al., 2024). However, O’Donovan et al. conclude that there is a need to develop ‘novel ways’ to improve the generalisability of PROMs (O’Donovan et al., 2022).

Where there is no PROM for a particular group of diseases, it is possible to consider using them for a similar disease, such as the COPD Assessment Tool for use in alpha-1 antitrypsin deficiency (AAT) (De Soyza et al., 2025). De Soyza et al. express caution, however, as there are a number of differences between COPD and AAT, thereby raising concerns about the validity of the results. Other research indicates that the EQ-5D PROM may be beneficial in some disorders, such as skin disorders and cancer, but not for some vision or hearing disorders (Longworth et al., 2014).

Rare diseases are often diagnosed at an early age. Therefore, the ability to complete PROMs at a time when therapy may be most beneficial is either unreliable or absent. There is evidence to suggest that this is not a valid methodology and may generate inaccurate results (Cheng et al., 2018). However, there is evidence to demonstrate that communication improves between the child, carer and clinician when PROMs or proxyPROMs are used (Cheng et al., 2020).

When using PROMS within paediatric populations, there is the obvious age variability in required outcomes, such as the very young not necessarily needing to focus upon walking or gait. There is a need for further research to better agree on the dimensions to be used along with the length and number of items in Paediatric PROMs (Arsiwala et al., 2021)

Value-based Healthcare as applied to the NICE appraisal process

A major part of the value-based healthcare philosophy is the inclusion of patients within decision-making. This does not appear to take place in one study (Hashem et al., 2018) in relation to single technology assessments (STAs) , which differ from the type of appraisal used for olidupase alfa (highly specialised treatment assessment (HSTA)). In a review of NICE’s STA process, the conclusion reached was that, at that time, there was not a value-based process, and much work would be required to move to a revised methodology (Beale et al., 2014). A further review was undertaken in 2014, the year in which the NICE HTA methodology changed from an ‘end of life’ to a ‘years of quality of life’ basis (QUALY). It was found that the methodology change did not take into account opportunity cost, which may be considered as societal value, for example (Paulden et al., 2014). In 2022, there was a further review of NICE’s processes.

Lee et al. found that the revised processes may lead to a reduced number of successful applications for health technologies used in rare or ultra-rare diseases (Lee et al., 2023).

A review by de Folter et al. considered the value assessment framework in 2018, which is used by NICE. The paper did not conclude that NICE used a VBHC approach within the timeframe considered, however, it did note that a holistic approach is taken by NICE appraisal committees (de Folter et al., 2018).

There would appear to be a number of factors that indicate there is a process enacted that allows for a great deal of flexibility when undertaking appraisals. Brown and Calnan cite a 2009 NICE report (no longer available online) stating that NICE appraisals favour applications involving cancer therapies or those involving drugs for treating diseases relating to children (Brown & Calnan, 2013).

Discussion

This discussion will focus on the research questions set out to be answered via this study. The hypothesis that initiated this study will also be reviewed, leading to a conclusion as to whether or not generic PROMs are deemed effective.

The topic of therapies in rare disease is emotive in part because of the visible symptom burdens observed by individuals and their family or carers, and also due to the impact on children and young people being so prevalent. It is also believed that power struggles and conflicting interests are at play in NICE appraisals (Chang, 2021).

Can 'generic' PROMs (in particular EQ5D and SF-36) be used effectively in health technology assessments in rare diseases?

As noted below, there are a number of limitations to the evidence gathering for this report. In particular, the discussion of the use of the SF-36 PROM is most limited. The EQ-5D PROM is used regularly in therapy evaluation.

Overall, the use of PROMs in rare diseases is seen to be problematic due to the heterogeneous nature of these diseases. With symptom burden varying so much throughout a population, it is troublesome to select a PROM that will cover the full spectrum of symptoms. Many people with a rare disease are young, leading to an inability to complete a PROM themselves. In this situation, proxyPROMs can be used, where another person completes the PROM on the patient's behalf. A degree of subjectivity can creep in and reduce the validity of the data that is produced. These issues can then be compounded by the lack of knowledge relating to specific rare diseases, meaning that the relevance of symptom change is not properly understood.

The review of the use of generic PROMs in NICE health technology appraisals (Meregaglia et al., 2023) offered varied results. Of the 12 rare diseases noted, six (50%) appeared ineffective, four (33%) appeared to show a degree of efficacy and two (17%) (Meregaglia et al., 2023)

Only two reports considered an inherited metabolic disorder, and neither report demonstrated a high level of efficacy. Further evidence against using generic or 'off the shelf' PROMs in rare disease leads to the conclusion that they ought not be used in trials, and most certainly not as an evidence base for health technology appraisals. This leads to a conundrum: how can new therapies for small, complex, and symptom-heterogeneous populations be evaluated?

A further complexity elicited by the findings of this study is the frequency of cognitive disability amongst those with a rare disease, within IMDS, particularly, this is an issue. PROM responses are affected by individual values (Srur A et al., 2024). In situations where the cohort size is small, individual responses hold significant weight and are more likely to be impacted by a variation in people's values.

Are disease-specific PROMs more effective in health technology assessments for rare diseases?

Opinion in favour of using disease-specific PROMs within rare disease is available (Elstein et al., 2022) and PROMs have been developed for a small number of rare diseases. An example is Cushings disease; it was found that two PROMs developed specifically for use with people with this disorder were not sensitive enough to detect changes in cognitive function or depressive symptoms (Knoble et al., 2018). Being such global symptoms affecting the individual this is a significant deficit in the sensitivity of these PROMs. There may be a benefit in the development of a ‘PROM set’ for Cushings disease. A PROM set is a series of previously validated PROMs are used together to give a wider range of factors under review. The International Consortium of Health Outcome Measurement (ICHOM) specialises in this work.

Two disease specific PROMs were considered by Meregaglia et al., the findings again were that they lacked the required sensitivity (Meregaglia et al., 2023). It would appear that the issues that arose with the Asthma Symptom Utility Index may have suffered from development issues related to the heterogenous nature of symptom burden. If the individuals who were involved in PROM validation had a higher symptom burden, the views of those with lower symptom burden may have been omitted. Experience as a patient advocate has demonstrated that those with a lower disease burden are less likely to see support from a non-profit or disease-specific community group. It is possible that this was a factor in the development of this PROM.

There is contrary evidence throughout other literature that a disease-specific PROM is more effective than a generic PROM. An alternative method of measuring outcomes is the use of a PROM developed for a similar disease process. The available evidence appears not to be supportive as it is stated that it is not appropriate use the Gaucher disease 1 PROM with people with Gaucher disease 2 or 3 (Narita et al., 2024) nor should the COPD PROM be used with people alpha-1 antitrypsin deficiency (AAT) (De Soyza et al., 2025). A PROM has been developed to measure outcomes in all three types of Gaucher disease. The long-term efficacy of this PROM is not yet known. This work supports the rationale to develop disease and sub-disease specific PROMs where there are variations in a disease process. Overall, drawing a conclusion based on current literature may be flawed. However, the signals are stronger for the use of disease-specific PROMS than indicate that they ought not be used. It must also be noted that any disease specific PROM must take a holistic view of health and wellbeing.

Is the NICE highly specialised health technology process sensitive to changes in quality of life as measured by PROMs?

The appraisal process undertaken by NICE are multifactorial, including relying on clinical indicators, quality of life (using the EQ-5D-3L PROM (National Institute for Health and Care Excellence, Unknown-b)) and economic considerations. Noting the evidence found that appraisal guidance may vary due to factors such as the disease type or population group, a definitive conclusion on PROM sensitivity and impact is difficult to draw. However, there is evidence within the literature that PROMs are, on occasion, sensitive to changes in health and well-being status (Meregaglia et al., 2023) but the number of positive reports is minimal. This is in part due to the ever-present problem in rare disease research of cohort numbers being small, leading to reliability issues. This means that, although the PROM may demonstrate sensitivity in use, it cannot be taken as conclusive evidence.

Are there grounds to consider the development of a PROM across a range of inherited metabolic disorders?

Examining the more defined area of inherited metabolic disorders remains problematic due to their additional rarity and that the literature offers a minimal evidence base relating to these disorders. The NICE appraisal appeal of olidupase alfa is a demonstration of the difficulties in assessing quality of life changes during a therapy trial (National Institute for Health and Care Excellence, 2025a). Whilst this is a single example of an apparent lack of sensitivity in a PROM used in an IMD therapy trial, the impact on those with ASMD and their families cannot be underestimated. This is, perhaps, an emotional response but one that comes from personal experience of life with an IMD.

The appraisals of both X-linked hypophosphatemia and Fabry disease add weight to the need for further exploration of the potential to develop a PROM for use in IMD. Such a PROM would have further utility in the ongoing management of the disease or diseases selected for research. There are thought to be in excess of 1,450 IMDs (Ferreira et al., 2021). Therefore, any future research and potential PROM production will need to be focussed on either a group of similar IMDs or upon a set of symptoms. The latter may benefit from repurposing a current PROM to a new disease.

Does the NICE review process adhere to principles of value-based healthcare?

The NICE review process came into being in 1999 as a mechanism to assess the cost-effectiveness of new therapies, diagnostics, and technologies. From its conception, it opted to consider social value as part of the appraisal process (Littlejohns et al., 2019). This was seen as revolutionary at the time. It can be argued that this, along with its drive to be evidence-based has made it a world leader in the review of cost-effectiveness and value to both the individual patient and society as a whole.

The evident redaction within many NICE guidance documents restricts the ability to understand how the decisions are made by the committee involved in the decision; a key element missing from the documents is the cost per quality-of-life year (QALY) (National Institute for Health and Care Excellence, 2024a, 2025b). This is potentially due to commercial confidentiality, as some hold the view that NICE works in a very transparent manner (Littlejohns et al., 2019).

Applying the value formula developed by Michael Porter and Elisabeth Teisberg leads to a purely numerical value in the calculation of value (Porter & Teisberg, 2006). This formula considers economic value alone and appears to ignore other factors such as societal value. Whilst the higher the result is, the greater value can be attributed to that health process, there appears to be no minimum value attributed to what is an acceptable value, i.e. it is a purely comparative result.

There are indicators within the work of NICE that suggest that the European Union model of VBHC (personal, societal, technical and economic value (The European Union, 2019)). Most certainly, personal, technical (does the therapy have clinically significant outcomes), and economic value are very much at the forefront of the methods followed by NICE. Societal value is less noticeable as being directly considered. However, carer disutility could be considered as a proxy for societal value. If a parent or carer is unable to work, take part in community or other family activities it is likely that their overall ability to contribute to society may be impacted.

When considered in the round, there are strong indicators that NICE operates within a value-based healthcare approach, albeit not necessarily by design. In particular, the use of patient outcomes mapped against cost is a clear link to early VBHC thinking. A more direct assessment of carer utility along with a more empirical consideration of societal value would enhance the application of VBHC principles. In their final appraisal report for olidupase alfa NICE noted an array of potential benefits that had been discounted. These are stated as uncaptured benefits and include items such as reduction in pain, exercise limitation and fatigue along with many others (National Institute for Health and Care Excellence, 2024a). The lack of inclusion of these factors, which were recorded in vignettes submitted by the manufacturer, may mean that there is an opportunity to revise the appraisal process to become more aligned with value-based healthcare principles. This might be enabled via the use of family reported outcome measures and workforce reported outcome measures. Both seek to record the impact upon both populations. In the case of family report outcome measures the effect upon the workforce of supporting those with a particular condition could be assessed to enable an assessment to be made of the benefit or deficit to the clinical community. The assessment may then be extrapolated to economic benefits in productivity or longevity in their role.

Many current therapies aim to reduce the symptom burden with the introduction of new therapies to enact remission, for example, in cystic fibrosis (Murphy & Caraher, 2016). Whilst remission is welcome, the previous level of disease burden is not reduced. NICE’s model, seeking to assess the improvement in quality of life, is flawed in terms of a value-based healthcare approach. VBHC is very much based upon an individual's desired outcomes. However, the consideration of funding therapies at the national level cannot be determined by an array of personal drivers. Therefore, NICE may never find it possible to take a purist approach to VBHC.

The UK Rare Diseases Framework Priority 4 aims to increase access to improve access to specialist care, treatments and drugs. In this case, a new therapy is available that demonstrably offers clinical benefit (reduction in spleen size, for example). However, the NICE appraisal criteria require demonstrable improvement in quality of life. This leads to the conclusion that there is a lack of synergy across Government policy, albeit that NICE is an independent arms arms-length body.

Advantages of the study

Having brought together an array of literature to consider both the use of PROMs in rare disease, along with an overview of their effectiveness in health technology appraisals in England and Wales.

The literature review consisted of an array of search terms that appear to have elicited a large degree of the sources available, however limited this may have been.

Limitations of the study

This study was carried out using a variety of databases to search the literature for works that were relevant. This has been problematic for a number of reasons, particularly due to the very nature of rare disease, which lacks sufficient research or application of patient-reported outcome measures. Additionally, rare diseases appear to lack priority within the health technology industry. If more health technologies for rare diseases were developed, more disease-specific PROMs may have been created.

Having used secondary research alone, this study relies on the findings and conclusions of others.

Conclusion

This study has sought to examine the issue of a new health technology to treat a rare disease, Acid Sphingomyelinase Deficiency (ASMD), not being approved by NICE due to an apparent lack of evidence demonstrating its ability to improve the quality of life of those who participated in the trials.

In answering the problem statement, it is apparent that NICE health technology appraisals for inherited metabolic diseases, indeed most rare diseases, at times do not accurately assess the changes in quality of life. This has wider implications beyond clinical trials alone, leaving even supportive care outcomes not being open to effective monitoring. The example NICE appraisal of olipudase alfa forms a suitable case study for on which to base further exploration.

The initial hypothesis upon which this research was based is:

> *'Generic' non-disease-specific patient-reported outcome measures are not an effective method for measuring quality of life changes in health technology trials for rare diseases.*

Whilst it is not possible to fully prove a hypothesis, there is strong evidence to state that based upon the evidence reviewed generic PROMs do not effectively measure quality of life changes in many rare diseases. This is likely to be a transferable finding across a wide array of rare diseases, particularly IMDs.

Recommendations

To further improve the reporting of health outcomes of those with a rare disease the following actions are recommended.

- Consider the repurposing of PROMs for a specific disease where there are similarities across the symptom spectrum. A tool to validate such similarities would be of great benefit, and further exploration would be desirable.
- Consider if the development of an inherited metabolic disorder-specific PROM would benefit the IMD community.
- Health technology companies may wish to expand the evidence base submitted for appraisals to include family and carer-reported outcome measures as a way of supporting the case for both societal and economic impacts of their products. Additionally, case adjustment of PROM data against an individuals' values is worthy of further exploration.
- The impact of small cohort sizes is multifactorial and appears to have a major impact on trial data and the outcomes of NICE appraisals.

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Appendix A: The Euroqol ED5D-5L questionnaire (Euroquol, 2021).

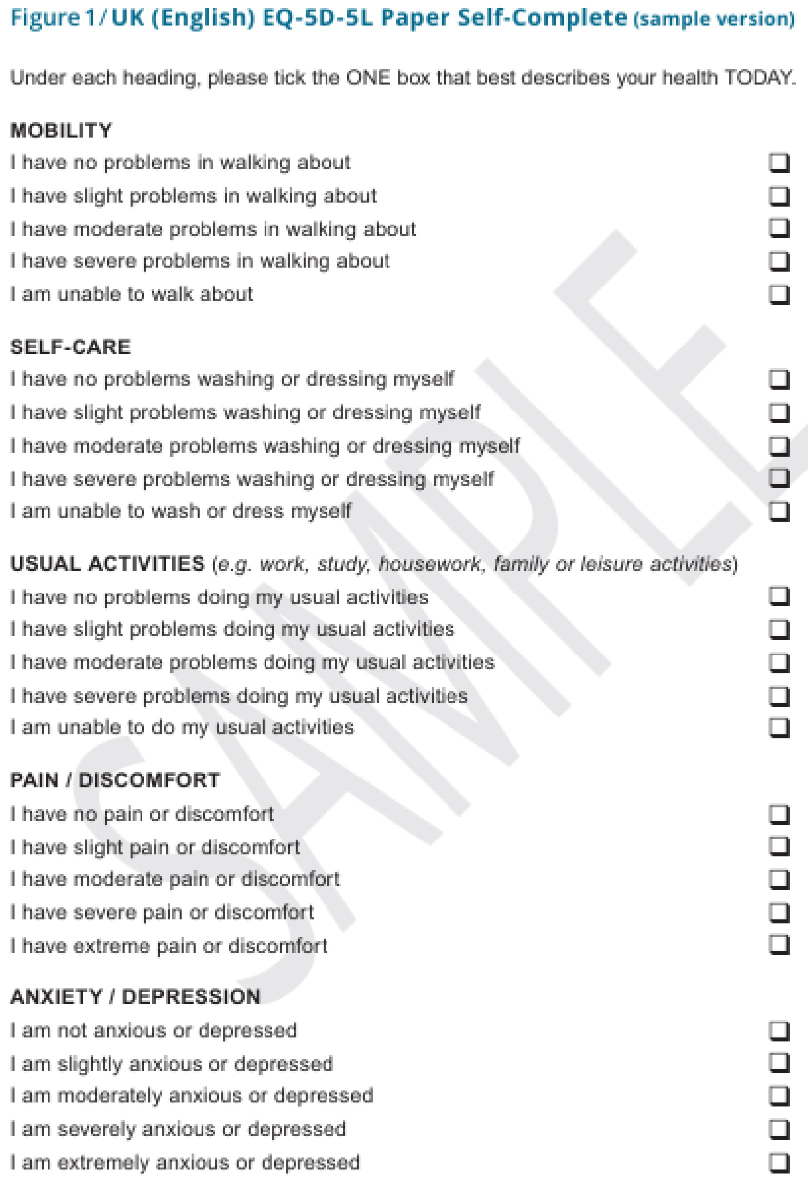


Figure 1 / UK (English) EQ-5D-5L Paper Self-Complete (sample version)

Under each heading, please tick the ONE box that best describes your health TODAY.

MOBILITY

I have no problems in walking about ☐
I have slight problems in walking about ☐
I have moderate problems in walking about ☐
I have severe problems in walking about ☐
I am unable to walk about ☐

SELF-CARE

I have no problems washing or dressing myself ☐
I have slight problems washing or dressing myself ☐
I have moderate problems washing or dressing myself ☐
I have severe problems washing or dressing myself ☐
I am unable to wash or dress myself ☐

USUAL ACTIVITIES (*e.g. work, study, housework, family or leisure activities*)

I have no problems doing my usual activities ☐
I have slight problems doing my usual activities ☐
I have moderate problems doing my usual activities ☐
I have severe problems doing my usual activities ☐
I am unable to do my usual activities ☐

PAIN / DISCOMFORT

I have no pain or discomfort ☐
I have slight pain or discomfort ☐
I have moderate pain or discomfort ☐
I have severe pain or discomfort ☐
I have extreme pain or discomfort ☐

ANXIETY / DEPRESSION

I am not anxious or depressed ☐
I am slightly anxious or depressed ☐
I am moderately anxious or depressed ☐
I am severely anxious or depressed ☐
I am extremely anxious or depressed ☐

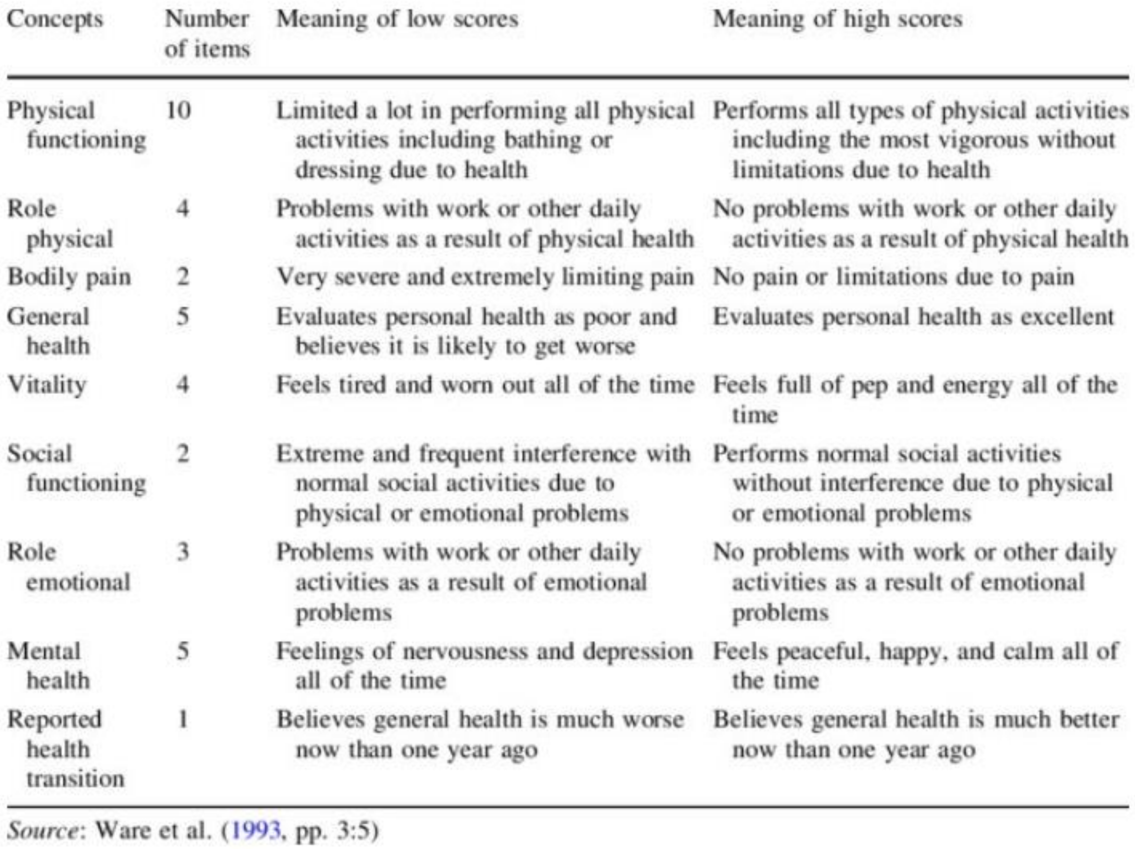
(Euroquol, 2021)

Appendix B: How the research questions were developed using the PICOS model.

Criteria	**Question 1**	**Question 2**	**Question 3**	**Question 4**	**Question 5**
Population	Rare disease	Rare disease	Rare disease, quality of life measured	People with an inherited metabolic disorder	NICE HTAs
Intervention	Quality of life assessment, PROMs	Quality of life assessment, PROMs	Quality of life assessment, PROMs in HTAs	Quality of life assessment, PROMs	VBHC application
Comparison	Generic PROM	Generic vs rare disease specific	Generic PROM vs. literature review	Inherited metabolic disorder symptoms	Traditional healthcare management theory vs. VBHC
Outcome	Experiences, perceptions	Experiences, perceptions	Experiences, perceptions	Experiences, perceptions	Value for user of the HTA
Study Type	Randomised trials, systematic review	Randomised trials, systematic review	Randomised trials, systematic review	Randomised trials, systematic review	Systematic Review

(Costantino et al., 2015)

Appendix C: SF36 short form questionnaire explanation



Concepts	Number of items	Meaning of low scores	Meaning of high scores
Physical functioning	10	Limited a lot in performing all physical activities including bathing or dressing due to health	Performs all types of physical activities including the most vigorous without limitations due to health
Role physical	4	Problems with work or other daily activities as a result of physical health	No problems with work or other daily activities as a result of physical health
Bodily pain	2	Very severe and extremely limiting pain	No pain or limitations due to pain
General health	5	Evaluates personal health as poor and believes it is likely to get worse	Evaluates personal health as excellent
Vitality	4	Feels tired and worn out all of the time	Feels full of pep and energy all of the time
Social functioning	2	Extreme and frequent interference with normal social activities due to physical or emotional problems	Performs normal social activities without interference due to physical or emotional problems
Role emotional	3	Problems with work or other daily activities as a result of emotional problems	No problems with work or other daily activities as a result of emotional problems
Mental health	5	Feelings of nervousness and depression all of the time	Feels peaceful, happy, and calm all of the time
Reported health transition	1	Believes general health is much worse now than one year ago	Believes general health is much better now than one year ago

Source: Ware et al. (1993, pp. 3:5)

About the author

Carl Lander

A Registered Nurse who lives with pyruvate kinase deficiency, a rare anaemia that is one of the inherited metabolic disorders. He has spent a career in the National Health Service across a range of disciplines and roles and has experienced a wealth of his own and others' lived experiences. Carl is Co-Chair of Metabolic Support UK and the International Collaboration Director of the Pyruvate Kinase Deficiency International Alliance, based in the USA. He spends much of his time advocating for better care for those with PK Deficiency, and as a long-standing Peak Registry steering committee member (a global registry of data for those with pyruvate kinase deficiency), has co-authored several papers discussing the impacts of this disorder.

Carl is passionate about advocating for an improved lived experience for people with a rare disease and their caregivers.

A Quadruple Aims Framework to determine the value of a prudent treatment of community-based malnutrition.

Emma Catling
Malnutrition Strategic Lead
Department of Nutrition & Dietetics
Hywel Dda University Health Board
Email: Emma.R.Catling@wales.nhs.uk

Abstract:

Treating community-facing malnutrition using a prudent ‘food-first’ approach may appear obvious and straightforward. The complex systems surrounding the delivery of this Value-based Health Care proposition may impact on its spread, scale, and sustainability. Treatment benefits are noted for the patients, staff, and the systems they are in, with individual outcome measures collected. A wider reporting framework does not exist to strengthen and add transparency to this. To strengthen the treatment of nutrition and hydration within the healthcare setting, a framework has been developed, with outcome and experience measures relating to the ‘food-first treatment’, to capture the wider impact and benefits. It has been shown that this measurement framework may strengthen the spread, scale, and sustainability of the VBHC project, with future areas for research recommended.

Keywords: Malnutrition, Quadruple Aims Measurement Framework, Value-based Health Care, Prudent Health Care, Quality improvement. Spread, scale and sustainability.

TABLES AND FIGURES

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INTRODUCTION

The NHS in Wales is seeking to establish evidence-based medicine treatment plans for implementation, to address equity, quality, and wastage issues. The benefits of using a Value-Based Health Care approach (VBHC; Porter and Teisberg, 2006; Porter, 2010) to support the delivery of the Principles of Prudent Health Care (Welsh Government, WG, 2016) has never been more important.

This report will set-out a prudent nutrition and hydration improvement project to support individuals, and the systems they are in. It will consider the influences impacting on its embedding and wider spread, scale and sustainability across Health and Social care systems.

Project purpose

The aim of this work-based project is to:

Aim 1 Provide a service evaluation of a prudent treatment of community-facing malnutrition, within a Welsh Health Board setting.

Aim 2 Explore how this evaluation may influence a sustainable 'spread and scale' strategy for the implementation plans.

A prudent 'food-first' approach to addressing malnutrition will be implemented, using freshly prepared, cost-effective, fortified milkshakes (FMS). The service evaluation will be presented as a Quadruple aims measurement framework (Bodenheimer and Sinsky, 2014; D'Alleva, et al 2019) to illustrate the wider impact of treatment value, within a community-hospital setting.

A re-useable framework will support the wider spread and scale strategy, identifying enablers and barriers, for the FMS within the local health care system. This will inform the development of tools and approaches to support a wider sustainable system-change.

Traditional treatment for community-facing malnutrition, or undernutrition, often relies on pre-prepared, Oral Nutritional Supplements (ONS; National Institute for Health and Care Excellence, NICE, 2017). They are being increasingly prescribed, with an accompanying associated cost (Rose et al 2020). This medicalised nutritional treatment has limited evidence of effectiveness, both clinically and cost wise, and reported poor tolerance and wastage (Baldwin, Weekes, et al 2021; Thomson et al, 2022; Qin, et al 2022; Lidorinki, et al 2020).

Currently, within the community-hospital, the de-fault for treating undernutrition is often the prescription of ONS for patients at a higher risk of malnutrition. On discharge home, this cost then transfers to the primary care budget, where the prescriptions often automatically renew without clinical scrutiny (Rose et al, 2020; O'Neill et al, 2023).

Implementing the FMS, whilst de-implementing the ONS where appropriate, will present a prudent treatment for malnutrition. They are well-supported and encouraged as part of a 'Food first' approach to managing malnutrition (WG, 2016; WG, 2019; PResQIPP, 2022;). By providing a more timely, non-medicalised, treatment intervention, they can be used to delay the progression of malnutrition, with moderate nutritional risk patients (BDA, 2024).

The implementation plan reflects prudent and Value-based Health Care (VBHC) principles, supported by Welsh legislation, policy, and strategy by Government, professional bodies, and key Stakeholders, summarized in Table 1:

Table 1 Summary of key Guidance.

Welsh Government Legislation	• Social Services and Well-being-Wales Act (SSWBA) 2014 • The Well-being of Future Generations-Wales Act (WFGA) 2015
Welsh Government Policy and Strategy	• A Healthier Wales: Plan for Health and Social care (2018) • NHS Wales Decarbonisation strategy (2021)
Welsh Government Key Stakeholders	• Welsh Value in Health Centres Strategy (2022) • The All-Wales Medicines Strategy (2024-2029) • Bevan Commission 'What a Waste' (2023).

Project outline

The service evaluation will occur take within a community hospital in Hywel Dda University Health Board (HDUHB). It will consider the current position of treatment for malnutrition, the status quo using ONS. VBHC and Quality Improvement (QI) process and methodology will be used to explore the impact of the FMS implementation plan.

Project demographics

The community-hospital is a twenty-eight bedded unit for older adults, of general medical or rehabilitation beds. The unit has a low turnover of patients. They are being prepared for discharge home or placement in longer term care. Attaining and maintaining a good nutritional status is a key part of their care plan, which aligns with the prevention of de-conditioning within NHS Wales health care settings (WG, 2021). The nursing care team deliver the care, with additional support from Allied Health Professionals (AHPs; Physiotherapists, Occupational therapists, and Dietitians), catering and domestic staff.

Project key stages

The project will involve key stages, outlined in Table 2:

Table 2 Projects key stages.

Stage (and expected timescale)	**Actions associated with stage**
1. Pre-implementation of FMS (April-June 2024).	Collect continuous quantitative data to establish base-line measures of patient and system outcomes. Identified process and balancing measures to include: ONS prescribed and taken, weight, Body Mass Index (BMI), nutritional risk scores, Falls data, Tissue damage data.
2. Align data to the Quadruple aims framework for analysis (April-June 2024).	Lower costs; Better outcomes; Improved patient experience; Improved clinician experience.
3. Post-implementation of FMS (July-September 2024).	Analysis of continuous data, as above. Collect qualitative data, via interviews with staff.
4. Consider a tool kit to support the change process (September 2024).	Use information from Stage 3 to consider opportunities for project 'spread, scale & sustainability'.

The main findings of the project will be presented and critically discussed within Section 3, the main analysis, with the on-going relevance and value to HDUHB considered.

A clear summary of the main points covered will close the report, along with key recommendations. These will include considerations to make the proposed change happen sustainably within a wider context across HDUHB.

Identification of project requirements.

The service evaluation will take a VBHC approach, to the planned implementation of FMS, and de-implementation of ONS, within the community-hospital setting.

Establishing and populating a Quadruple aims framework as a measure of project outcomes will ensure the quality and safety of patient care is attained and maintained (Norton and Chambers 2020). Taking this approach will ensure optimal patient-centered, evidence-based care (Glarcher, et al, 2024). Introducing the FMS sooner in the patient care pathway will present a shift towards a preventative approach to treating malnutrition. The system-change surrounding the project will also identify enablers and barriers to its wider spread.

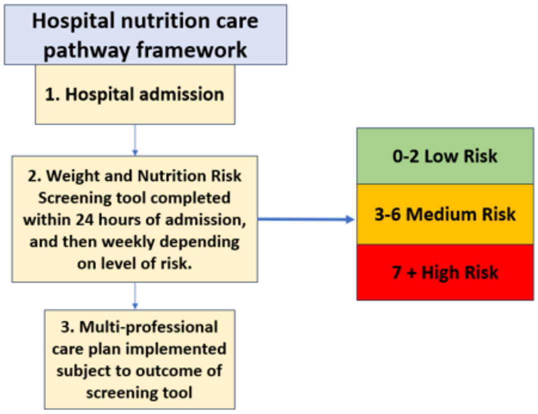
This section will now:

- Clearly identify and set out the work-based project.
- Explain the chosen project design along with the research considerations to address the established aims from Section 1.1
- Ensure the above addresses the relevance and value of this project to HDUHB, the organisation, to support an on-going change process.

Project timeline and research purpose.

The nutrition and hydration-related processes central to this project will now be set out, to give context to the research purpose. Understanding the patient nutritional risk assessments as underpinning processes within the health care setting, will establish the influence and impact of the spread and scale of the FMS implementation plan.

Within Health care settings in Wales, there is a mandatory requirement to weigh and screen all inpatients to calculate their nutritional risk, (NHS Wales 2019; Welsh Nursing Care Record, WNCR, 2021, Appendix: A). The level of risk determines the patient's nutritional care plan and actions required by the nursing team. Figure 1, illustrates this assessment process.



3. Nutritional care plan outcome:

0-2 Low Risk: repeat in a week.

3-6 Medium Risk: incl monitoring and record food intake, encourage milky drinks and additional snacks.

7+ High Risk: incl refer to dietitian, follow prescribed dietetic care plan, commence appropriate nutritional supplements.

Figure 1 illustrates the inpatient nutritional care pathway.

This stepped approach to addressing malnutrition within the community hospital, can be seen to recommend 'milky drinks and additional snacks' for medium nutritional risk inpatients. Local observations suggest a default within the health care setting of automatically prescribing ONS, which often do not appear to be completed. This suggests a place for a planned implementation of FMS where appropriate, and de-implementation of ONS as a first-line treatment for malnutrition.

The important additional step within the process will be the catering staff producing the FMS for the ward nursing team to distribute.

Measurement plan

The work-based project will collect outcomes measurement data to inform the QI and VBHC aspects of its focus. This will be used to populate and guide a Quadruple Aims measurement framework, designed to present a holistic approach to capturing the change implementation, and inform possible spread and scale. Established QI methodology will structure the measurement plan (see Appendix B), establishing outcomes, process, and balancing (control) measures for the project (Davidoff et al 2015; NHS Institute 2021). Table 3 populates the four Quadruple aims, the source of data collection along and how it will be presented within the main analysis section.

Table 3 shows data collection and its presentation for each Quadruple Aim.

Aim 1: Improve clinical nutrition associated outcomes for inpatients.	**Method and source of data collection.**	**Presentation of data.**
Weight and BMI.	Digital Nursing Clinical records.	Run charts.
Nutrition Risk Score.	Digital Nursing Clinical records.	Box-Whisker graphs.
Whole Ward Falls & moisture tissue damage.	Safety cross and System reporting data.	Run charts.
Aim 2: Improve costs associated with treating malnutrition.	Method and source of data collection.	Presentation of data.
Amount of prescribed ONS charted and taken.	Drugs charts and usage audit.	Usage, waste & cost calculated and tabulated.
Amount of FMS used.	Ward inpatient signage and usage audit.	Usage, waste & cost calculated and tabulated.
Aim 3: Improved patient experience.	Method and source of data collection.	Presentation of data.
Amount of ONS & FMS taken.	Usage and Wastage audit measuring volumes of ONS & FMS taken.	Tabulated quantities of volumes taken or not.
Qualitative questioning of staff as a proxy of the patients' perspective.	Staff interviews.	Graphs and comments.
Aim 4: Improved clinician experience.	Method and source of data collection.	Presentation of data.
Staff training.	Nutrition champions training.	Number attended, to be monitored.
Staff interviews.	Semi-structured scoping interviews, with themes collated.	Quotations and table capturing themes.

Project design and research considerations.

The project design and its associated research considerations will be examined to ensure it is methodologically sound to answer the project aims and objectives. Taking a practical service evaluation approach will provide an assessment of how well the service provision and implementation plan is achieving its intended aims (Twycross and Shorten 2014). The results will be used to generate information, which will populate the Quadruple aims framework, to support local decision-making, and influence the opportunity for project spread and scale.

The service evaluation model considers the key layers set out by Saunders et al (2016). The pragmatic and practical approach lends itself to a mixed methodology of data collection, both qualitative and quantitative, for a comprehensive understanding of service performance. It will adopt a more deductive approach to assess whether the service is meeting the delivery expectations and provision of actionable insights. A longitudinal approach will be taken to track the impact of the intervention.

Ethical approval

Research ethical approval for the project was gained through Swansea University School of Management Research Ethics Board in June 2024 (see Appendix C). A Data Protection Impact Assessment (see Appendix D) was completed by the student and the Information Governance Department of HDUHB in June 2024, confirming all data collected to be non-identifiable.

Summary and review of project aim and objectives

The project aims to provide a service evaluation of a prudent treatment of community-facing malnutrition, within a Welsh Health Board setting.

It will do this by:

- Determining a reusable measurement framework for the FMS implementation strategy FMS, based around the Quadruple aims Framework.
- Evaluating the impact and 'value-added' of introducing the FMS, to service users and the health system.
- Highlight considerations to support the sustainable 'spread and scale' of the intervention.

Main Analysis

Introduction

This section will now outline, and critically analyse, the main findings of the project. This will take a narrative literature review approach, to provide increased theory relating to the associated topics. It may potentially include limited emergent cited literature and unconscious biases of the author, (Fan et al, 2022 and Snyder, 2019).

The first part of this main analysis will present and evaluate the collected data measurements, assigned to each of the Quadruple Aims, in Table 3. Their effectiveness addressing each aim will be considered, with alternative measures suggested. Their influence in supporting the VBHC proposition of the work will be examined. They will reflect a timeline of:

- Pre-implementation of the FMS (ONS exclusively used).
- Post-implementation of the FMS (ONS were de-implemented, where appropriate).

Due to the collaborative nature of the project, there was a delay to one of the key stages set out in Table 2. The FMS planned introduction date moved from July to August 2024. Limitations associated with the data collection will be considered. The second part of the main analysis will explore the impact a measurement framework may have supporting the sustainable spread and scale of the implementation plan, within other care settings in the Health Board. It will consolidate the key enablers and barriers noted during the FMS implementation, which disrupted the status quo. Using this analysis, conclusions and key recommendations will be made in the final two sections of the report.

Quadruple Aim 1: Improve clinical nutrition associated outcomes for inpatients

Each of the clinical nutrition outcome measures, assigned to Aim 1, in Table 3, will now be considered. Longitudinal evidence populating each measure will be presented, with its effectiveness in addressing the outcome critically analysed.

Weight and BMI

The data for weight and BMI will be discussed together, due to their close association. They are established important and effective collection measures in long-term patient care, (Tamura, et al 2013; BAPEN, 2015 and BAPEN, 2018). Their accuracy and capture support the nutritional risk screening process used within the community hospital. Whilst the weights and BMIs are recorded weekly, for this service evaluation a fortnightly measurement was documented, to allow for a manageable data set.

The measurements for the female and male patients were collected separately, to establish any differences between the sexes (Strube-Lahmann, et al, 2021).

Figures 1 & 2 illustrate the run charts for the mean weights and BMIs of the female patients within the community hospital from the start of the project (May-July 2024), with the FMS implementation highlighted (August 2024).

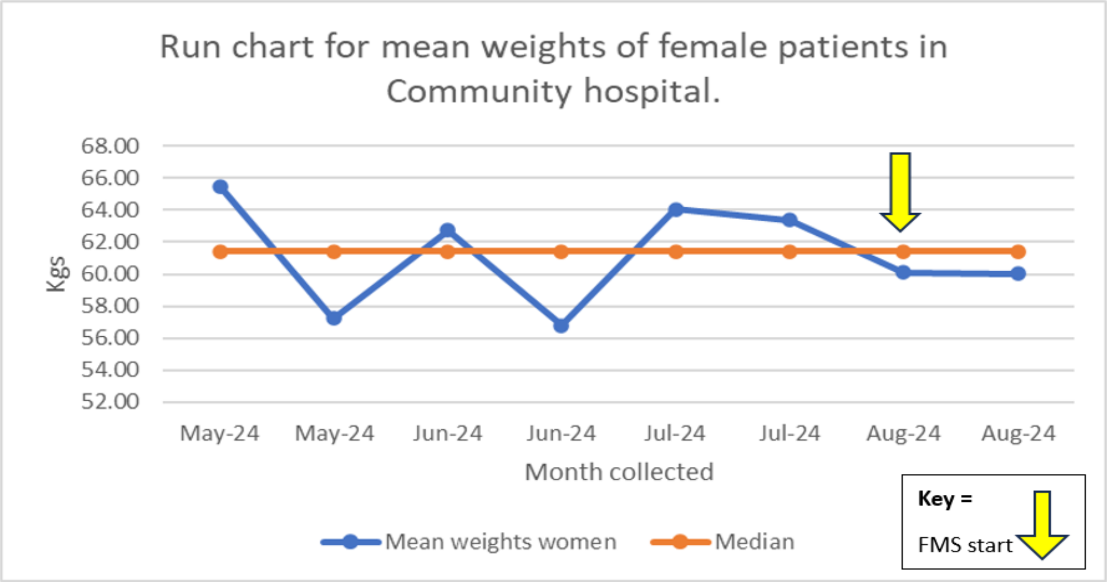


Figure 2 Female inpatients mean weights.

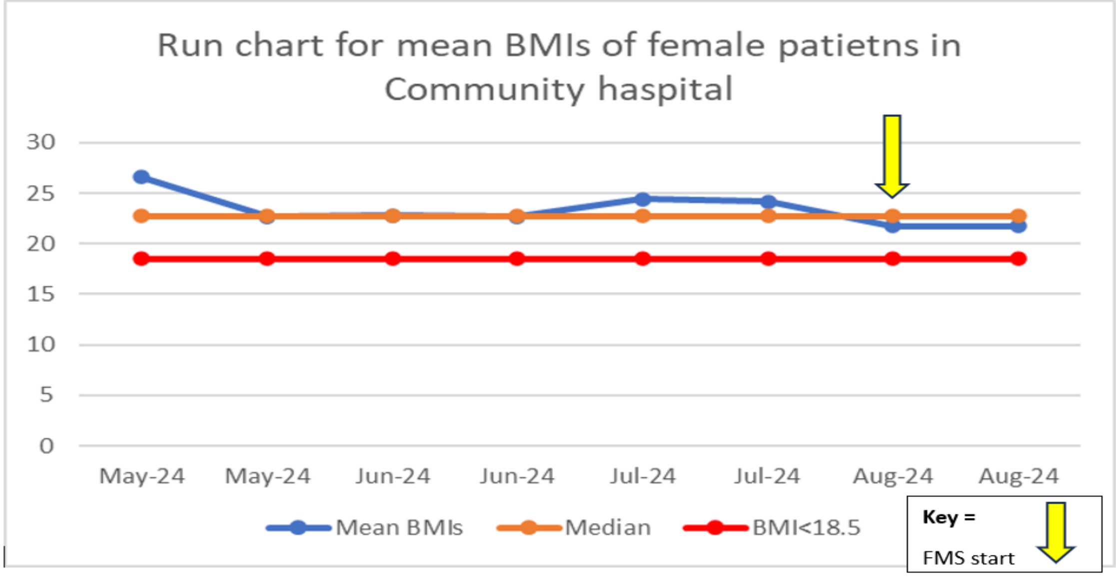


Figure 3 Female inpatient mean BMIs.

The inpatient population represent a static group within the ward setting, providing benefits from using run charts to analyse their data (NHS III, 2021). The mean weights and BMIs are stable, with slight fluctuation reflecting small changes in patients' medical condition. Both Figures have the calculated median line plotted, for weight and BMI, illustrating whether any variation for the group is random or non-random.

As the FMS change was introduced towards the end of the project reporting time, a limited amount of data was collected after it. Caution needs to be taken interpreting the run charts, and making observations around possible shifts, trends, and runs within the chart data (Perla et al, 2011).

Figure 2 also has a red line plotted at a BMI of 18.5, illustrating a patient presenting a much higher nutritional risk (NICE Clinical Guidelines 2017). Whilst this does not present a specific lower control limit for the data, as it is the median BMI that has been plotted not a mean (Shah, 2019), it is an important data line to note. It provides a lower benchmark for the population's nutritional status. Similarly, Figures 4 & 5 illustrate the run charts for the mean weights and BMIs of the male patients, noting the FMS implementation (August 2024).

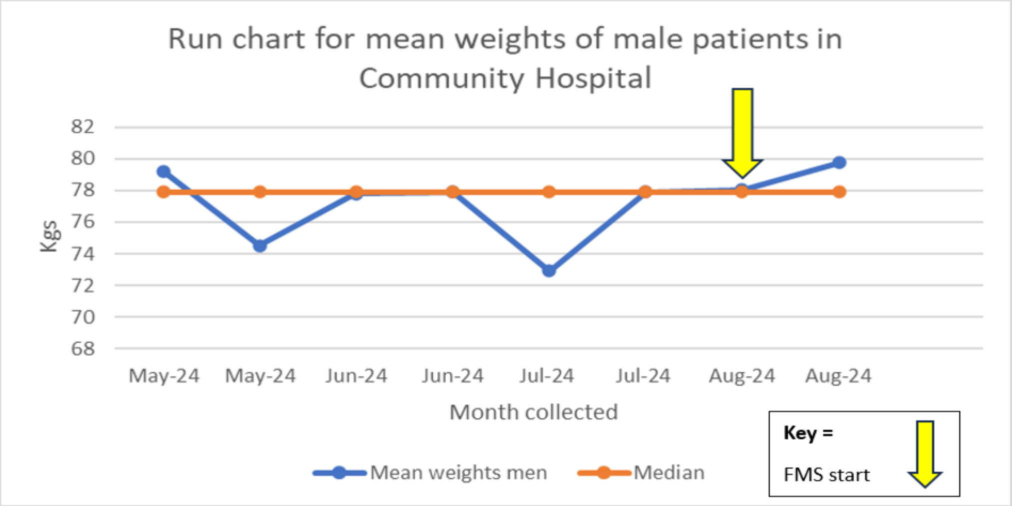


Figure 4 Male inpatients mean weights.

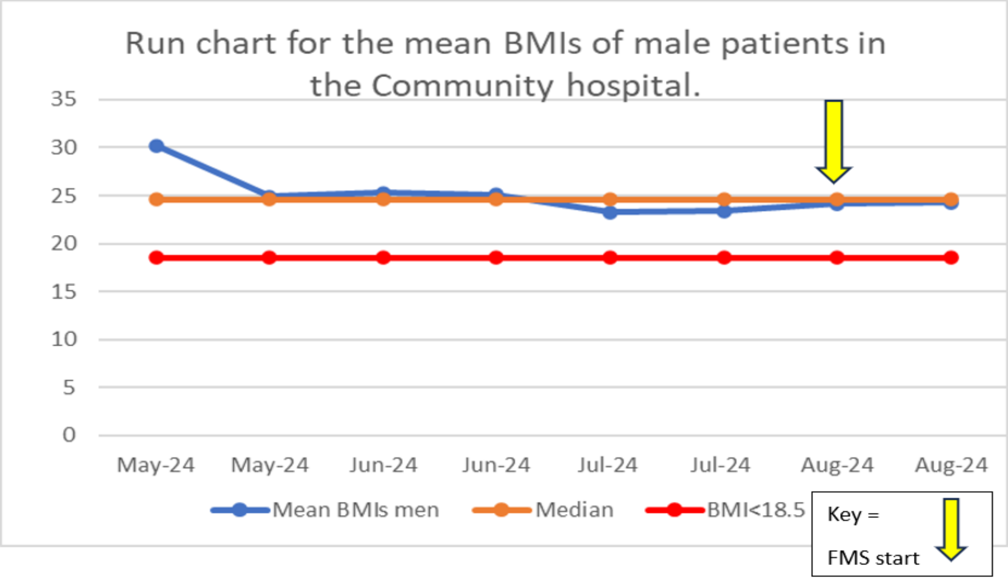


Figure 5 Male inpatients mean BMIs.

The same critical analysis can be applied to Figures 4 and 5 for the male inpatietns as were for Figures 2 and 3 for the females.

On-going weight and BMI data needs to be collected to provide a full-service evaluation of the implemented change, and any clinical outcome value attribution. Run charts are being used increasingly in health care monitoring to support illustrating change as an improvement, (Wraqas et al 2024)

The evaluation benefited from having accessible digital nursing records, however the collection and took time. This may be perceived as a potential barrier to collation completion. Moreia and Crispin (2024) suggest for health information systems to reach their full VBHC benefits, data collection, analysis and sharing, needs to be considered. This will provide a key enabling factor to support potential digital capability and developments. Using an automatically populated data visualization tool, such as a digital dashboard, could strengthen the VBHC benefits gained collating data (Varela-Rodriguez et al, 2022).

To enhance the reporting surrounding the VBHC benefits of the FMS treatment-plan, collecting outcome measures as reported by the patient or health care professionals, should also be considered. By cross-referencing the quantitative measures of weight and BMI with either Patient or Clinician Reported Outcomes Measures (PROMs or CROMs), a more VBHC-focussed way of capturing the value added could be achieved (Prendiville, 2016; Lewis,2021; Sprink, 2024).

Nutrition risk scores (NRS)

The importance of regular and accurate nutritional risk screening is well documented, for older adults within health care settings (Volkert, et al 2019 and BAPEN, 2018).

As illustrated in Figure 1, the patients NRS will determine the nutritional care pathway the nursing staff place them on. The NRS were collected from the digital nursing records at five weekly intervals, and collated. Figure 6 illustrates the NRS for the ward, at five weekly intervals.

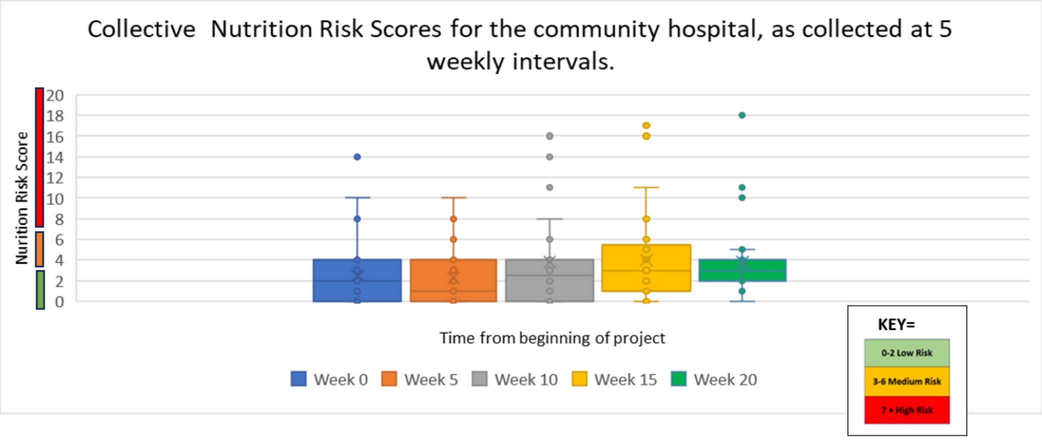


Figure 6 NRS for the community hospital ward.

The boxplots in Figure 6 show:

- The variation of NRS within the ward group for each of the five weekly intervals they were gathered.
- A comparison of the ward's collective NRS as multiple data sets, as each of the five weekly intervals is collated.

The analysis of weeks 0 and 5 data showed that the median of the scores was towards the low NRS category (0-2), indicating 'no action required' from a nutrition care plan perspective. This suggested a limited demand for the FMS implementation plan. Due to the ward cohort being older adults, this was less medium and high NRS risk patients than expected (BAPEN, 2022).

Timely identification, to support a preventative and prudent treatment of malnutrition, is central to this implementation plan, reflecting a VBHC whole-system approach (Welsh Value in Health, 2022). It is key to delivering the patient and system benefits of preventing hospital-acquired malnutrition and deconditioining (Cass and Charlton, 2022; WG, 2021).

Due to the lower-than-expected number of medium and high-risk patients identified, some additional training was provided for the whole nursing team staff. This training, a presentation and case studies, was conducted with the ward dietitian and took place during weeks 5-15.

From weeks 10-20 a shift can be noted towards more medium nutritional risk patients being identified. Between weeks 15-20 the FMS were implemented, and an upwards movement in the median of the NRS can be seen. This is ensuring that more moderate nutritional risk inpatients are being identified, and therefore receiving preventative treatment for malnutrition in the form of the FMS. Again, a strong role for data visibility to support the VBHC proposition associated with the NRS can be seen.

Falls and acquired tissue pressure damage.

Both inpatient falls and acquired tissue pressure damage have close causative associations with malnutrition, (Lackoff et al, 2020; Munoz et al, 2020). Whilst having an obvious patient impact, a wider system benefit of quality of service and improved outcomes is an enhanced legal duty within Health and Social care legislation in Wales (WG, 2020).

To establish any system-wide improvement to clinical nutrition outcomes associated with the FMS implementation, whole-ward data was considered. QI methodology, of data collated and collected from safety crosses (Shah, 2019), and wider Health Board systems was used. The incidence of both reported falls and pressure damage were plotted and presented in Figures 7 and 8 respectively.

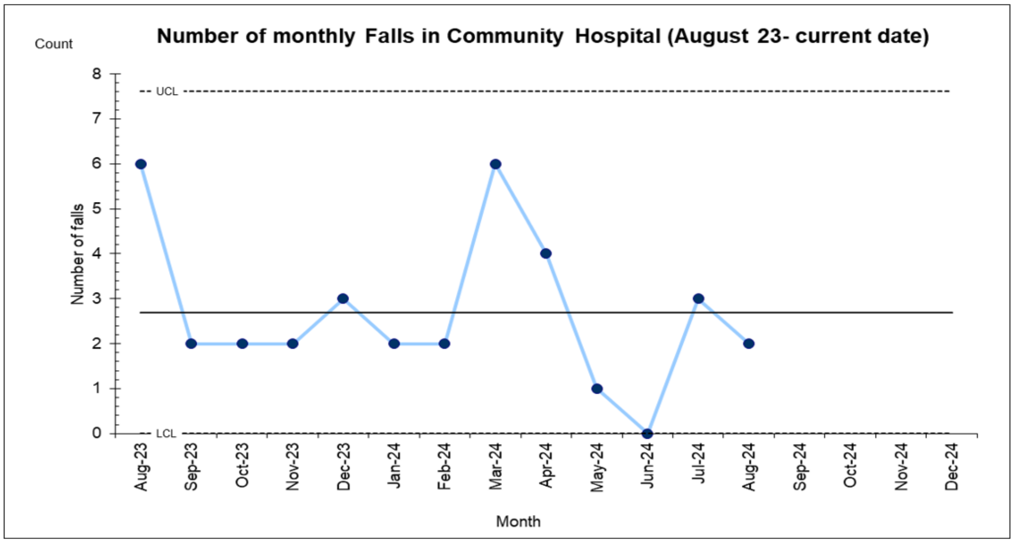


Figure 7 number of monthly falls reports.

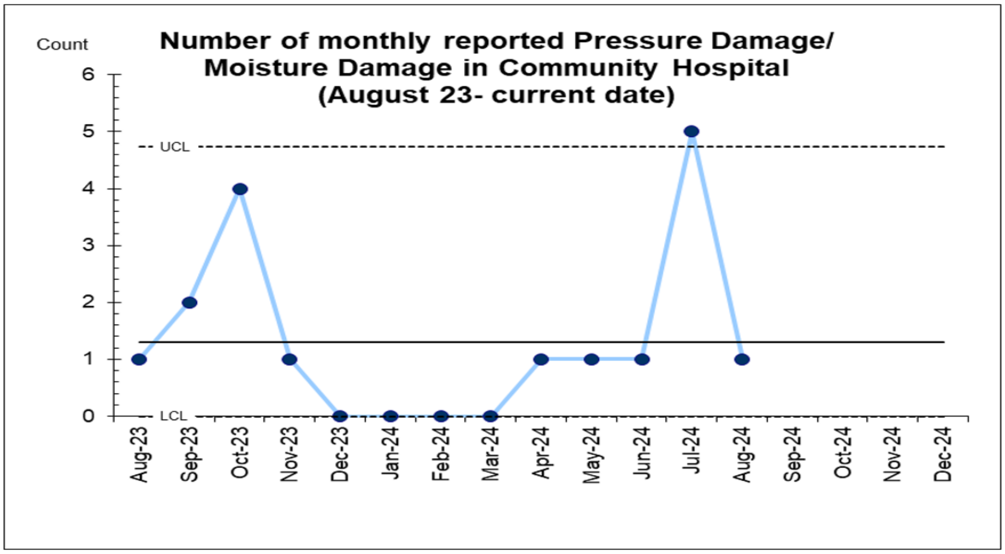


Figure 8 number of monthly pressure damage reports.

The fluctuation in incidences of both, can be noted in Figures 7 & 8. By using the control chart, with a mean center line, and upper and lower control limits (UCL and LCL), any system-wide change associated with the implementation plan can be noted (Shah, 2019). Due to the delay in FMS implementation, any attributable impact within the data sets cannot be made yet. Other system-wide measures, closely linked to malnutrition (Mitchell and Porter, 2015) such as hospital length of stay and presentation of Acute Kidney Injury could also be presented here.

Using system-wide data that is accountable and drives improvement, is important to underpin the VBHC propositions associated with this project. By using nutrition and hydration focused measures, a regular monitoring framework, performance analysis and areas to assess improvement can be generated. Fulop and Ramsay, 2023 suggest a combination of 'hard' quantitative performance data and 'soft' data discussions, with clinicians and patients, to support the process of improvement. This suggests an enhanced role for a Quadruple aims framework, as it reflects both Quantitative and Qualitative data.

Quadruple Aim 2: Improve costs associated with treating malnutrition.

The cost effectiveness of treating malnutrition and its associated conditions is well documented, (Elia, 2015; NICE, 2017). The associated cost improvement with implementing the catering funded FMS plan, and de-implementing the medicines-management funded ONS will now be presented.

The wider improved health outcomes considered in points 3.2.2 and 3.2.3 will have cost savings attributable to them but have not been quantified within this project.

Tables 4 & 5 present the pre- and post-implementation costs and usage of the ONS and FMS, and set out the:

- Amount prescribed or prepared per day, and its associated total cost.
- The average daily amounts taken in:
- 2 consecutive weeks in May 2024 (ONS)
- 2 separate days in August 2024 (FMS)
- The amount discarded and not taken as planned.

Table 4 illustrates the status quo of using the prescribed ONS medical model pre-intervention, to treat malnutrition in identified high-risk patients only (NRS =7 and above).

Table 4 ONS amount taken, discarded and associated costs.

	Prescribed amount ONS/day	Average daily amount taken. (week 1)	Average daily amount taken. (week 2)	Average daily amount discarded. (week 1)	Average daily amount discarded. (week 2)	Discarded ONS as average % of prescribed amount.
Per day Litres	**1.50**	**0.97**	**0.92**	**0.53**	**0.58**	**36.6%**
Cost per day (£)	**8.40**	**5.4**	**5.15**	**3.00**	**3.25**	**-**

36.6% of the prescribed ONS were discarded, illustrating the concerns of The Bevan Commission (2023) surrounding waste of NHS resources. Exploring the patients reasoning behind non-completion of the ONS was not undertaken but would have provided an insight into this wastage. This refusal by the inpatients to finish the prescribed dose, fits with Verkerk et al (2018) summary of low-value care either reflecting a medical, system or patient perspective. The patient is declining the ONS as it does not fit their preferences and is therefore unwanted care.

Table 5 FMS amount taken, discarded and associated costs.

	FMS amount prepared	Average daily amount taken. (day 1)	Average daily amount taken. (day 2)	Average daily amount discarded. (day 1)	Average daily amount discarded. (day 2)	Discarded FMS as Average % of prescribed amount
Per day Litres	**3.00**	**2.80**	**2.70**	**0.20**	**0.30**	**8.3%**
Cost per day (£)	**8.40**	**7.81**	**7.53**	**0.56**	**0.84**	**-**

At the start of August 2024, the ONS were de-implemented, and the amount prepared, taken, and discarded for the FMS calculated, summarised in Table 5.

By comparing the results of Table 4 and 5 for the same total cost per day, double the amount of FMS was prepared, compared to the ONS prescribed. This increased volume ensured that the FMS plan was treating both the medium and high-risk patients (NRS = 3-6 and 7 and above), supporting a preventative approach to treating malnutrition, for the same cost.

More importantly the discarded amount of FMS as a percentage of the prepared amount was only 8.3%, compared with 36.6% of the ONS. It is important to note that the FMS wastage data was collected over a smaller period, so ongoing monitoring of this will be important.

Additional improvements to other costs, such as IVI fluids, laxatives, and treatment of UTIs through antibiotics, could also be considered here.

These findings provide useful considerations when evaluating the wider allocative value attributed to the FMS implementation (European Expert Panel, 2019). Budgetary silos and resource allocation suggest more of a role for the planning of care and services around the patient.

Quadruple Aim 3: Improved clinician experience.

Focusing on the staff experiences influenced by this project is also key to its successful implementation, particularly from a VBHC perspective (Sikka et al, 2015; Lai and Fleuren, 2024). Semi-structured interview questions (Appendix E) were designed to explore the staff experiences, including any change and impact it may have had on their satisfaction in work.

The original project plan was going to focus more time on the staff interview questions; however, the start of the FMS implementation was delayed. The staff interview questions ended up as more of a scoping of process, as the implementation plan was only just beginning to embed. All staff were made aware that ethical approval for the project had been received, and that all answers would be treated in confidence.

Eight informal scoping interviews with staff took place, with the participants selected based on their involvement with the FMS implementation project. They included a mix of professions, including members of the nursing team (senior staff, staff nurses, health care support workers) and AHP covering the community hospital. The small number of staff interviewed were noted due to limitations with the implementation timelines.

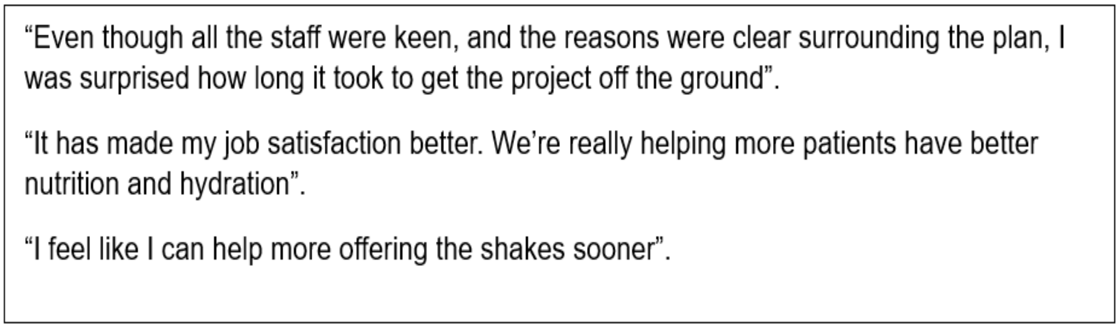
The open questions used were already themed to consider any changes in their job satisfaction before and after the FMS Implementation. The replies were manually transcribed and collated according to the themes that emerged. Themes were scored based on the number of times they were mentioned.

Table 6 combines the themes of the interview answers, and whether they can be perceived as facilitators or barriers to the ongoing spread and scale of the FMS project.

Table 6 Staff interview answers collated with thematic analysis.

Thematic analysis	Facilitators	Barriers
Collaboration /MDT teamworking	Teamworking to support patients working well, everybody having same goal and purpose.	Getting project going was difficult due to different working streams. Need to join up some of the thinking, but it is early days.
Education training on job satisfaction	Nutrition champions training across all nursing care team, including frailty support workers. Education helped join everyone together as well.	Trying to find protected time to complete additional nutritional screening eLearning package.
Flexibility of delivery of FMS Vs fidelity to recipe	Good to allow the ward themselves to plan and decide where it will work better for them provided flexibility.	Need to continue embedding the process, still early days.
Patient centred.	Timing of rounds. Good to work it out ourselves.	Sometimes it is relying on the same people that remember too much.

Additional comments from the staff interviewed included:



"Even though all the staff were keen, and the reasons were clear surrounding the plan, I was surprised how long it took to get the project off the ground".

"It has made my job satisfaction better. We're really helping more patients have better nutrition and hydration".

"I feel like I can help more offering the shakes sooner".

Despite the limited number of staff interviewed, there positive themes surrounding a shared focus, and improving quality and safety, which Lai and Fleuren, 2024 suggest ensures 'meaning and meaningfulness is for staff. This further strengthens the Quadruple aims focus of this plan, and highlights how important staff are in securing spread, scale and sustainability of projects.

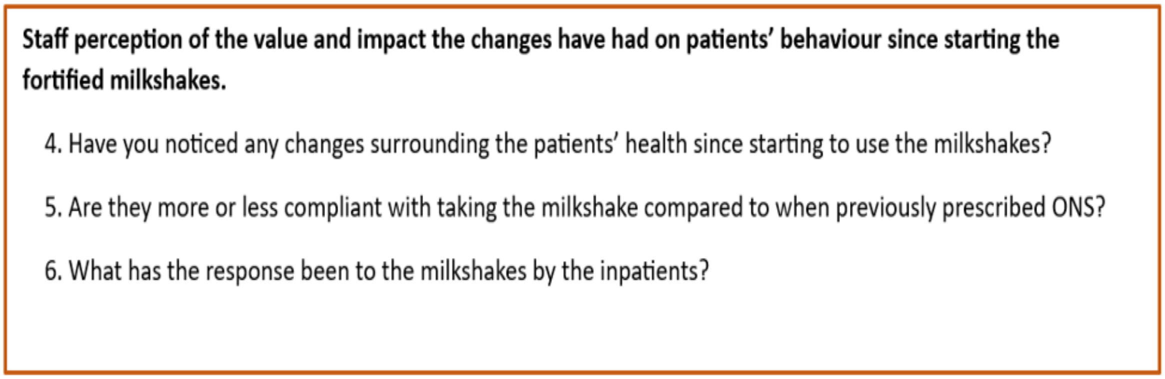
Quadruple Aim 4: Improved patient experience.

The importance of assuring an improved patient experience from a VBHC perspective is well established, (Ocloo et al, 2020; Sprink, 2024), with Patient Reported Experience Measures (PREMs) a key priority for health care. As direct patient experience and feedback were not able to be obtained for this project alternative methods of gauging this needed to be found.

Within the measurement considerations aligned with an improved patient experience in Table 3, the amount of FMS taken or discarded compared with the ONS and has been discussed in Section 3.3.

This highlighted the waste associated with the prescribed ONS, and a possible preference and improved patient experience associated with the FMS.

The qualitative questioning of the staff, as shown in Figure 9, as a proxy measure of the patients' perspective and experience will now be presented.



Staff perception of the value and impact the changes have had on patients' behaviour since starting the fortified milkshakes.

4. Have you noticed any changes surrounding the patients' health since starting to use the milkshakes?
5. Are they more or less compliant with taking the milkshake compared to when previously prescribed ONS?
6. What has the response been to the milkshakes by the inpatients?

Figure 9 shows the ward staff questions relating to the patients' experience.

Figure 10 summarises the responses of the staff questioned, and whether they noticed any qualitative changes in the health of the patients.

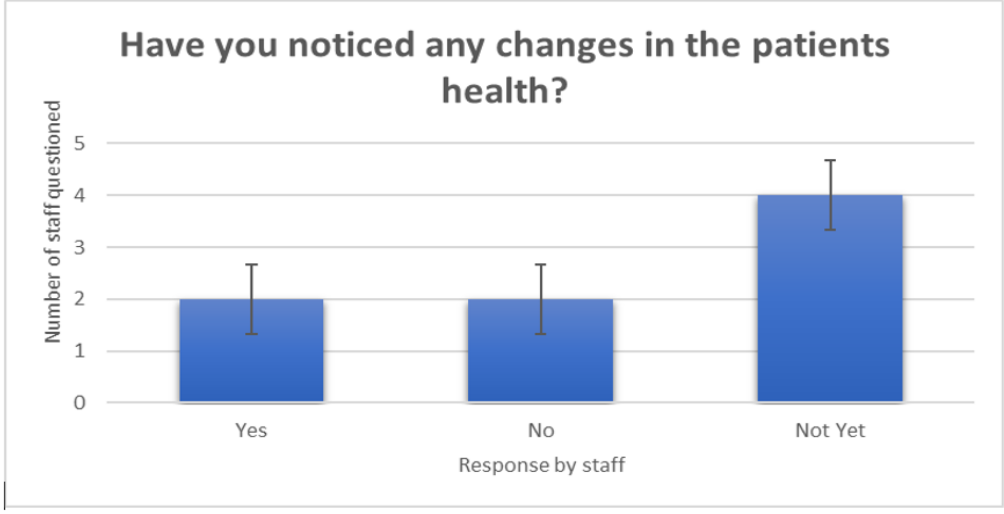


Figure 10 staff responses to patients changes in health.

A spread across the three answers, with the 'not yet' option being the most populated can be noted. Due to the limited number of staff questioned, early into the FMS implementation phase of the plan, these results need to be interpreted with caution. It provides a more subjective question to the evaluation process and will be worth repeating again.

Figure 11 illustrates whether the staff perceive the patients to have been compliant with the FMS, compared with the ONS.

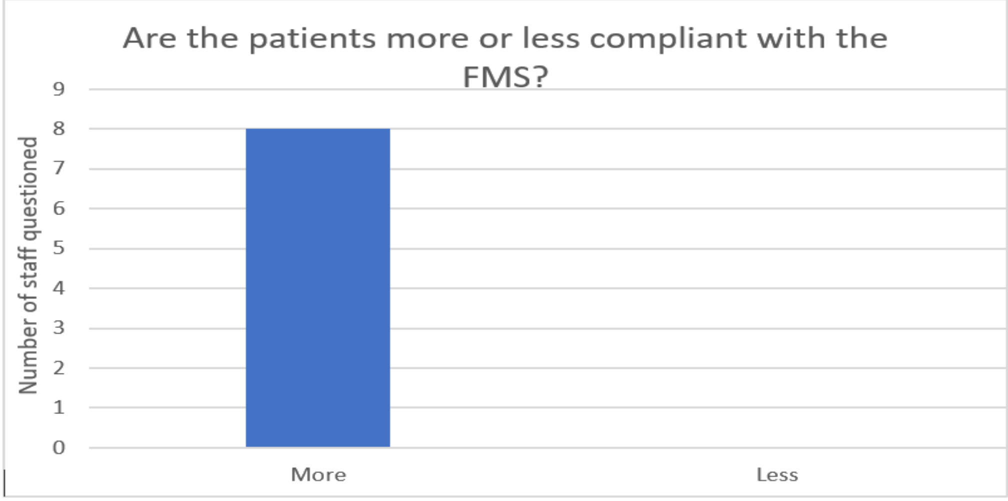


Figure 11 patients' compliance with FMS.

Figure 11 shows a clear improved patient compliance with the FMS, as perceived by the staff, which was confirmed by the wastage results in Section 3.3.

Additional positive comments also received from the staff interviews included:

> "One patient actually reminds us of when it's time for the Milkshake round, he enjoys them so much".
>
> "They seem to be really enjoying them".

As stated, due to the project timeline and ethical approval process, any direct patient contact for experience, have not been gathered. It is essential for healthcare providers to consider a patient-centered perspective, to achieve the Quadruple Aim approach, and optimize care-value and quality (Sassen, 2023). Despite this emphasised importance, a low patient engagement has been noted, at an organisational level in VBHC initiatives (van der Voorden, et al, 2023). This confirms the knowledge gap in VBHC research with the core element of what matters most to the patient proving difficult to capture for many reasons. This may be key to support and strengthen some of the ongoing spread, scale and sustainability of projects.

Limitations

It is important to note the key limitations surrounding this work-based project, along with their associated potential impact on the results obtained. This will ensure that their influence on the outcomes and conclusions of the service evaluation can be considered and mitigated for within future projects.

They include:

- Limited time to conduct a proper service evaluation, as the time after the FMS implementation was not long enough to provide comparative pre and post data.
- The staff interviews were brief and difficult to ascertain improved experience attributable to the change.
- More emphasis on patient experience needed, to ensure project achieves true Quadruple Aims focus.

Review of influences on the project to strengthen the spread, scale and sustainability of the health care improvement plans.

The findings of the service evaluation have been presented, and critically appraised. They consider the population of each Quadruple aim, to support the VBHC propositions associated with the FMS implementation, for the patients, staff, and wider health care system.

Achieving the first aim of the project, to populate and set out a proposed Quadruple Aims framework (illustrated in Section 5) will provide an on-going evaluation tool to measure the impact of the FMS implementation. This will provide a mechanism to monitor the progress of the implemented change, during the first phase of spread and scale of the project, to establish the associated VBHC delivered. In turn, this could strengthen the wider sustainability of the project, across different health and care settings in HDUHB. The importance of scalability, with localities learning from established working models of good practice, is emphasized within the ‘A Healthier Wales’ (WG, 2018) document. However, Papoutsi, et al (2024) observe that few interventions that achieve local healthcare improvements end up being spread and sustained more widely.

This part of the main analysis will now address the projects second aim of identifying the key influences (positive and negative) on the sustainability of the FMS implementation plan, as a transformative treatment approach. The learning from the first part of this main analysis, combined with the established strength of evidence, and associated policy and guidance in Wales will be considered. How this can be used to influence change disruption will be explored.

This will provide an opportunity to make wider recommendations within Section 5 of this report, surrounding the spread, scale, and sustainability of this work-based project.

The simplicity of using the FMS as a transformative change of nutritional treatment is logical and very real. It is underpinned by wider clinical improvements and cost efficiencies from the timely identification and treatment of addressing community-facing malnutrition, strengthening the need for change, (Elia, 2015; BAPEN 2015 and 2018). Achieving this within a prudent, food-first treatment plan is supported and encouraged (WG, 2019; BDA, 2024; O’Neill et al 2023). Disrupting the status-quo, and de-implementing the ONS, where appropriate, should be a realistic, strongly driven care-delivery goal.

Implementing the FMS demonstrates the delivery of VBHC with improved outcomes and experiences achieved using an equitable and sustainable use of resources. Hurst et al (2019) considers the importance of having a robust measurement framework surrounding this, to support and prioritise any change-implementation, drive developments, capture system performance and improved patient outcomes. The Quadruple Aims measurement framework addresses this robustly.

This is strengthened by alignment with the rhetoric guidance in Health and Social care in Wales over the last decade, (WG, 2016; Bevan commission, 2023; Welsh Value in Health center, 2022; WBFGA, 2015).

Reducing waste, using a strong evidence-base and providing equity and equality through service delivery should all be prioritised. Mannion (2022) suggests that the cultural change needed to achieve improvement and good quality care, should be encouraged by Health Care policy.

Despite this strength of evidence (clinical, policy and reporting), and the accompanying simplicity and authenticity of using a 'food-first' approach with the FMS, delays and effort were noted getting the project to its current point. Disrupting the system to achieve the change required presents a key challenge. This suggests potential spread and sustainability issues when attempting to both embed and scale the work.

Organisational change

Introducing new ways of doing things, at a time when healthcare is evolving, modernising and becoming more complex may create implementation challenges. When presented with compelling evidence to support the delivery of a 'new way of doing things', using the prudent and VBHC approach of the FMS, the justification for the need to change becomes easier to defend.

Gray (2023) suggests when introducing changes to get better value from healthcare, the overarching impacting factors on an organisations' change and improvement work are culture, systems, and structure. Figure 12 highlights their interdependent influence and relationship, on organisational effectiveness, and has been adapted to include the influences on the FMS implementation plan, which may in turn explain some of the initial embedding issues with the project.

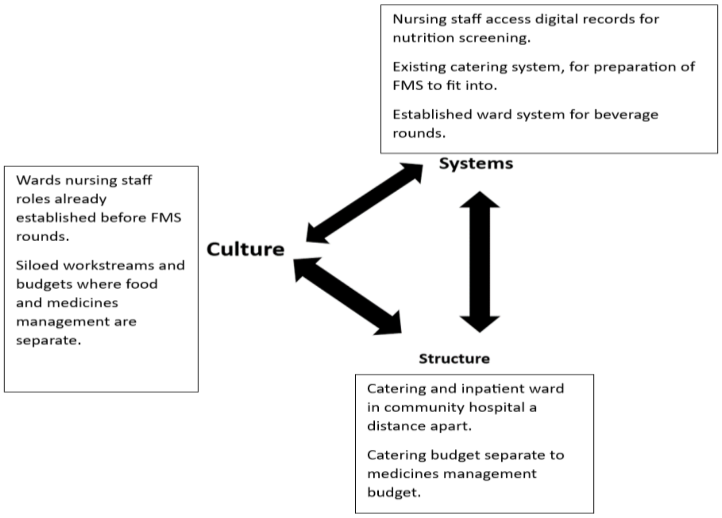


Figure 12 Culture, systems, and structure in relation to the FMS plan.

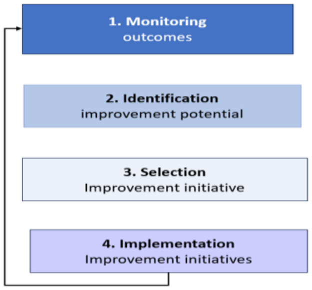
For the FMS implementation, these three components were relevant influencing factors for consideration within this project. However, while they provide an overview of key considerations for VBHC projects, it is possibly an over-simplified and linear overview of the influencing components. Greenhalgh et al (2012) recommends focusing on more complex organisational and system-level learning to support innovations, instead of short-term outcomes and smaller sets of contexts. Having the Quadruple Aims measurement framework for the FMS project will further strengthen the importance of reporting. This may in turn enhance embedding the spread and scale of the implementation project, with Veerle van Engen 2024 noting no 'golden standard' for VBHC implementation, and difficulties with scalability.

Organizational frameworks to support 'spread, scale and sustainability'.

The variety of outcomes populating the FMS Quadruple Aim Framework, suggests a complex relationship and web of enabling conditions to support the spread and scale of the FMS implementation plan. Just considering reporting outcomes, and their frameworks in isolation is not going to be sufficient to embed change within the system, to be a disruptor for the status quo. It is within the wider Organisational framework where the spread, scale and sustainability may be supported to happen.

Van Veghel et al (2020) suggest using an outcome-based improvement cycle to examine the organizational context in which the outcome measures exist, which they base on McKinsey's 7S model. This will reflect a more complex, less linear approach to evolving and implementing change, and be a more realistic consideration to consider supporting successful sustainability.

Figure 13 is an adapted version of their outcomes-based improvement cycle to consider the organizational context supporting addressing malnutrition, for the FMS implementation plan within the community hospital. Monitoring the outcome measures can be seen to be one part of the cycle, with each of the different elements bringing their own level of influence, as barriers or facilitators to the spread and scale the project.



Element	Short Description
1. Strategy	Importance of nutrition and hydration within HDUHB policies.
2. Governance (structure)	National quality and safety Governance structure for Nutrition and hydration.
3. Culture (shared values)	'Making malnutrition matter' key part of business as usual
4. Leadership	Prioritised nutrition and hydration post to provide strong leadership.
5. Infrastructure (systems)	Some IT infrastructure (NRS screening) supports QI process.
6. Staff	Prioritising all staff involvement in addressing malnutrition.
7. Skills	Nutrition training and e-learning for staff seen as a key improvement priority.

Figure 13 Outcome-based improvement cycle for the FMS implementation plan.

Influences as barriers or facilitators to spread, scale and sustainability.

For the FMS plan, the organisational change and the developed measurement frameworks to support establishing the value, will provide the context for the planned implementation to exist. Braithwaite et al (2020) suggests when moving onto consider a sustainability framework there is a limit to the reporting of how improvement programmes evolve and how implementation strategies can be adapted to work at either individual, organisational or even community level.

Implementation plans within health care will have both intra and extra-organisational influences on them, re-enforcing Cote-Boileau et al (2019) description of a 'complex web' of enabling conditions for spread and scale. They suggest that if the program can be adapted over time, as an iterative process with distributed leadership an enabling environment for spread and scale can be created.

Within this enabling environment remains the important consideration for the FMS implementation plan of how much it can be adapted or maintain true integrity (Slaughter et al 2015).

For the FMS plan achieving fidelity to the recipe (PresQIPP, 2022) is key, as this has been designed to provide a comparable nutritional profile to the ONS. However, the delivery and practical implementation at patient and ward level can be subject to more adaptability. This was something a few of the ward staff commented on during their interviews, they were finding their own way with the routines surrounding the patients, demonstrating a shared ownership of the process.

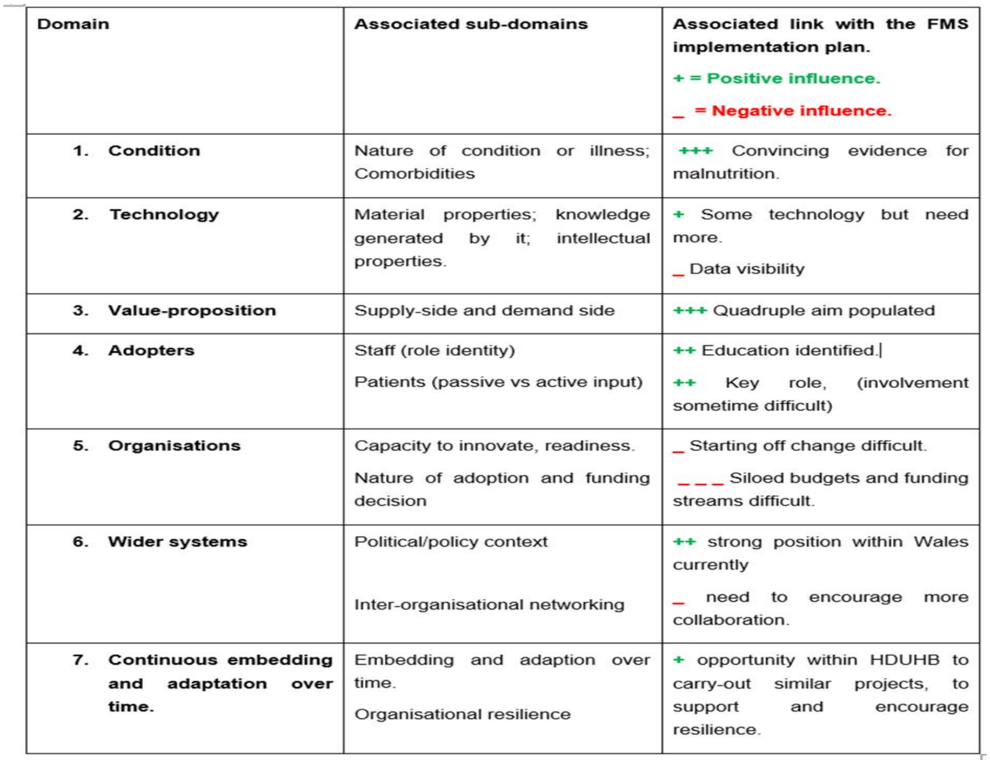
This 'local agreement' and facilitating arrangement will ensure the 'day to day' provision of the FMS, however to provide further robustness and sustainability Papoutsi et al (2024) overview of frameworks, models and theories to enhance and expand influencing factors on spread, scale and sustainability. They provide a more layered and analytical approach to support projects, including strong recurrent themes such as leadership, human resources, communication and collaboration.

For this work-based project within HDUHB embedding the FMS as a 'new status quo' is key.

Applying one of the spread and scale frameworks will provide an opportunity to consider the FMS plan applied within one of these. Due to the complexity and interdependencies within the system when addressing nutrition and hydration issues, Greenhalgh et al 2017 NASSS Framework will be applied to the implementation plan. The NASSS (Non-adoption, abandonment challenges to scale-up, spread and sustainability) framework include seven domains, and associated sub-domains. Rather than consider the domains diagrammatically Table 7 sets them out to include an additional column, and to consider adaptation for the FMS implementation plan.

This adaption considers some of the themes that have been highlighted during populating the Quadruple aims framework. The FMS column highlights whether the domain and sub-domain may provide an associated positive or negative influence on the roll-out. It is the fluidity of some of the 'push and pull' factors and their effect on the work-based project, which may change with time will provide the most significant influence. Adaptability to this changing working environment will provide the biggest key for the on-going success of the project.

Table 7 illustrates the NASS Domains, sub-domains and identified influences for the FMS plan.



Domain	**Associated sub-domains**	**Associated link with the FMS implementation plan.** **+ = Positive influence.** **_ = Negative influence.**
1. Condition	Nature of condition or illness; Comorbidities	+++ Convincing evidence for malnutrition.
2. Technology	Material properties; knowledge generated by it; intellectual properties.	+ Some technology but need more. _ Data visibility
3. Value-proposition	Supply-side and demand side	+++ Quadruple aim populated
4. Adopters	Staff (role identity) Patients (passive vs active input)	++ Education identified. ++ Key role, (involvement sometime difficult)
5. Organisations	Capacity to innovate, readiness. Nature of adoption and funding decision	_ Starting off change difficult. _ _ _ Siloed budgets and funding streams difficult.
6. Wider systems	Political/policy context Inter-organisational networking	++ strong position within Wales currently _ need to encourage more collaboration.
7. Continuous embedding and adaptation over time.	Embedding and adaption over time. Organisational resilience	+ opportunity within HDUHB to carry-out similar projects, to support and encourage resilience.

Main analysis summary

Evidence to populate the Quadruple aims framework has been presented, along with the influencing facilitators or barriers to the spread, scale, and sustainability of the FMS implementation plan. Varela-Rodriguez (2022) suggests that favoring sustainability needs to be central to any real VBHC innovation. Currently VBHC is importantly focusing on outcome measurement to contribute to quality improvement work, however Zipfel (2019) says it does not offer a systematic approach to implement improvements. More importantly, Huxtable (2023) recommends a need for evaluations to consider the adoption, diffusion and spread of VBHC projects, with a need for robust performance frameworks.

It is how transformative VBHC is measured for its wider impact that will determine its future success, with Hoban et al (2024) encouraging the need for a coordinated mechanism to support shared learning and innovation.

Conclusion

This section will now summarise the main findings of the project.

The project achieved its overarching aim of completing the service evaluation of a prudent treatment for community-facing malnutrition, within a Welsh Health Board setting.

This was completed using the VBHC approach of a Quadruple Aims Framework, to determine the associated value of using a FMS to treat, and prevent, malnutrition progression, within a community hospital.

The project objectives associated with this aim have been addressed and include:

- Produce a reusable VBHC-focused measurement framework was determined for the FMS implementation strategy, based around the Quadruple aims.
- The project found wider additional performance measures to be considered for populating each of the Quadruple Aims, illustrating the need for a holistic approach to service-delivery outcomes setting.
- The impact and 'value-added' by introducing the FMS, to service users (including patients and staff) and the Health and Care system was evaluated. This was noted to be significantly wider than just clinical outcomes measures.
- This work-based project can be seen to align with several National pieces of work within Wales that are setting the direction and policy for improvement, standardisation, support the delivery of prudent VHBC service delivery.
- Important considerations have been made to consider the key influencing factors to support the sustainable 'spread and scale' of the intervention, to move it from a more locally accepted transformation to a regional, and even national one.

From the main analysis and conclusion sections, key recommendations surrounding this work-based project, will now be made.

Key Recommendations

The practical elements of conducting the work-based project, and associated recommendations, have been considered within the limitations section (3.6).

This section will now list the main key outcomes relating to this VBHC transformative project, with an awareness of their relevance to the Organisational work of HDUHB, the project host. How the recommendations could be developed to support its wider national spread, scale and sustainability will also be considered.

1. Using the data populating each of the Quadruple Aims in the main analysis a simple reporting framework has been designed, Figure 14.

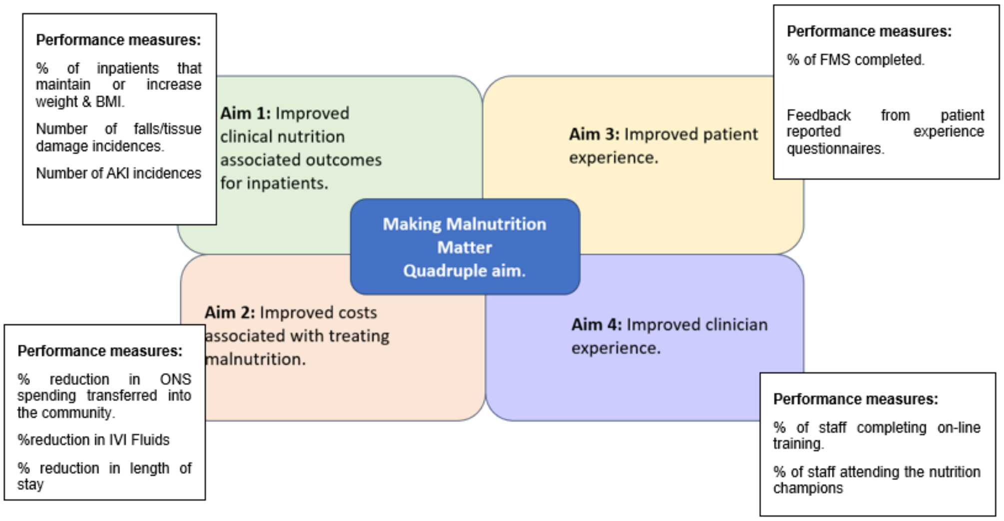


Figure 14 Quadruple aims measurement reporting framework.

NHS Wales uses the same Quadruple Aims structure as part of its annual Performance Framework, (WG, 2024). Using this approach will add strength and validity to the reporting process for the nutrition and hydration-focused work, which will also support its applicability on a national level as a reporting mechanism. When setting the performance measures, the key priority areas that need consideration can be included, and these may change with time.

2. The importance of data and ensuring its accuracy is key. A well-constructed QI measurement framework, considering the outcomes, process, and balancing measures, has supported the validity of the data captured to populate the Quadruple aims within this project. This has utilized data already being gathered surrounding the care of the patient, making it even more purposeful, and important to consider with on-going project work.
3. The role of further data digital capability needs to be considered, with opportunities to visualize data within a dashboard format presenting a way to encourage service transparency. The further triangulation of data, linking nutrition risk scores to falls or pressure damage data would also be a useful digital connection. However, it is important that health care systems ensure they maintain governance around the accuracy of data entering it, to prevent errors occurring.
4. Using the Quadruple aims framework ensures the important views and opinions of both patients experience and staff investment are captured for a true holistic approach to addressing wider health care matters. On-going ways to achieve this, whilst maintaining ethical considerations for the organisation needs to be prioritized.
5. The complexity of the system the FMS implementation plan was influencing affected the outcome of the delivery pathway, when considerations of spread, scale and sustainability were made. There is a need for a wider 'whole-system approach' to tackling issues such as malnutrition, to move away from systems-siloed thinking. A strategic overview could then determine the approach to address the wider benefit for both service-users and systems.
6. In addition to siloed-thinking, more open systems around budgeting, and adequate resourcing, would also support change implementation. A more holistic look at the true allocative value of a change needs to be considered, and budget flexibility to support all parts of the system providing patient-centered care.
7. Additional future research to further challenge the processes surrounding the FMS implementation plan could include an ethnographic study to observe more of the human interactions surrounding some of the decisions being made, explaining why the patients may be declining the ONS. Additional considerations surrounding the time-associated with activities, and a possible Time-Driven Activity Based Costing (TDABC) exercise would also explore the wider VBHC considerations attributed to the work.
8. Strong leadership and stakeholder engagement can be considered key recommendations to encourage a positive Organisational culture, one which is ready to embrace change. Using a positive approach within the project setting was seen to gain initial engagement of all. The challenges of maintaining this to support the sustainability of the project remains real. An adaptable approach needs to be taken when moving onto the next phase implementors.
9. An outcome-based improvement cycle is a useful framework to examine where and what the facilitators and barriers to change implementation may be. This in turn can move onto use spread and scale frameworks, to highlight possible areas that may be affecting the sustainability of a project, to ensure the VBHC propositions of the work are attained.
10. This project has noted a research gap for a reusable VBHC framework to support implementing the spread and scale of transformative projects. If created, this would provide a method of supporting projects to achieve their full potential, strengthening their impact within complex and competitive systems.

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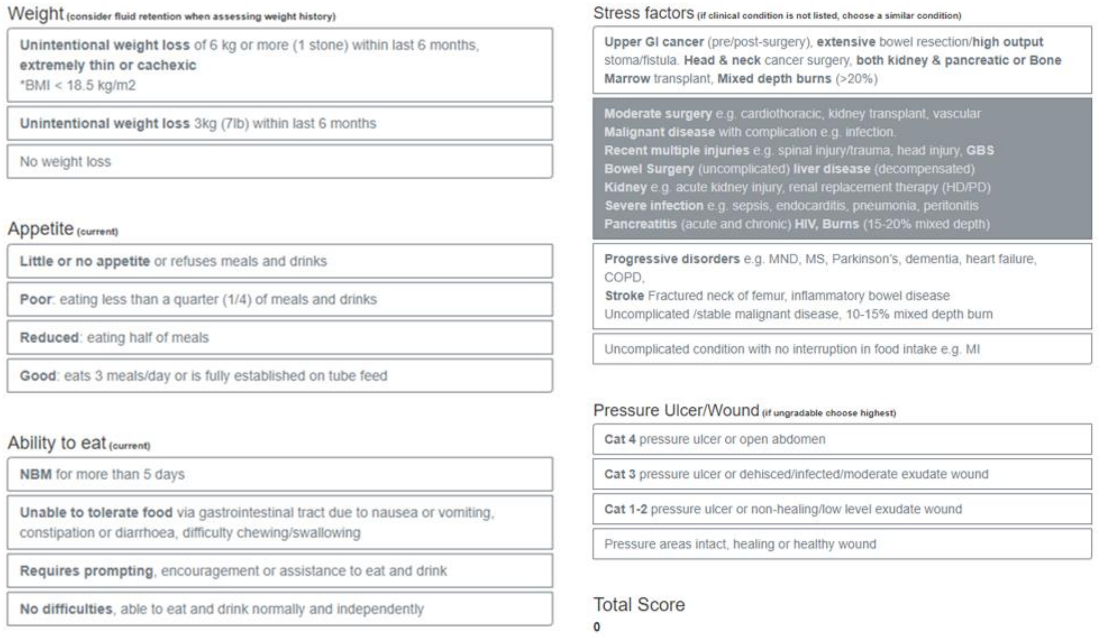
Appendix A: Screenshots of Ward nutritional screening



Weight (consider fluid retention when assessing weight history)

Unintentional weight loss of 6 kg or more (1 stone) within last 6 months, **extremely thin or cachexic**
*BMI < 18.5 kg/m2

Unintentional weight loss 3kg (7lb) within last 6 months

No weight loss

Appetite (current)

Little or no appetite or refuses meals and drinks

Poor: eating less than a quarter (1/4) of meals and drinks

Reduced: eating half of meals

Good: eats 3 meals/day or is fully established on tube feed

Ability to eat (current)

NBM for more than 5 days

Unable to tolerate food via gastrointestinal tract due to nausea or vomiting, constipation or diarrhoea, difficulty chewing/swallowing

Requires prompting, encouragement or assistance to eat and drink

No difficulties, able to eat and drink normally and independently

Stress factors (if clinical condition is not listed, choose a similar condition)

Upper GI cancer (pre/post-surgery), **extensive** bowel resection/**high output** stoma/fistula. **Head & neck** cancer surgery, **both kidney & pancreatic or Bone Marrow** transplant, **Mixed depth burns** (>20%)

Moderate surgery e.g. cardiothoracic, kidney transplant, vascular
Malignant disease with complication e.g. infection.
Recent multiple injuries e.g. spinal injury/trauma, head injury, **GBS**
Bowel Surgery (uncomplicated) **liver disease** (decompensated)
Kidney e.g. acute kidney injury, renal replacement therapy (HD/PD)
Severe infection e.g. sepsis, endocarditis, pneumonia, peritonitis
Pancreatitis (acute and chronic) **HIV, Burns** (15-20% mixed depth)

Progressive disorders e.g. MND, MS, Parkinson's, dementia, heart failure, COPD,
Stroke Fractured neck of femur, inflammatory bowel disease
Uncomplicated /stable malignant disease, 10-15% mixed depth burn

Uncomplicated condition with no interruption in food intake e.g. MI

Pressure Ulcer/Wound (if ungradable choose highest)

Cat 4 pressure ulcer or open abdomen

Cat 3 pressure ulcer or dehisced/infected/moderate exudate wound

Cat 1-2 pressure ulcer or non-healing/low level exudate wound

Pressure areas intact, healing or healthy wound

Total Score
0

Appendix B: QI Measurement Framework

Category	Name of measure	Units of measure	Numerator	Denominator	Source	Notes
Outcome	Weights - Weight	Mean weight	Sum of individual weights (kg)	Number of patients.	WNCR	Time run chart. Weekly plot.
	- BMI	Mean BMI	Sum of individual BMIs	Number of patients.	WNCR	Time run chart Weekly plot.
	WAASP score	Risk score.	Number	Per week	WNCR	Box-whisker plots.
	Falls	Number of falls.	Number		Ward records safety cross being completed daily. System reporting.	Run charts of incidences
	Tissue & moisture damage	Number of incidents	Number			
Process	Weekly completion of weights.	% of patients	Number of weights recorded.	Beds numbers	WNCR assessments records	Time run chart. Weekly plot
	Delivering nutrition champions training.	Staff attended	Number of staff completed training			Time run chart with target number plotted.
Balancing (control)	ONS used.	Units ordered.	Number	Weekly	Drugs charts	Costing associated.
	Staff surveys. ONS waste before implementation, and after with shakes.	Qualitative interviews				

Appendix C: Swansea University ethics

Swansea University
Prifysgol Abertawe

Approval Date: 25/06/2024

Research Ethics Approval Number: 1 2024 9868 8973

Thank you for completing a research ethics application for ethical approval and submitting the required documentation via the online platform.

Project Title	A Quadruple Aims Framework to determine the value of a prudent treatment of community-based malnutrition.
Applicant name	MRS EMMA CATLING
Submitted by	MRS EMMA CATLING /
Full application form link	https://swansea.forms.ethicalreviewmanager.com/Project/Index/11935

The Humanities and Social Sciences ethics committee has approved the ethics application, subject to the conditions outlined below:

Approval conditions

1. The approval is based on the information given within the application and the work will be conducted in line with this. It is the responsibility of the applicant to ensure all relevant external and internal regulations, policies, and legislations are met.
2. This project may be subject to periodic review by the committee. The approval may be suspended or revoked at any time if there has been a breach of conditions.
3. Any substantial amendments to the approved proposal will be submitted to the ethics committee prior to implementing any such changes.

Specific conditions in respect of this application:

The application has been classified as Low Risk to the University.

No additional conditions.

Statement of compliance

The Committee is constituted in accordance with the Governance Arrangements for Research Ethics Committees. It complies with the guidelines of UKRI and the concordat to support Research Integrity.

Humanities and Social Sciences Research and Ethics Chair

Swansea University.

If you have any queries regarding this notification, then please contact your research ethics administrator for the faculty.

- For Science and Engineering contact FSE-Ethics@swansea.ac.uk
- For Medicine, Health and Life Science contact FMHLS-Ethics@swansea.ac.uk
- For Humanities and Social Sciences contact FHSS-Ethics@swansea.ac.uk

Dyddiad Cymeradwyo: 25/06/2024

Rhif Cymeradwyo Moeseg Ymchwil:

Diolch am gwblhau cais moeseg ymchwil am gymeradwyaeth foesegol ac am gyflwyno'r ddogfennaeth ofynnol drwy'r platfform ar-lein.

Teitl y Prosiect	A Quadruple Aims Framework to determine the value of a prudent treatment of community-based malnutrition.
Enw'r Ymgeisydd	MRS EMMA CATLING
Cyflwynwyd gan	MRS EMMA CATLING /
Dolen i'r ffurflen gais lawn	https://swansea.forms.ethicalreviewmanager.com/Project/Index/11935

Appendix D: Hywel Dda University Health Board Approval form

GIG CYMRU NHS WALES | Bwrdd Iechyd Prifysgol Hywel Dda University Health Board

Processing Requiring Approval

Title: Service Quality Improvement Project:

Quadruple aims framework to determine the value of treatment for community-based malnutrition.

Ref. HDIGQ-5956

Authors:
Review Required: <IG Manager/Head of IG>
Approval Required: <Head of IG Manager/DPO/Deputy SIRO/Caldicott Guardian>

Date: 12/10/2022

Address of Organisation:
Bwrdd Iechyd Prifysgol Hywel Dda / **Hywel Dda University Health Board**
Ysbyty Cyffredinol Bronglais / **Bronglais General Hospital**
Adeilad Delfryn / **Delfryn Building**
Aberystwyth / **Aberystwyth**
Ceredigion / **Ceredigion**
SY23 1ER

✉ E-bost/Email: Information.Governance.HDD@wales.nhs.uk
☎ Rhif Ffôn/Telephone External: 01970 63 54 42

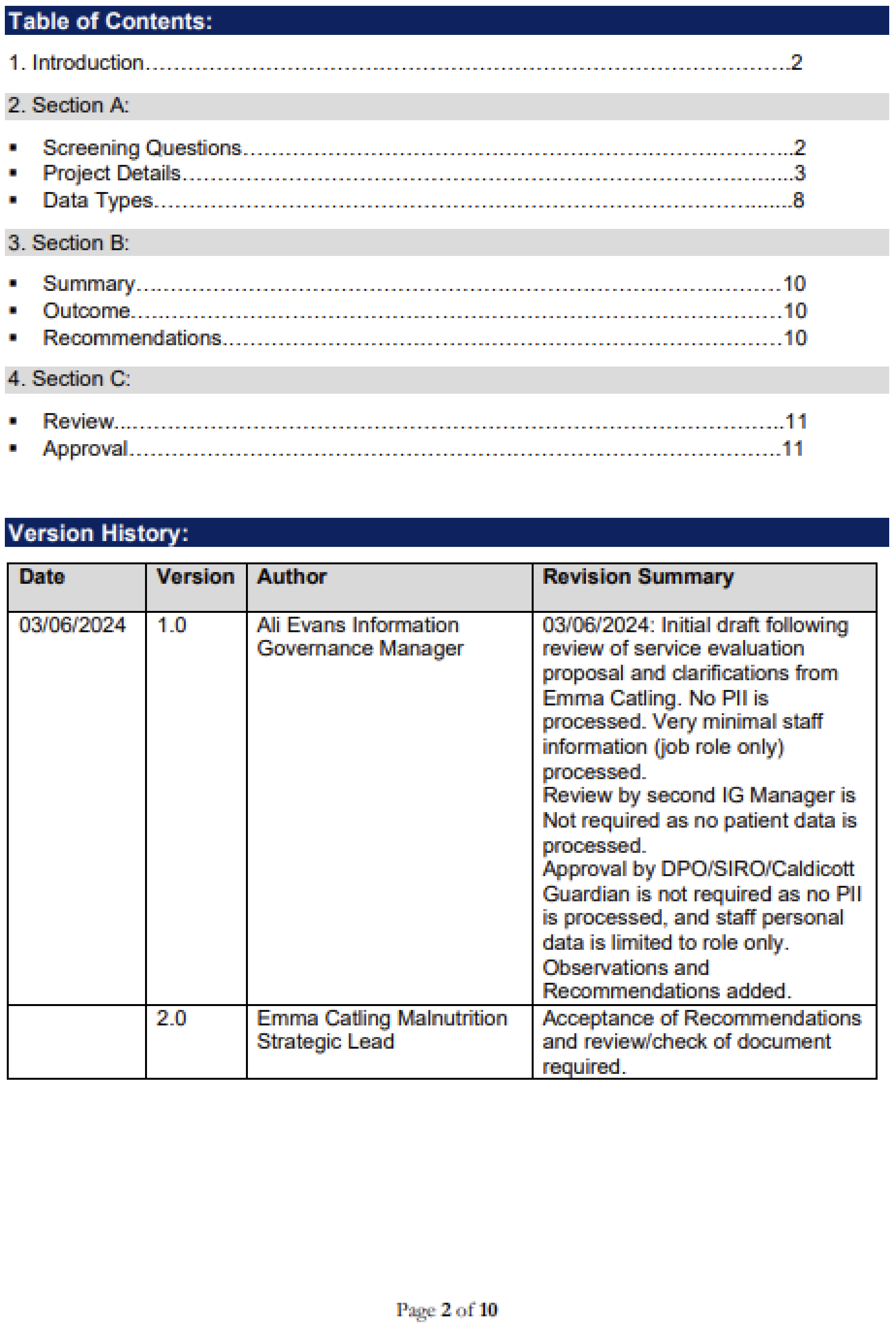


Table of Contents:

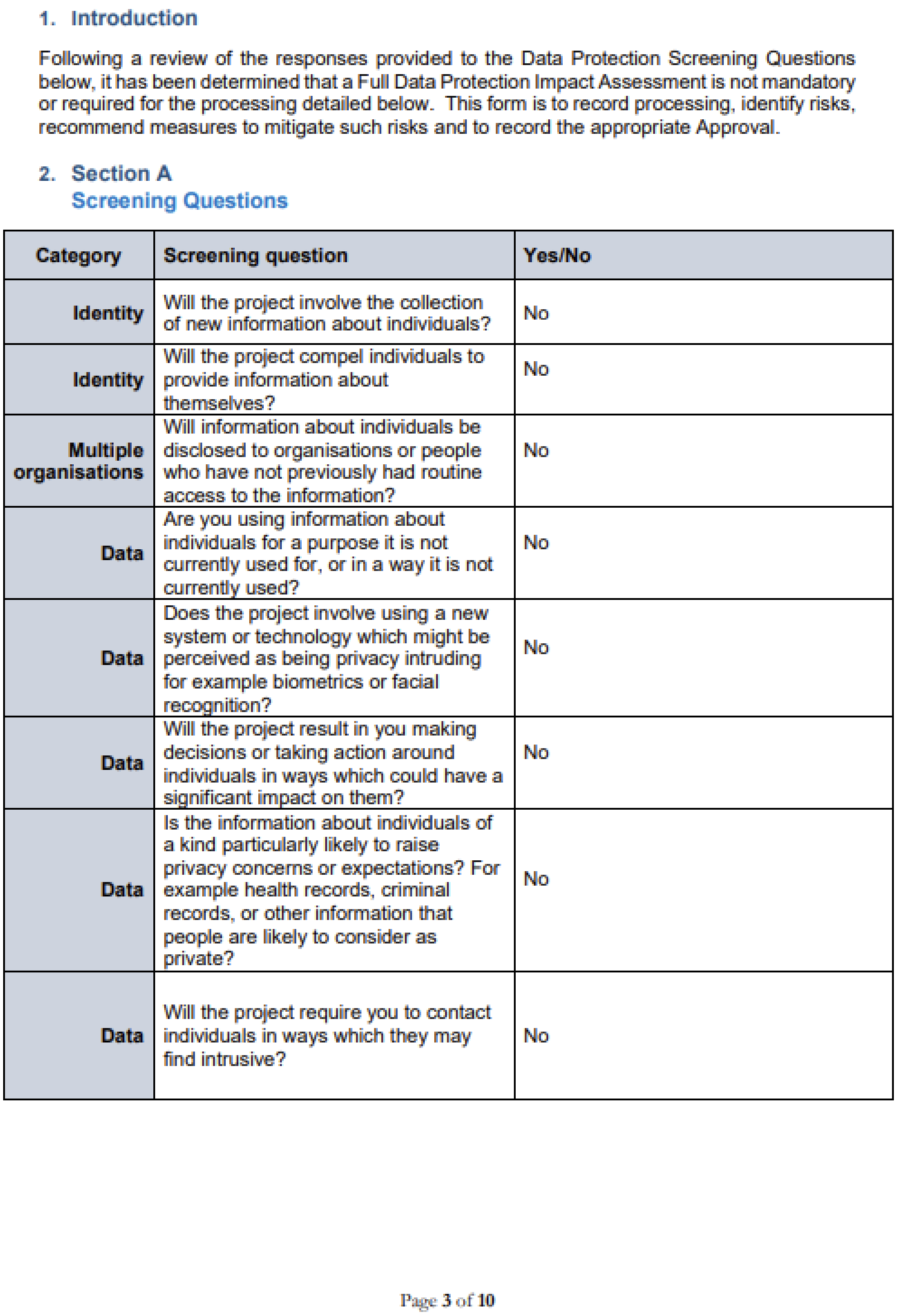
2. Section A:

3. Section B:

4. Section C:

Version History:

Date	Version	Author	Revision Summary
03/06/2024	1.0	Ali Evans Information Governance Manager	03/06/2024: Initial draft following review of service evaluation proposal and clarifications from Emma Catling. No PII is processed. Very minimal staff information (job role only) processed. Review by second IG Manager is Not required as no patient data is processed. Approval by DPO/SIRO/Caldicott Guardian is not required as no PII is processed, and staff personal data is limited to role only. Observations and Recommendations added.
	2.0	Emma Catling Malnutrition Strategic Lead	Acceptance of Recommendations and review/check of document required.

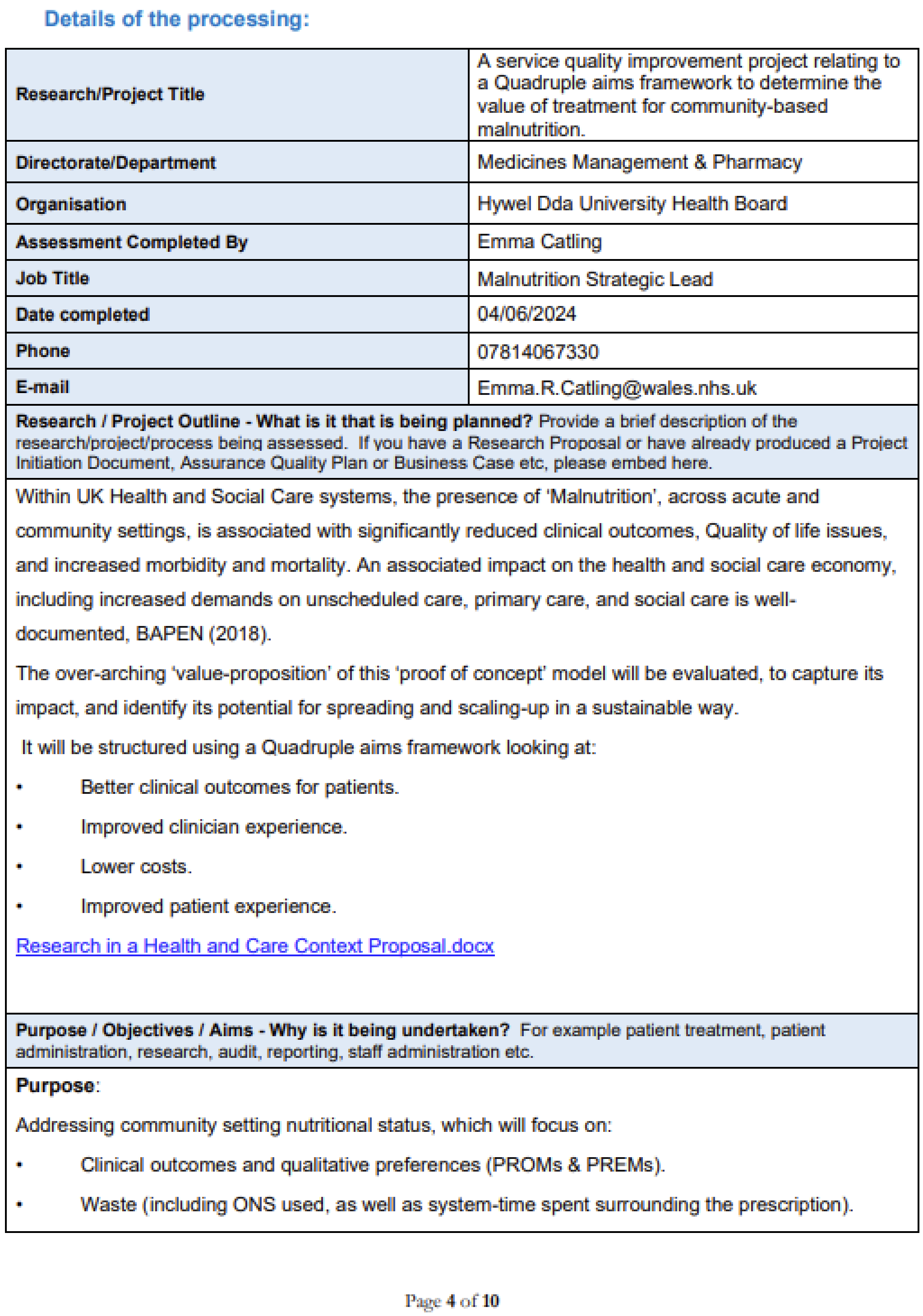


1. Introduction

Following a review of the responses provided to the Data Protection Screening Questions below, it has been determined that a Full Data Protection Impact Assessment is not mandatory or required for the processing detailed below. This form is to record processing, identify risks, recommend measures to mitigate such risks and to record the appropriate Approval.

2. Section A
Screening Questions

Category	Screening question	Yes/No
Identity	Will the project involve the collection of new information about individuals?	No
Identity	Will the project compel individuals to provide information about themselves?	No
Multiple organisations	Will information about individuals be disclosed to organisations or people who have not previously had routine access to the information?	No
Data	Are you using information about individuals for a purpose it is not currently used for, or in a way it is not currently used?	No
Data	Does the project involve using a new system or technology which might be perceived as being privacy intruding for example biometrics or facial recognition?	No
Data	Will the project result in you making decisions or taking action around individuals in ways which could have a significant impact on them?	No
Data	Is the information about individuals of a kind particularly likely to raise privacy concerns or expectations? For example health records, criminal records, or other information that people are likely to consider as private?	No
Data	Will the project require you to contact individuals in ways which they may find intrusive?	No



Details of the processing:

Research/Project Title	A service quality improvement project relating to a Quadruple aims framework to determine the value of treatment for community-based malnutrition.
Directorate/Department	Medicines Management & Pharmacy
Organisation	Hywel Dda University Health Board
Assessment Completed By	Emma Catling
Job Title	Malnutrition Strategic Lead
Date completed	04/06/2024
Phone	07814067330
E-mail	Emma.R.Catling@wales.nhs.uk

Research / Project Outline - What is it that is being planned? Provide a brief description of the research/project/process being assessed. If you have a Research Proposal or have already produced a Project Initiation Document, Assurance Quality Plan or Business Case etc, please embed here.

Within UK Health and Social Care systems, the presence of 'Malnutrition', across acute and community settings, is associated with significantly reduced clinical outcomes, Quality of life issues, and increased morbidity and mortality. An associated impact on the health and social care economy, including increased demands on unscheduled care, primary care, and social care is well-documented, BAPEN (2018).

The over-arching 'value-proposition' of this 'proof of concept' model will be evaluated, to capture its impact, and identify its potential for spreading and scaling-up in a sustainable way.

It will be structured using a Quadruple aims framework looking at:

- Better clinical outcomes for patients.
- Improved clinician experience.
- Lower costs.
- Improved patient experience.

Research in a Health and Care Context Proposal.docx

Purpose / Objectives / Aims - Why is it being undertaken? For example patient treatment, patient administration, research, audit, reporting, staff administration etc.

Purpose:

Addressing community setting nutritional status, which will focus on:

- Clinical outcomes and qualitative preferences (PROMs & PREMs).
- Waste (including ONS used, as well as system-time spent surrounding the prescription).

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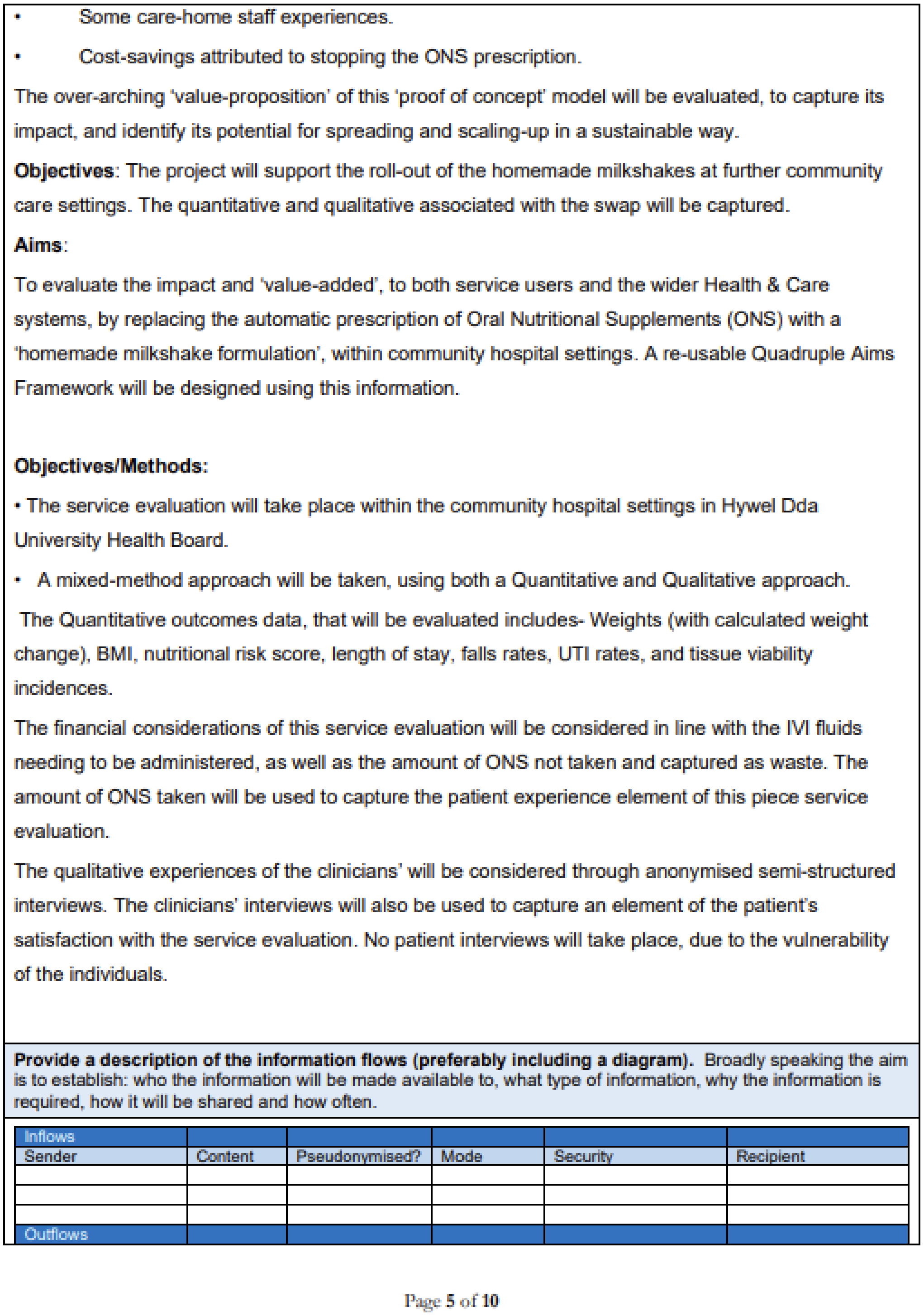

- Some care-home staff experiences.
- Cost-savings attributed to stopping the ONS prescription.

The over-arching 'value-proposition' of this 'proof of concept' model will be evaluated, to capture its impact, and identify its potential for spreading and scaling-up in a sustainable way.

Objectives: The project will support the roll-out of the homemade milkshakes at further community care settings. The quantitative and qualitative associated with the swap will be captured.

Aims:

To evaluate the impact and 'value-added', to both service users and the wider Health & Care systems, by replacing the automatic prescription of Oral Nutritional Supplements (ONS) with a 'homemade milkshake formulation', within community hospital settings. A re-usable Quadruple Aims Framework will be designed using this information.

Objectives/Methods:

- The service evaluation will take place within the community hospital settings in Hywel Dda University Health Board.
- A mixed-method approach will be taken, using both a Quantitative and Qualitative approach.

The Quantitative outcomes data, that will be evaluated includes- Weights (with calculated weight change), BMI, nutritional risk score, length of stay, falls rates, UTI rates, and tissue viability incidences.

The financial considerations of this service evaluation will be considered in line with the IVI fluids needing to be administered, as well as the amount of ONS not taken and captured as waste. The amount of ONS taken will be used to capture the patient experience element of this piece service evaluation.

The qualitative experiences of the clinicians' will be considered through anonymised semi-structured interviews. The clinicians' interviews will also be used to capture an element of the patient's satisfaction with the service evaluation. No patient interviews will take place, due to the vulnerability of the individuals.

Provide a description of the information flows (preferably including a diagram). Broadly speaking the aim is to establish: who the information will be made available to, what type of information, why the information is required, how it will be shared and how often.

Inflows					
Sender	Content	Pseudonymised?	Mode	Security	Recipient
Outflows					

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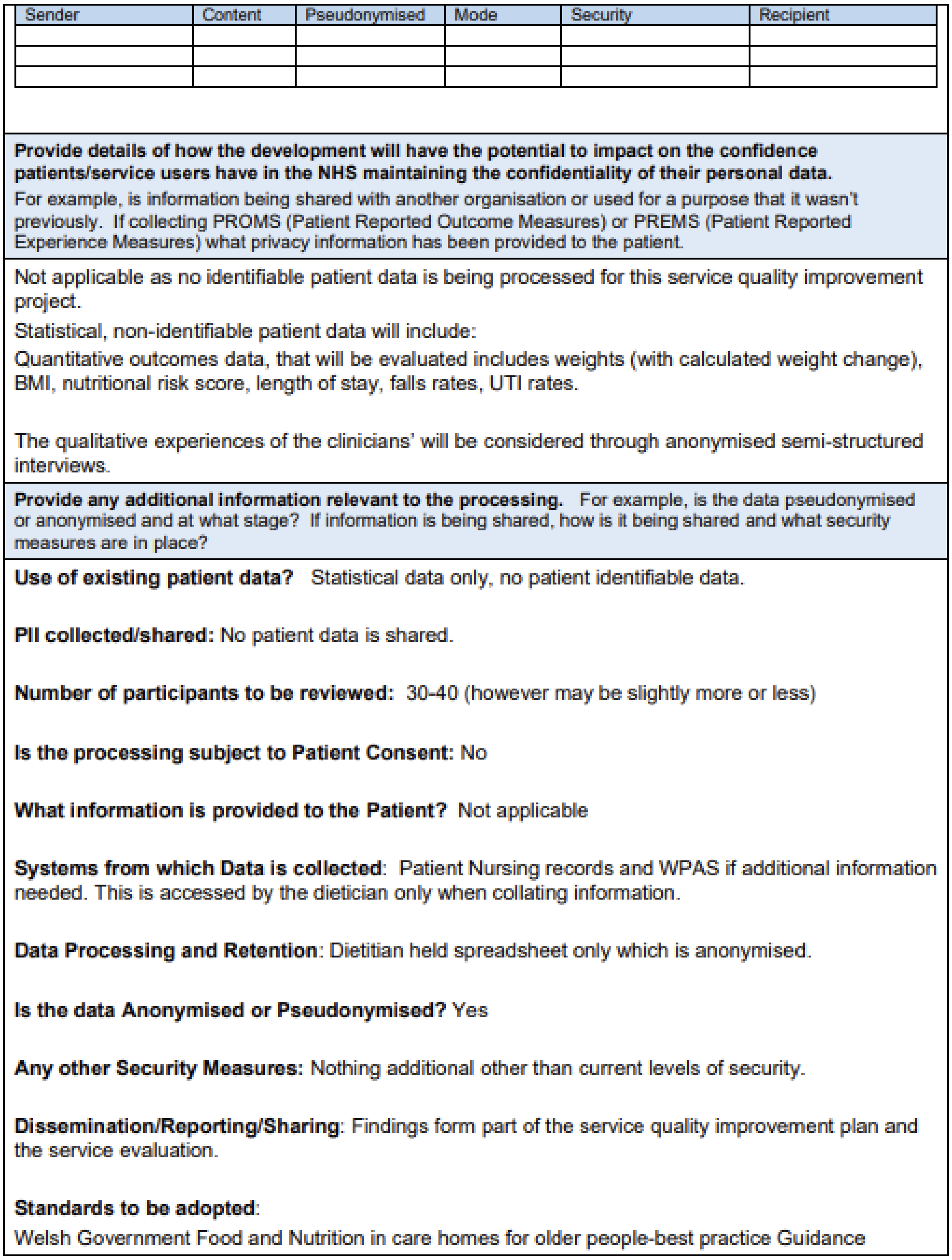


Sender	Content	Pseudonymised	Mode	Security	Recipient

Provide details of how the development will have the potential to impact on the confidence patients/service users have in the NHS maintaining the confidentiality of their personal data.

For example, is information being shared with another organisation or used for a purpose that it wasn't previously. If collecting PROMS (Patient Reported Outcome Measures) or PREMS (Patient Reported Experience Measures) what privacy information has been provided to the patient.

Not applicable as no identifiable patient data is being processed for this service quality improvement project.

Statistical, non-identifiable patient data will include:

Quantitative outcomes data, that will be evaluated includes weights (with calculated weight change), BMI, nutritional risk score, length of stay, falls rates, UTI rates.

The qualitative experiences of the clinicians' will be considered through anonymised semi-structured interviews.

Provide any additional information relevant to the processing. For example, is the data pseudonymised or anonymised and at what stage? If information is being shared, how is it being shared and what security measures are in place?

Use of existing patient data? Statistical data only, no patient identifiable data.

PII collected/shared: No patient data is shared.

Number of participants to be reviewed: 30-40 (however may be slightly more or less)

Is the processing subject to Patient Consent: No

What information is provided to the Patient? Not applicable

Systems from which Data is collected: Patient Nursing records and WPAS if additional information needed. This is accessed by the dietician only when collating information.

Data Processing and Retention: Dietitian held spreadsheet only which is anonymised.

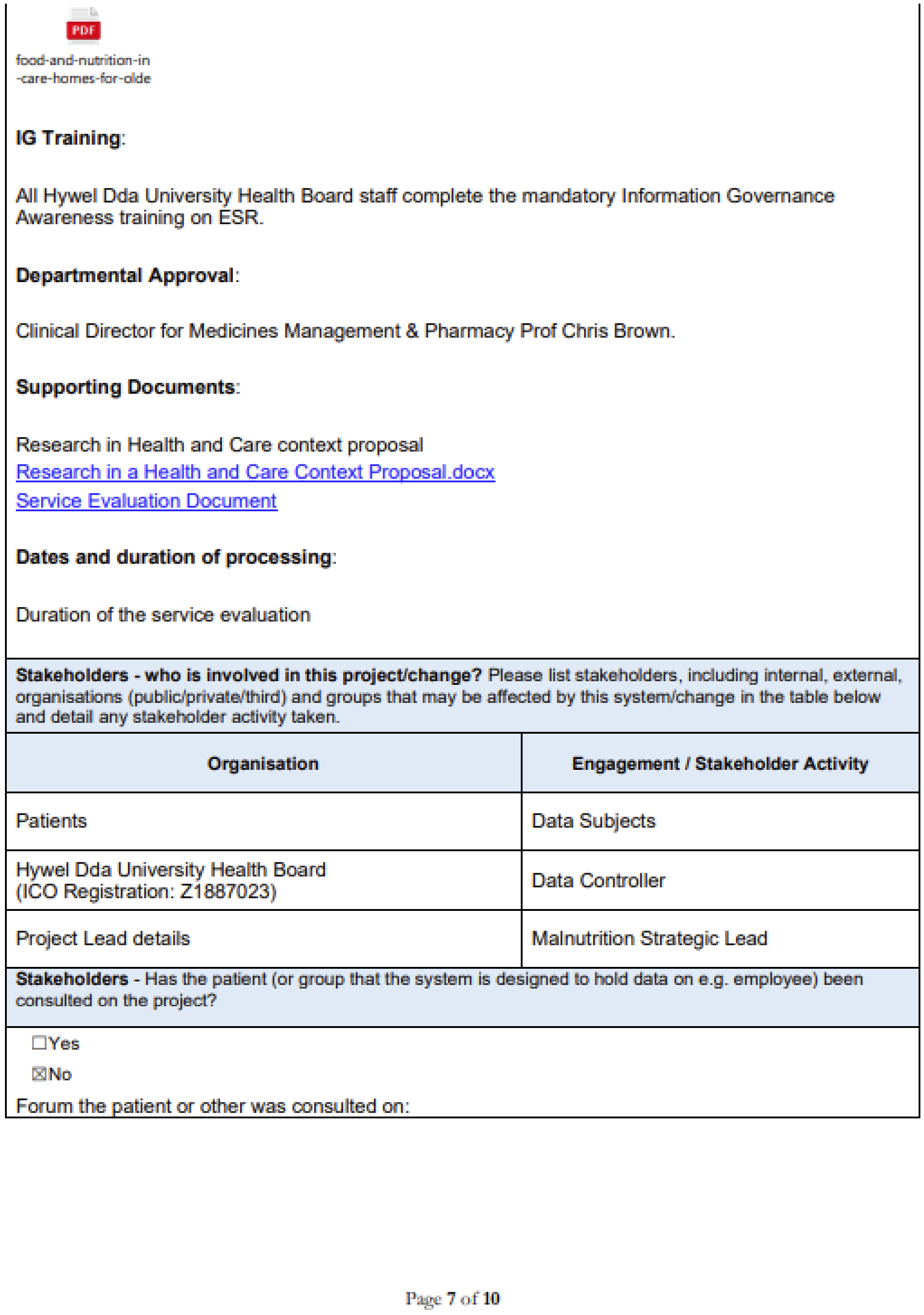
Is the data Anonymised or Pseudonymised? Yes

Any other Security Measures: Nothing additional other than current levels of security.

Dissemination/Reporting/Sharing: Findings form part of the service quality improvement plan and the service evaluation.

Standards to be adopted:

Welsh Government Food and Nutrition in care homes for older people-best practice Guidance



food-and-nutrition-in-care-homes-for-olde

IG Training:

All Hywel Dda University Health Board staff complete the mandatory Information Governance Awareness training on ESR.

Departmental Approval:

Clinical Director for Medicines Management & Pharmacy Prof Chris Brown.

Supporting Documents:

Research in Health and Care context proposal
Research in a Health and Care Context Proposal.docx
Service Evaluation Document

Dates and duration of processing:

Duration of the service evaluation

Stakeholders - who is involved in this project/change? Please list stakeholders, including internal, external, organisations (public/private/third) and groups that may be affected by this system/change in the table below and detail any stakeholder activity taken.

Organisation	Engagement / Stakeholder Activity
Patients	Data Subjects
Hywel Dda University Health Board (ICO Registration: Z1887023)	Data Controller
Project Lead details	Malnutrition Strategic Lead

Stakeholders - Has the patient (or group that the system is designed to hold data on e.g. employee) been consulted on the project?

☐Yes
☒No

Forum the patient or other was consulted on:

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Data Types:

In order to understand the potential risks to individuals, it is important to know the types of data that will be processed.

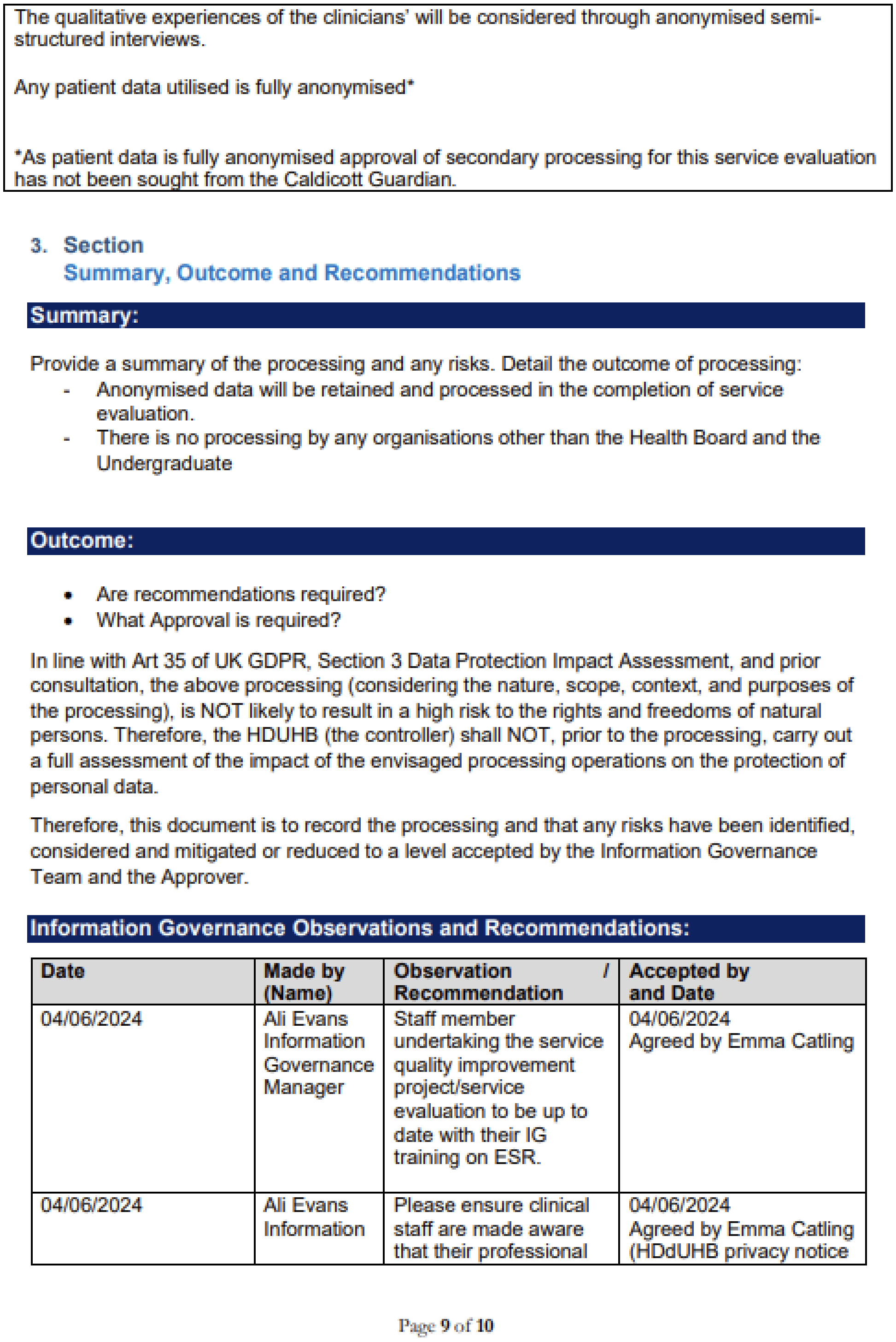
Personal	Tick (All that Apply)	Special Category	Tick (All that Apply)
Name	☐	Racial / ethnic origin	☐
Address (home or business)	☐	Political opinions	☐
Postcode	☐	Religious beliefs	☐
NHS No.	☐	Trade union membership	☐
Email address	☐	Physical or mental health	☒
Date of birth	☐	Sexual life	☐
Reference number (Payroll Number)	☐	Biometrics; DNA profile, fingerprints	☐
Driving Licence [shows date of birth and first part of surname]	☐		
Bank, financial or credit card details	☐		
Mother's maiden name	☐		
National Insurance number	☐		
Tax, benefit or pension Records	☐		
Criminal offences	☐		
Employment, school, Social Services, housing records	☐		
Data of a "higher" sensitivity (tick all that apply)			
Abortion, Pregnancy, Embryology and Fertilisation	☐	Sample types to include urethral swab and semen sample	☐
Mental Health	☐	Cervical Cytology screening	☐
HIV/AIDs and sexually transmitted BBV's	☐	Adoption	☐
Genetic (also special category data)	☐	Child Protection	☐
Sexually transmitted diseases	☐	Safeguarding Adults	☐

Comments and Additional data types (if relevant):

A dietician has undertaken a data collection exercise of milkshakes used-either the ONS milkshake or the pilot homemade milkshake. This data is collated in terms of staff views on trying an alternative to ONS and also patients views on the options provided (patients views are not sought directly, this is anecdotal from staff working with patients).

To evaluate the impact and 'value-added', to both service users and the wider Health & Care systems, by replacing the automatic prescription of Oral Nutritional Supplements (ONS) with a 'homemade milkshake formulation', within community hospital settings.

The service evaluation will take place within the community hospital settings in Hywel Dda University Health Board.



The qualitative experiences of the clinicians' will be considered through anonymised semi-structured interviews.

Any patient data utilised is fully anonymised*

*As patient data is fully anonymised approval of secondary processing for this service evaluation has not been sought from the Caldicott Guardian.

3. Section
Summary, Outcome and Recommendations

Summary:

Provide a summary of the processing and any risks. Detail the outcome of processing:

- Anonymised data will be retained and processed in the completion of service evaluation.
- There is no processing by any organisations other than the Health Board and the Undergraduate

Outcome:

- Are recommendations required?
- What Approval is required?

In line with Art 35 of UK GDPR, Section 3 Data Protection Impact Assessment, and prior consultation, the above processing (considering the nature, scope, context, and purposes of the processing), is NOT likely to result in a high risk to the rights and freedoms of natural persons. Therefore, the HDUHB (the controller) shall NOT, prior to the processing, carry out a full assessment of the impact of the envisaged processing operations on the protection of personal data.

Therefore, this document is to record the processing and that any risks have been identified, considered and mitigated or reduced to a level accepted by the Information Governance Team and the Approver.

Information Governance Observations and Recommendations:

Date	Made by (Name)	Observation / Recommendation	Accepted by and Date
04/06/2024	Ali Evans Information Governance Manager	Staff member undertaking the service quality improvement project/service evaluation to be up to date with their IG training on ESR.	04/06/2024 Agreed by Emma Catling
04/06/2024	Ali Evans Information	Please ensure clinical staff are made aware that their professional	04/06/2024 Agreed by Emma Catling (HDdUHB privacy notice

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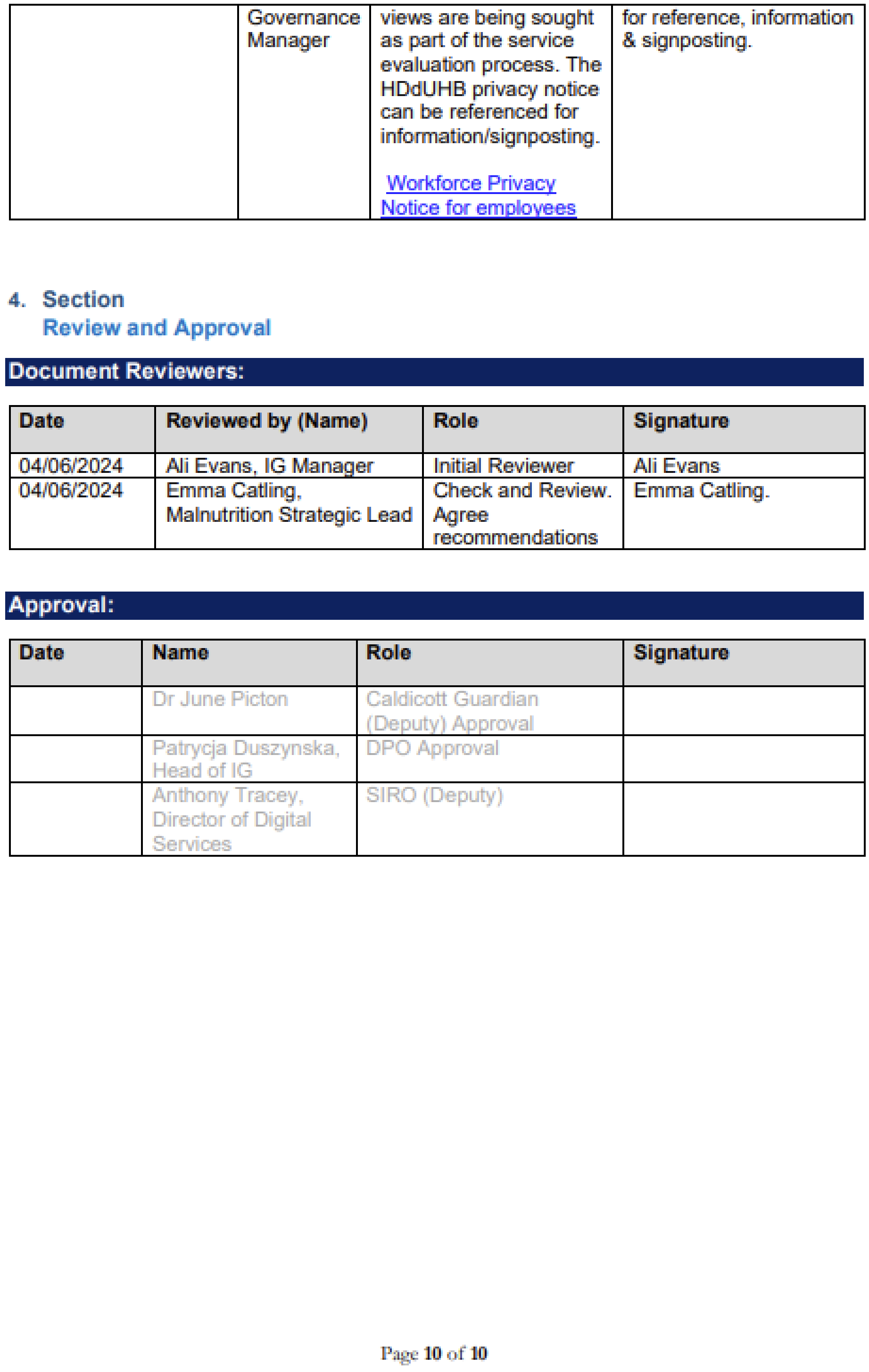

	Governance Manager	views are being sought as part of the service evaluation process. The HDdUHB privacy notice can be referenced for information/signposting. [Workforce Privacy Notice for employees]()	for reference, information & signposting.

4. Section
Review and Approval

Document Reviewers:

Date	Reviewed by (Name)	Role	Signature
04/06/2024	Ali Evans, IG Manager	Initial Reviewer	Ali Evans
04/06/2024	Emma Catling, Malnutrition Strategic Lead	Check and Review. Agree recommendations	Emma Catling.

Approval:

Date	Name	Role	Signature
	Dr June Picton	Caldicott Guardian (Deputy) Approval	
	Patrycja Duszynska, Head of IG	DPO Approval	
	Anthony Tracey, Director of Digital Services	SIRO (Deputy)	

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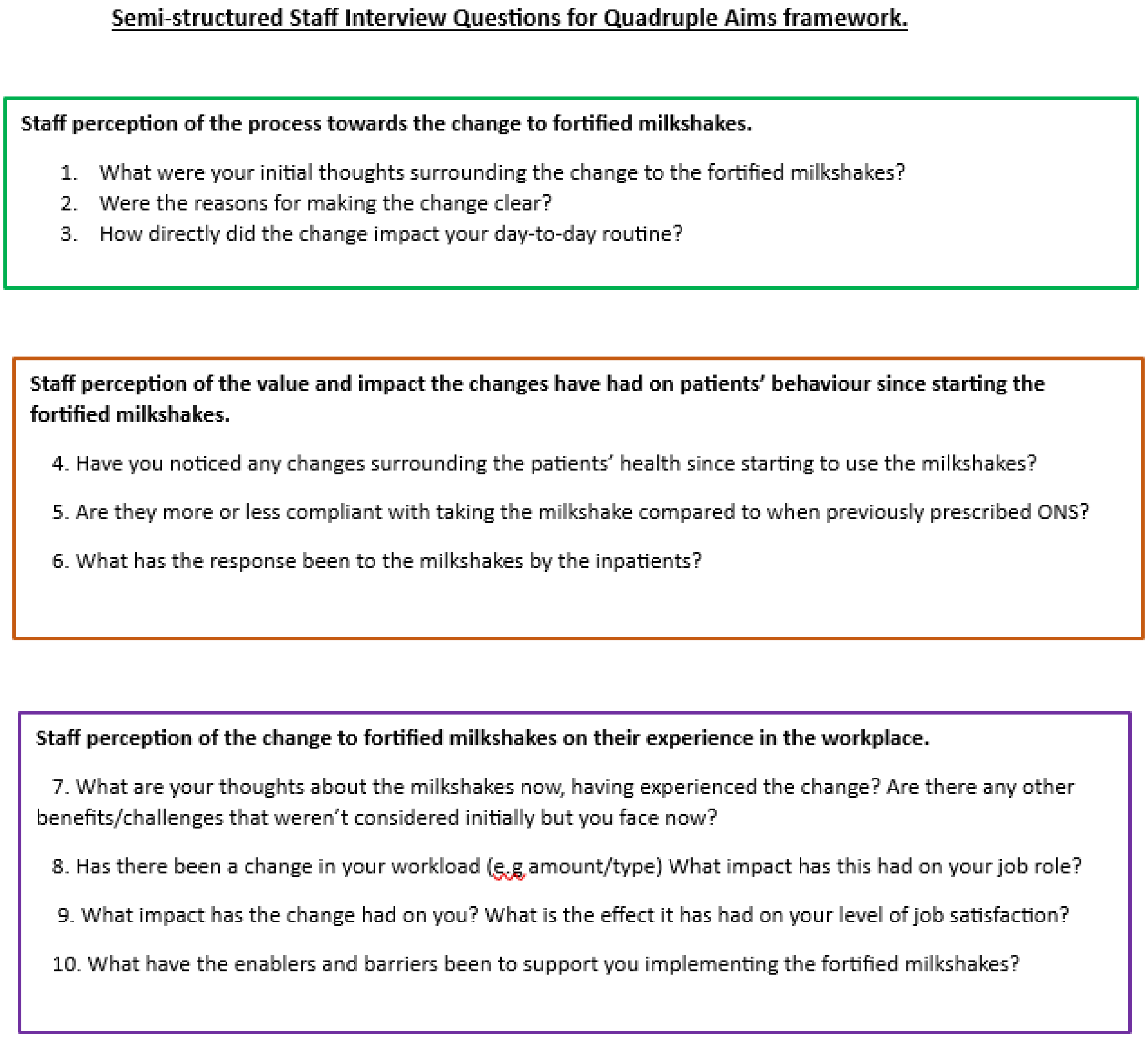
Appendix E : Semi-structured Staff interview Questions.



Semi-structured Staff Interview Questions for Quadruple Aims framework.

Staff perception of the process towards the change to fortified milkshakes.

1. What were your initial thoughts surrounding the change to the fortified milkshakes?
2. Were the reasons for making the change clear?
3. How directly did the change impact your day-to-day routine?

Staff perception of the value and impact the changes have had on patients' behaviour since starting the fortified milkshakes.

4. Have you noticed any changes surrounding the patients' health since starting to use the milkshakes?

5. Are they more or less compliant with taking the milkshake compared to when previously prescribed ONS?

6. What has the response been to the milkshakes by the inpatients?

Staff perception of the change to fortified milkshakes on their experience in the workplace.

7. What are your thoughts about the milkshakes now, having experienced the change? Are there any other benefits/challenges that weren't considered initially but you face now?

8. Has there been a change in your workload (e.g amount/type) What impact has this had on your job role?

9. What impact has the change had on you? What is the effect it has had on your level of job satisfaction?

10. What have the enablers and barriers been to support you implementing the fortified milkshakes?

About the Author

Emma Catling

I have a Degree in Applied Human Nutrition and have been a State Registered Dietitian for 27 years working in Wales in various roles the whole time.

My current post is as Malnutrition Strategic lead for Hywel Dda University Health Board, and I am leading the change to support a whole-system approach to address this. I work across the acute and community settings within the Health Board, and work with key third sector stakeholder partners to make malnutrition matter and everyone's business. The impact VBHC has within in my day-to-day work is significant, and the importance of improving both outcomes and experience are important within my work for the service users and the systems they exist in.

Knowledge, attitude and practice of students towards drug abuse and its treatment in Nigeria

Fatimah Shehu Umar

Healthcare Assistant | Primacy Health Care, Abuja

Email: umarjannah11@gmail.com

Abstract:

Background: This study aims to explore the knowledge, attitude, and practice of students towards drug abuse and its treatment in Nigeria. In order to achieve this aim, the following objectives are considered; to assess the level of knowledge among students about vapes, drug abuse, and their health effects in Nigeria, determine the attitudes of students towards drug use, and treatment options in the study area, examine the prevalence of drug abuse among students, identify the factors associated with drug abuse among students, and explore the perceived barriers and facilitators to accessing drug treatment services among students.

Methodology: This study takes a qualitative approach, allowing for secondary data collection through various sources such as published articles, and interviews from various secondary sources. The thematic analysis will be used to identify themes and patterns in the secondary data. Value based care is used to measure the result of effort in tackling drug abuse among students in Nigeria.

Conclusions and Recommendations: Findings for this research study has shown that there is significance relationship between knowledge of drug abuse effects and the rate of drug use among students in Nigeria. The study found that exposing students to the knowledge of drug abuse effects helps in fighting the factors that are associated with drug abuse such as peer pressure, socioeconomic factors, and low educational background syndrome. It is therefore recommended among others that every school in the country must implement policies that allows students to receive orientation about drugs abuse and its impact. This will not just help reduce drug abuse rate in the country but will enhance students' academic success. The government of Nigeria must annually place a budget that aid schools in fighting drug abuse in the country.

Keywords: Drugs abuse, Value based healthcare, Drug abuse effects, Students, Students in Nigeria, Knowledge, Attitude, drugs treatment.

List of Tables and Figures

Contents

Introduction

Drug misuse is a continuously relapsing condition defined by the compulsive use of addictive drugs notwithstanding the negative effects for the person and society (Odinka et al. 2019). It has evolved into a worldwide health and social issue, and it is now recognized as a significant public health burden (Ali et al., 2011), becoming a global lifestyle trend in both rich and poor nations, (Odinka et al. 2019). The trend becomes more concerning as more novel psychoactive chemicals are developed and made available than ever before, with increasing reports of associated damage and fatalities (World Drug Report 2018).

Drug is a material that can cause a physiological effect when administered into the body (Odinka et al. 2019). Psychoactive chemicals in form of drugs can modify brain function, causing changes in perception, emotion, awareness, cognition, and behavior (Gould, 2010). Alcohol, opium, cocaine, amphetamines, nicotine, caffeine, mescaline, steroids, cannabis (marijuana), inhalants, and psilocybin are all considered psychoactive drugs. They can come from natural sources, but some are synthetic or designer medications (Ali et al., 2011). These compounds can be used therapeutically, recreationally, or to enhance performance or change consciousness (World Drug Report 2018).

In Nigeria, the National Drug Law Enforcement Agency (NDLEA), a body that sees the use of drugs and is responsible for controlling drug abuse said that recent statistics have revealed that 40 per cent of Nigerian youth between 18 and 35 years are deeply involved in the abuse of drugs (Premium Times, 2021). The Nigeria government have acknowledged the problem and are concerned that, despite drug control measures, drug fatalities remain high among students.

The harmful use of psychoactive drugs among students in Nigeria has several direct repercussions on children and teenagers. The negative consequences may include impairments in personal, occupational, family, and social functions, physical health problems, suicidal tendencies, mental illness, and even lower life expectancy (World Drug Report 2018). There are also higher probabilities of participating in unsafe sexual conduct, sexual aggression, criminal inclinations, and personality problems (Idowu et al., 2018). In the most extreme situations, the hazardous use of substances can lead to a loop in which deteriorated socioeconomic status and capacity to build relationships fuel substance abuse (World Drug Report 2018).

The rate at which adolescents fall victims of drug abuse is high due to their ignorance about the negative consequence of the act. This calls for more research into finding the right approach and strategies to adopt in order to curb this menace. Finding a solution to this problem in Nigeria will mean finding a solution for the entire world in terms of drugs abuse. It is on this note that this study explored the knowledge, attitude, and practice of students towards drug abuse and its treatment in Nigeria, to help develop a preventive health education program for the victims in this region as well as suggest treatment methods to help the victims to come out of the addiction.

Research Aims and Objectives

This study aims to explore the knowledge, attitude, and practice of students towards vapes and drug abuse and its treatment in Nigeria. In order to achieve this aim, the following objectives are considered:

1. To assess the level of knowledge among students about vapes, drug abuse, and their health effects in Nigeria.
2. To determine the attitudes of students towards drug use, and treatment options in the study area
3. To examine the prevalence of drug abuse among students.
4. To identify the factors associated with drug abuse among students.
5. To explore the perceived barriers and facilitators to accessing drug treatment services among students.

Identification of Project Requirements

Conceptual Framework

Drug Abuse

Drug abuse may be defined as the “arbitrary” over dependence or miss-use of one particular drug with or without a prior medical diagnosis from qualified health practitioners. (Lakhanpal, & Agnihotri, 2007). (Oluremi, 2012), Drug Abuse is the harmful use of mind-altering drugs. It added that the term usually refers to problem with illegal drugs, which also include harmful use of legal prescription drugs, Such as in self-medication. Majority of the Nigerian adolescents ignorantly depend on one form of drug or the other for their various daily activities: social, educational, political, moral etc. Such drugs include Tobacco, Indian hemp, cocaine, morphine, Heroine, Alcohol, Glue, many others (Oshodi, Aina, Onajole, 2010)

Youth

Youth is best understood as a period of transition from the dependence of childhood to adulthood’s independence (UN, 2019). That’s why, as a category, youth is more fluid than other fixed age groups. Yet, age is the easiest way to define this group, particularly in relation to education and employment, because ‘youth’ is often referred to a person between the ages of leaving compulsory education, and finding their first job. Those who are widely categorized under this stage in life fall between 15 and 24 years (UN 2019). This age group represents a critical developmental stage where individuals transition from adolescence to adulthood. Youths are characterized by a quest for identity, increased independence, and experimentation, along with susceptibility to peer pressure and social influences (Arnett, 2000). According to the United Nations (UN), there are approximately 1.2 billion youths worldwide, making it crucial to direct efforts towards addressing their health and wellbeing (UN, 2019). This age group is particularly vulnerable to drug abuse due to several factors, including biological, psychological, and environmental influences. The adolescent brain is still in development, making it more susceptible to external influences and the appeal of drugs (Miller et al., 2018). Moreover, social factors such as family relationships, peer pressure, and socio-economic status significantly impact youth’s risk of engaging in substance abuse (Hawkins et al., 1992).

Substance abuse in youths is linked to numerous adverse outcomes, such as academic failure, mental health issues, engagement in criminal activities, and long-term health problems (DeWit et al., 2000). The risk of developing addiction increases with early initiation into drug use, highlighting the importance of early intervention and education (Chen et al., 2011).

At this age, they try so many new things. They use drugs for many reasons, including curiosity and desire to find out the effectiveness of a particular drug, to feels good, to reduce stress, or to feel grown up. Using alcohol and tobacco at a young age increase the risk of using other drugs later. The fear is that adolescents are lured into early death from lung cancer and other tobacco related diseases (Abudu, 2008; Giade, 2011). Already, Nigerian adolescents are being offered cigarettes through promotions and musical concerts. Some teens will experiment and stop or continue to use occasionally without significant problems. While others will develop addiction, moving on to more dangerous and hard drugs and causing considerable harm to themselves and the society at large.

Knowledge

Knowledge is not a given phenomenon, but rather something that we define by working with a notion that we develop in response to certain demands or in pursuit of specific goals (Adamu 2002). The very phenomenon of knowing is moulded by our use of the notion of knowledge, a usage that may respond to specific wants or ideals, or, as Craig puts it, to certain demands couched in the social and practical function the concept plays inside the human ecological niche. The underlying premise is that we may examine knowledge by examining the structure of the concept of knowledge, with the ideal outcome being an analysis articulated in terms of the concept's individually required and collectively sufficient conditions. However, other theorists take a metaphysical, or non-conceptual approach. Instead of asking what it takes for something to satisfy our concept of knowledge, they ask what knowledge is (Kornblith 2002). Knowledge defined in Bakkum, et al. (2018) is the awareness of something. The knowledge youths possess regarding drug abuse is crucial to their prevention and treatment strategies. Awareness of the risks, consequences, and social norms associated with drug use plays a significant role in shaping their behavior (Bakkum et al., 2018). Education on this topic can occur through schools, communities, families, or media and can significantly influence youths' attitudes and choices regarding substance use.

Attitude

Attitude in a more elaborate manner can be explained to cover emotions, beliefs, and behaviours of a being (in this context youths) toward a particular object, person, thing (in this case drug abuse), or event (Klein et al., 2019). Attitudes refer to a person's feelings, beliefs, and behaviours toward a particular issue, in this case, drug abuse. Research indicates that youths' attitudes towards drug use profoundly influence their behaviour (Klein et al., 2019). Positive or neutral attitudes towards drug use increase the likelihood of engagement in substance abuse, while negative attitudes act as a protective factor.

Drug Abuse Among Youths in Nigeria

Drug misuse has become a significant public health issue in Nigeria. Since the 1990s, the harm posed by drugs to adolescents, families, the community, and society has grown in Nigeria. Drug misuse today begins at a young age and affects all social groupings. However, the majority of drug abusers are young individuals aged 15 to 40, particularly those aged 19 to 25 (Idris et al. 2009). In Lagos, Nigeria, the prevalence rates for lifetime use of the drugs varied from 3.8% (n=14) for heroin and cocaine to 85.7% (n=344) for psychostimulants, and for current use, varying from 2% (n=8) to 56.5% (n=213). The lifetime uses prevalence rates for the so-called "gateway drugs" alcohol and tobacco were 9.2% (n=34) and 5.2% (n=19), respectively, but the lifetime use prevalence rate for cannabis was 4.4% (n=16) (Oshodi et al. 2010).

According to research, the majority of drug users begin their addiction in youth. Thus, there is no better time to prevent and identify drug usage than during adolescence. It is predicted that 20.7% of the population is aged ten to nineteen. Children, adolescents, and youth are not just a tremendous demographic force; they also represent the future development of parents, workers, and leaders. As a result, their well-being affects not just their own lives, but also the lives of the children they bring into the world, as well as the societies they will develop and preserve (NPC, 2008). Furthermore, because the majority of substance misuse among youths begins in school, the school population is the ideal area to detect and prevent substance usage in adolescents (Oshodi et al. 2010). A rapid situation assessment of Nigeria's drug problem, conducted by the National Drug Law Enforcement Agency (NDLEA) in collaboration with the United Nations Office for Drugs and Crimes (UNODC), revealed that students, the unemployed, and street children are the most vulnerable to drug abuse. Also, several studies have reported a high rate of drug abuse and misuse amongst adolescents and youths, especially among students (secondary and tertiary institutions) (Geramian, et al. 2022; Jatau, et al. 2021).

One of the drugs which have been associated with this typical trend is Tramadol, a drug first developed in Germany in the 1970s and then introduced in the 90s as a centrally acting analgesic properties which are similar to those of codeine and morphine and which are widely prescribed as pain killer; although this drug is considered illegal without prescription in most of the Nigerian regions, it also easily accessible especially with the use of fake prescriptions from pharmacies or even from the black market (Olsson et al, 2017). Tramadol is a synthetic painkiller. Despite the fact that tramadol is thought to be similar to morphine, physicians and other experts are still unsure of its specific mechanism of action. Tramadol, like morphine, binds to brain receptors thought to be critical for conveying pain sensations throughout the body to the brain. Tramadol is available in a variety of formats, brands, and strengths. Some formulations are instant release, whereas others are sustained or delayed release; consequently, they release the active moiety more slowly for several hours, giving consistent and more even pain management. In many nations, it is regarded a prescription-only drug, but in Nigeria, the situation is entirely different. According to a statement issued by Nigerian pharmaceuticals, the recommended usage of tramadol is 50 mg and 100 mg, or capsules, rather than 200mg/250mg, which has been discovered to be circulating in most of the country's marketplaces (Oluremi 2012).

According to research, many students in Nigeria, including both secondary and tertiary students, have been misusing and abusing Tramadol. They use it with the intention of boosting their sexual performance, pleasure, and vigor, among other things (Abdel-Hamid et al, 2016).

Alcohol intake may precede the usage of other illegal drugs. Alcohol and cigarettes were deemed gateway drugs since they were taken before other substances like marijuana and cocaine (Omigbodun & Babalola, 2004). Alcohol usage has been linked to negative health and societal repercussions, ranging from intoxicating to poisonous and addictive. Alcohol has been found to lead to traumatic effects that often kill or cripple the user at a relatively early age, resulting in the loss of many years of life due to death or disability (Chikere & Mayowa, 2011). Smoking is becoming more prevalent in Nigeria (Ojikutu & Adeleke, 2010).

Tobacco is a popular drug among students due to its attractiveness, low cost, and ease of purchase. The act of smoking by students might be encouraged by social environment such as belief about smoking, having a parent, friend, or relative who smokes, or commercials on tobacco and the notion that smoking is fun.

Drug Abuse Policies in Nigeria

There is a scarcity of material about drug policy in Nigeria from the early stages of colonialism, up to 1914, when the country was founded. However, Nigeria's earliest documented law against drug misuse and trafficking is the Dangerous Drugs Ordinance of 1935. According to Nwannennaya and Abiodun (2017), the Dangerous Drugs Ordinance directed the then-Board of Customs and Excise and the Nigerian Police under the colonial authority to combat drug misuse and trafficking locally. The Indian hemp [Cannabis] Decree of 1966 was then issued by General J.T.U. Aguiyi Ironsi's military administration in Nigeria, which is now independent. Under this Decree, cannabis cultivation was punished by death or 21 years in prison, while exportation was penalized by 10 years in prison (Obot, 2003). According to the order, anybody who discovered smoking or in possession of the narcotic will face a minimum 10-year prison sentence.

According to Obot (2003), the Indian Hemp Decree of 1966 was revised in 1975, making the penal clauses less severe. As a result, the amendment abolished the death sentence for cannabis production while reducing the punishment for cannabis consumption to six months and/or a fine (Federal Military Government (1975), quoted in Obot 2003). However, in 1984, the military administration of Buhari/Idiagbon modified the punitive provisions of the Indian Hemp Dree of 1966 (Amended) by reintroducing the death sentence, as the original decree mandated. Also, under the abolished legislation, anybody under the age of 17 was to get 21 strokes of the cane, two years in prison, or a fine of N200.00 for smoking or possession (Ogege, 2010).

According to Ogege (2010), a special Tribunal (Miscellaneous Offenses) Decree was issued in the late half of 1984. The edict eliminated the death punishment for drug misuse in response to popular uproar. However, the decree-imposed life imprisonment for importing, manufacturing, producing, processing, planting, or cultivating cocaine, cannabis, lysergic acid diethylamide, heroin, or other narcotic narcotics, as well as a 20-year jail sentence for exporting, transporting, or trafficking them. A 14-year prison sentence was imposed for selling, purchasing, exposing for sale, or dealing, with a minimum of 2 years (but no more than 10 years) for possession or consumption. Asset forfeiture and passport confiscation were also implemented, and a separate tribunal was established expressly to execute narcotics laws. The 1984 Decree was changed in 1986, with the establishment of a new military administration led by General Ibrahim Babangida, and the death sentence was replaced with life imprisonment. The 1986 Special Tribunal (Miscellaneous Offences) (Amendment) Decree added new aspects into Nigerian drug legislation, the most notable of which was the clause involving asset forfeiture and passport revocation (Obot 2003).

Following a troubling surge in drug trafficking in Nigeria, Decree 48 of 1989 was passed, resulting in the formation of the National Drugs Law Enforcement Agency (NDLEA). This is recognized as Nigeria's major drug-control policy. The agency's primary mandate was to combat the threat of drug abuse and trafficking, which was tarnishing the country's image at the time, as the US government began to express dissatisfaction with the Nigerian government due to Nigerians' growing role in exacerbating the drug problem in the US. According to Obot (2003), not only were Nigerians smuggling drugs into the United States, but residents of the nation and Asia were also employing inner-city gangs to peddle drugs in urban neighborhoods.

Another major drug control measure in Nigeria was the passage of the Money Laundering Decree No. 3 by General Sani Abacha's military regime in 1995, which granted the NDLEA more authority to monitor suspects' bank accounts. The Decree also limited cash payments, required banks to record deposits over a particular amount, and authorized the NDLEA to tap any telephone line (Obot, 2003). Also, in December 2018, following a spike in drug misuse among adolescents, particularly in the North, the Buhari administration established two committees on drug eradication led by Buba Marwa and Boss Mustapha. It is left to know what the outcome from these committees will be. But Nigeria is far from achieving a drugfree society at the moment.

Drug Abuse Impacts on Nigerian Youths

For many years, abuse of psychoactive substances has been a growing health and societal concern in Nigeria. Addiction, poor academic performance, employment instability, teen pregnancy, the transfer of sexually transmitted diseases, and other harmful activities are all linked to substance abuse. Addiction, by definition, affects mental processes, emphasizing beliefs that explain addictive activity while minimizing or excluding thoughts about stopping the habit. Recently, drug abuse among adolescents and young adults in Nigeria is disheartening and worrisome and has grown into a threat to security (Ikoh, et al. 2019; Jatau, et al. 2021), with over 11% of the youth population in Nigeria taking hard drugs like codeine syrup, tramadol, diazepam, cocaine, shisha mix, among others (Yunusa, 2022). In the long term, substance misuse impairs self-control and increases the likelihood of participating in risky behaviors such as unsafe sex, violence, crime, or reckless driving (UN, 2022; WHO, 2022).

Research found that drug usage can cause quicker pulse, increased peripheral blood circulation, changes in blood pressure, breathing rate, and other physiological processes. Cannabis has an effect on the hormonal and reproductive systems, and regular usage has been shown to diminish male testosterone and sperm cells. Drug misuse also adds to the development of uric acid, which hastens illnesses such as arthritis, gout, osteoporosis, and heart attacks, especially in those with pre-existing coronary hypertension. Furthermore, research has indicated that crimes including theft, vandalism, and violence are linked to "heavy drug use" in adolescents (Winger et al. 2004). According to the World Drug Report (2018), drug misuse impairs personal, occupational, familial, and social functions, physical health issues, suicidal inclinations, mental disease, and even reduce life expectancy in adolescence. There is also a higher likelihood of participating in unsafe sexual conduct, sexual aggression, criminal inclinations, and personality problems (Idowu et al. 2018). In the most extreme situations, the hazardous use of substances can lead to a loop in which deteriorated socioeconomic status and capacity to build relationships fuel substance abuse (World Drug Report 2018).

Brief Overview of Value Based Care

Value in health care is defined as the quantifiable improvement in a patient's health outcomes relative to the expense of producing that improvement (Porter and Teisberg, 2006). The purpose of value-based care transformation is to help the health-care system provide greater value to patients. Because value is established only when an individual's health results become better and representations of value-based health care that focus just on cost reduction are inadequate. Reducing expenses is necessary but not sufficient. If the true purpose of value-based health care was cost reduction, pain relievers and compassion would suffice.

Value-based health care is sometimes confused with quality, a hazy notion that implies a plethora of virtues but, in health care, is generally focused on inputs and procedural compliance. Quality improvement initiatives may not enhance patients' health outcomes; even when using comparable techniques, various teams' results vary. Furthermore, mandates to track and report process compliance may distract caregivers from the more important aim of improving health outcomes. Diabetes treatment in Italy is one example of how procedure compliance does not guarantee improved outcomes: An analysis of geographical differences in process compliance and outcome indicators revealed higher process compliance in the north but better results for patients in the south (Cimino, et al. 2006). Certainly, physicians should practice with the consistency required by scientific procedures and adhere to evidence-based care recommendations. However, outcomes are important.

The purpose of value-based healthcare is to improve health outcomes. As a result, in this research project, the researcher will look at how a value-based approach might help combat drug usage among Nigerian students. A review of case studies concerning value-based care results will be analysed, also strategies to which value-based can be achieved will be suggested. With this strategy, the research is expected to deliver insightful recommendations to improve on the drug use of students in Nigeria.

Findings and Discussion

Thematic Analysis

Thematic analysis is a simple and conceptually flexible interpretive technique to qualitative data analysis that allows for the discovery and study of patterns or themes within a particular data set (Braun and Clarke 2012). In contemporary research studies, thematic analysis is one of several different techniques to perform qualitative research. The approach to TA emphasizes the researcher's active participation in knowledge generation (Braun and Clarke 2019). Codes (words translated from documents, films, interviews, photos, etc.) Specify the researcher's perceptions of meaning patterns found in the dataset. Thematic analysis is defined as a reflection of the researcher's interpretative analysis of the data performed at the intersection of the dataset, the theoretical assumptions of the analysis, and the researcher's analytical skills/resources (Braun and Clarke 2019).

The search strategy for articles used for this research study followed a list criteria outlined by Rodriguez, et al., (2016) which is made up Language (English), Duration of publication (2010-2024), key words search (drugs abuse, students drug abuse, knowledge of drug abuse, students' knowledge of drugs abuse, factors associated with drug abuse, and students' attitudes. For the study, google scholar database is used to get data that is analyzed. During the search, 120 articles were gathered, but applying the years within which this analysis is supposed to cover, 59 articles were screened out. The remaining 61 articles were thoroughly read through abstracts, methodology, results and conclusions. The research further screened out 41 articles out because they were out of the context of the research. The remaining 20 articles were used for this research study.

From the 20 articles analyzed, themes and patterns were identified according to the research objectives. The summary of this is shown in table 3.1 and the discussion follows thereafter.

Table 3.1 Coded Thematic analysis. Source: Researcher (2024)

Objective 1: Level of knowledge among students about vapes, drug abuse, and their health effects in Nigeria	Objective 2: The attitudes of students towards drug use, and treatment options in the study area	Objective 3: factors associated with drug abuse among students
1. Patterns Low or No knowledge Good knowledge Relationship between knowledge and drug abuse rate	2. Patterns Positive attitude Negative Attitude	3. Patterns Peer influence Poor socioeconomic factors Low educational background Academic stress

Students' Knowledge of Drug Abuse in Nigeria

Low or No Knowledge

Our thematic analysis does not find any research study from out secondary data within Nigeria that agrees with the low or lack of knowledge about drug abuse effects. Since our research is based on only secondary sources rather than primary sources of data, it is fine to agree with this result. Further analysis would confirm that student's knowledge on drug abuse effects in Nigeria. However, Babatunde et al. (2020) showed that only 35% of students could name at least one program aimed at combating drug abuse on their campus. Most students indicated a preference for peer-led initiatives, emphasizing the importance of relatable figures in disseminating information about drug abuse. Many students expressed that educational programs need to be more engaging and localized to be more effective.

Good Knowledge of drug abuse effects

Our analysis revealed that many students in Nigeria are aware of the effects of drug abuse (Adebowale, et al. 2022; Jaclyn, et al. 2019; Nneka, et al. 2022; Akabuike, et al. 2023). Studies confirmed that students in Nigeria have knowledge of drugs abuse and its effects on their health and physical state. The academic curriculum of Nigeria is one such that students are made to know the effects of social vices and drugs abuse at a young age. In our analysis, studies that cover universities in the country found that drugs abuse knowledge among students is positive (Akabuike, et al. 2023). This shows that students are made to understand the consequences of drugs abuse, as it influences social vices on the campus and causes health challenges. Nneka, et al. (2022) demonstrated in his study that students are given welcome orientation in Universities in Nigeria in their 100 and 200 level and part of the orientation program is to provide knowledge on drug abuse and its effects on human health and physical conditions.

Link Between Students' Knowledge and Drug Abuse

Many findings show that there is significant relationship that exists between knowledge of drug abuse effects (physical, Social and psychological health) and drugs use rate (Awosusi and Adegboyega, 2013; Adebowale, et al. 2022; Idowu, et al. 2018; Akabuike, et al. 2023).

Many young people are unaware of the long-term effects of drug abuse on their health and well-being and may only be exposed to the short-term pleasure and euphoria associated with drug use. By educating students about the physical, psychological, and social effects of drug abuse, they may decide about their substance use and understand the potential risks involved. Similarly, in the analysis, it was found that drugs such as codine, tramadol, have serious physical and psychological effects mental health disorders (Idowu, et al. 2018; Akabuike, et al. 2023). Analysis therefore confirmed that understanding the consequences of drug abuse, students avoid experimenting with illicit substances.

Our analysis also shows that the knowledge of drugs abuse effects does not only reduces the rate of students' involvement but also push those with the understanding to advocate for drug prevention and intervention programs in their schools and communities (Idowu, et al. 2018; Akabuike, et al. 2023). By educating students about the importance of drug prevention and intervention, they can become active agents of change and promote positive behaviors and attitudes among their peers. By raising awareness about the dangers and consequences of drug abuse, students chose to live right, live healthy, and become more serious with studies.

Student's Attitudes towards drug use and treatment in Nigeria

This analysis is coded in two words – positive and negative. Therefore, findings with related words will be classified accordingly

Positive attitudes

Our analysis found that some students according to secondary data analyzed said that they have positive attitudes about drug abuse (Akabuike, et al. 2023). On one hand, there are students in Nigeria who have a positive attitude towards drug abuse, viewing it as a way to cope with stress, anxiety, and other challenges in their lives. These individuals may have experienced trauma, poverty, or other adverse circumstances that lead them to seek solace in drugs as a means of escape. In a society where mental health services are scarce and stigma surrounding mental illness persists, some students may turn to drugs as a way to self-medicate and numb their pain.

Negative attitudes

Many studies found that students' attitude towards drug abuse is positive (Adebowale, et al. 2013; Jaclyn, et al. 2019). There are students in Nigeria who have a negative attitude towards drug abuse, recognizing the harmful effects it can have on their physical and mental health, as well as their academic and career prospects. These individuals may have witnessed the devastating impact of drug abuse on their families, friends, and communities, leading them to reject drugs as a viable option for coping with life's challenges. Additionally, religious beliefs and cultural values that emphasize personal responsibility, self-discipline, and respect for the body may influence some students to abstain from drugs and make healthier lifestyle choices.

Analysis of Factors Associated with drug abuse among students

Thematic analysis of this research question was coded in 4 ways – peer influence, poor socioeconomic factors, low educational background and easy drugs availability. Through the identified factors through the research findings, our discussion follows thus.

Peer Influence

Findings shows that peer pressure is one factor that influences students to engage in drugs abuse (Akpan, et al. 2024; Melkam, et al. 2023; Suleiman et al., 2021). Drug abuse knowledge and its effects has positive effects on peer pressure resistant (Akpan, et al. 2024). It gives students knowledge about the effects of drug abuse and also helps them develop the necessary strategies to resist peer pressure and make positive choices in difficult situations. Many young people are influenced by their friends and peers to experiment with drugs and may lack the assertiveness and confidence to say no to substance use. Students are often influenced by their peers to experiment with drugs as a way to fit in or appear cool. Peer pressure can be particularly strong during adolescence when students are more vulnerable to external influences. Students may feel pressured to try drugs in order to gain acceptance and approval from their peers. In some cases, students may feel pressured to engage in drug use in order to maintain their social status within their peer group.

Poor Socioeconomic Status

Findings in our research analysis also confirmed that many students who engage in drug abuse is because of some socioeconomic factors (Jatau, et al. 2021; Mustafa-Shaibu, and Omorovbiye, 2022). Many students are reported to have come from low-income families and struggle to meet their basic needs. Poverty and economic hardship can create stress and feelings of hopelessness, driving students to turn to drugs as a way to escape their problems. Some students believe that through drug abuse, their problems will be temporarily gone and provide students with a sense of euphoria and relief from their troubles. Additionally, students from low-income families may lack access to quality education and social support systems, making them more vulnerable to drug abuse.

Research indicates that poverty can create significant psychological stress (Omorovbiye 2022). Students from low-income families frequently face challenges, such as inadequate housing, food insecurity, and limited access to basic health care. These stressors can manifest as anxiety, depression, and feelings of hopelessness emotions that may compel students to seek solace in drug use. For many, drugs provide a fleeting sense of euphoria and a temporary escape from their everyday struggles. Students from lowincome families may lack these networks of support due to various factors. Parents who are economically burdened often have less time and resources to provide emotional support or guidance to their children, leading students to fill their time with drug use as a substitute for positive engagement. The findings of Jatau et al. (2021) and Mustafa-Shaibu and Omorovbiye (2022) underline the necessity to address socioeconomic factors as a means of curbing drug abuse among students.

Low Educational Background

One of the patterns found in the analysis of secondary data shows that low educational background is one of the factors that is associated with drug abuse among students (Azi, et al. 2021; Jatau, et al. 2021; Akpan, et al. 2024). Many students who engage in drug abuse come from backgrounds where education is not given priority. Findings showed that either the parents are not well educated, or the elder siblings are not educated or the entire community where they come from, education is not prioritized (Akpan, et al. 2024). These students may lack the necessary knowledge to make informed decisions about drug use. Without a solid educational foundation, they are susceptible to misinformation and peer pressure regarding drug use. This makes them more easily convinced to engage in drugs abuse.

Academic Stress

Factors such as academic stress, lack of parental supervision, and socio-economic challenges further fuel drug misuse among students (Odukoya et al., 2021). Notably, many students articulated feelings of anxiety and depression as triggers for their drug use, a finding consistent with the work of Fadeyibi et al. (2019). Many respondents reported a decline in academic performance, increased absenteeism, and difficulties focusing on studies (Olufunmilayo et al., 2020). Beyond academic performance, students also highlighted physical health complications, such as respiratory issues from smoking and mental health disorders.

The overwhelming desire to achieve high grades often results in unhealthy coping mechanisms, including drug misuse. Many students report using substances such as stimulants to enhance concentration or alleviate feelings of inadequacy when faced with academic challenges. According to Odukoya et al. (2021), the stress stemming from academic demands is a primary factor in students' decision to engage in drug misuse.

Lack of parental supervision identified from our thematic analysis is shown to exacerbate the risk of drug misuse among students. In many cases, students who feel unsupported by their parents may turn to substance use from influence of peers as a way to cope with feelings of isolation or frustration. Findings of Odukoya et al. (2021) emphasize the critical role that parental involvement plays in moderating students' behaviour. Students without adequate supervision are often more inclined to engage in risky behaviours, including drug misuse.

Socio-economic factors also play a significant role in the prevalence of drug misuse among students. Economic hardship can lead to increased stress and anxiety, which are known triggers for substance use (Fadeyibi et al., 2019). Students from lower socio-economic backgrounds may face challenges of food insecurity, unstable living conditions. These pressures can create a cycle in which drug use is seen as a means of escape. Odukoya et al. (2021) found that students often articulated their feelings of helplessness and hopelessness as driving factors behind their choice to use drugs as a coping mechanism.

Finding Solution through value-based care

Value-based healthcare is a new health-care model in which what is important is value to the patient (Kaplan, 2020). This value-based model strengthens the role of primary care. It is the measured improvement in a person's health outcomes for the cost of achieving that improvement. A decade of research into organizations that have achieved better outcomes while often lowering costs suggests a strategic framework for value-based health care implementation that starts with identifying and understanding a segment of patients whose health and related circumstances create a consistent set of needs (figure 4.1) (Ramos, 2022). An interdisciplinary team of caregivers then comes together to design and deliver comprehensive solutions to address those needs.

Figure 1. Strategic Framework for value-based health care implementation to achieve better patient outcomes. (Source: Teisberg et al., 2020)

Value based care models have been of immense help to fight health issues in modern days. This approach can be used to fight drug abuse rates in Nigeria. Many Universities like the Covenant University has implemented a comprehensive drug abuse prevention program based on value-based care principles. The program includes education and awareness campaigns, counseling services, and support groups for students who are struggling with drug abuse. All these are in line collaboration with health care providers and are aimed at first tackling the factors that contribute to drug abuse in the university.

Value is a broad term, but in essence, it is the best outcome for the patient per money spent (Lybrand and Althausen, 2018). To provide value for the patient, medical practice must be centered around conditions and care cycles, and the results must be measured. There cannot be an improvement in value for patients without measuring the results. The outcomes for every medical condition and the cost for achieving it need to be measured. Good measures are vital, and they enable professional insight and the development of expertise (Putera, 2017). Successful value models are confirmed through measured outcomes. If we measure a minimum sufficient set of outcomes for every major medical condition and then standardize them nationally, we are one step closer to this model's success, but that has proven to be difficult.

It was found that there is need for regular seminars on the dangers of drug abuse was echoed by many respondents (Nkanginieme et al., 2021). These seminars and workshops on campuses would be measured through value based and this could help in curbing this menace as claimed. While some students are aware of the dangers associated with drug use, many harbour misconceptions about certain substances and their effects. This thematic analysis highlights several key areas for intervention.

The key principles of Value based care applications is shown in table below:

Table 3.2 Application of value-based care to drugs abuse treatment. Source: Researcher, 2024.

Principle	Application for Drug abuse treatment
Patient-Centricity	Focus on individual needs and preferences. Personalized treatment plans based on individual needs.
Outcomes Measurement	Emphasis on meaningful health outcomes. Metrics that assess sobriety, quality of life, and reintegration.
Cost Effectiveness	Value creation through optimal resource allocation. Investment in preventive and outpatient programs.
Integration of Care	Coordinating services across disciplines for holistic care. Collaborative models among various health and social services.

For the table above, developing tailored intervention strategies that resonate with individual experiences and needs as shown can be really effective in treatment of drugs abuse. This patient-centered approach can lead to higher engagement and retention in treatment programs, ultimately resulting in better outcomes. VBHC encourages considering aspects like quality of life, social reintegration, and overall wellbeing as indicator factors. Therefore, implementing VBHC principles provides a viable solution to the pervasive issue of drug abuse.

Summary

This research presents a study on students' knowledge, attitudes and practice towards drugs abuse in Nigeria. The study laid a background for the study, starting the research problems and gaps. The study is built on the research objectives which are to; assess the level of knowledge among students about vapes, drug abuse, and their health effects in Nigeria, determine the attitudes of students towards drug use, and treatment options in the study area, examine the prevalence of drug abuse among students, and identify the factors associated with drug abuse among students. This research study further reviews related literature and articles concerning the research objectives. The methodology is discussed in detail, making it known that this research study is secondary research which uses secondary data for analysis. The thematic analysis is used for this research in order to identify the patterns and themes from secondary data analysed. The findings were presented in chapter four and discussed accordingly. This chapter however is one that rounds up these research findings. The conclusion and recommendation are captured here.

Conclusion

Findings for this research study has shown that there is significance relationship between knowledge of drug abuse effects and the rate of drug use among students in Nigeria.

The study found that exposing students to the knowledge of drug abuse effects helps in fighting the factors that are associated with drug abuse such as peer pressure, socioeconomic factors, and low educational background syndrome.

The study found that the attitudes of students towards drugs abuse is in two folds, the positive and negative attitudes. While some students view drugs abuse as a bad thing with bad influence on themselves and the society, others see it as a means of whining out time, temporary forgetting about their problems. Many students with anxiety issues could use drugs in order to escape some of these issues temporary, thinking it is the best solution.

This research also found by applying value care model in tackling drug abuse rate among students at various schools in Nigeria to be a viable too. Value-based health care connects clinicians to their purpose as healers, supports their professionalism, and can be a powerful mechanism to counter clinician burnout. By applying this model, drug abuse use in schools will be reduced. Case study analysis also shows that schools such as Covenant University in Nigeria has adopted value-based model in order to fight drugs abuse among students and this method proved viable and successful. The university employs a continuous assessment approach to evaluate the impact of its value-based education initiatives, receiving feedback from students, alumni, and community stakeholders to checkmate the programme effectiveness.

Key Recommendations

Drug abuse is a global issue. This research study has uncovered a lot of problems and solutions towards this menace. Due to these research findings, the following recommendations are made by the researcher:

1. Knowledge, they say, is power. This has been proven in our analysis in this research which was found that students with the knowledge of drugs abuse effects have high chances of avoiding illicit drugs use than those without the knowledge. It is therefore recommended that every school in the country must implement policies that allows students to receive orientation about drugs abuse and its impact. This will not just help reduce drug abuse rate in the country but will enhance students' academic success.
2. Students with issues such as anxiety that makes them feel drugs is a temporary solution should be told about the severe effects of those drugs. The school must also subject such people to intense counselling and monitoring in order to help them come out of that addiction.
3. Factors were identified to be associated with the drugs abuse by students. These factors such as peer pressure should be controlled. If there is a sickness and you treat the symptoms without treating the cause, the sickness though may seem to be finished, but surely it will return. Therefore, for drugs abuse to be completely eradicated or at least reduced to minimal, then the factors associated with it must be tackled.
4. Government should make policies about drugs abuse and be strict in enforcing such policies. This will also help in reducing drug abuse cases in the country.
5. As good as awareness of drug abuse is to students, only schools may lack the financial capabilities to execute their orientation campaign programs in the school. It is therefore recommended that the government of Nigeria must annually place a budget that aid schools in fighting drug abuse in the country.

Limitation of the Study

This research study is limited to secondary data and published articles gathered across Nigeria. Having said this, this research study is limited to the data sets the research is exposed to, there is no gathering of primary data. The study gathered and analysed secondary data relating to only students' drugs abuse knowledge and attitudes, drawing strategies through thematic analysis and Valu based Healthcare approach on how to curb this menace.

Another notable limitation in this research is the use of secondary data. Since this research findings are based on secondary data strictly, the findings could not cover more details concerning the topic. Primary data would allow for physical interaction with students and victims of drugs abuse which could further give deeper insight on the case under study.

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What are the enabling factors to improving productivity through allocative value at the meso / organisational level?

FRED PIGOTT
Head of Productivity
NHS England (North-West)

Abstract:

This research focuses on the concept of value. This concept is central to the modern approach to health and care improvement and transformation known as Value Based Healthcare (VBHC). A scarcity of research concerning VBHC has created a gap in the body of academic knowledge which can be framed by the question “what are the enabling factors to improving productivity through allocative value at the organisation / meso level”. This study employed a mixed methods approach to qualitatively derived insights into VBHC and the application of the concept of allocative value.

The findings show that there are key drivers which if considered in a logical order can support greater alignment of resources to the needs of the local population, improving outcomes more efficiently by doing the right activities which have a demonstrable benefit, ultimately this improves all aspects of productivity. This is fundamental because it moves the ask beyond increasing activity to focusing on the whole pathway and the relationships between the different interconnecting parts of the system.

Allocative value is considered at national level in the way resource is cascaded for local deployment but less so at the operational level. The absence of this creates the conditions whereby current practice prevails, supplemented or interrupted by ringfenced bespoke allocations, which serve a macro policy rather than a place based identified need.

If we are to make the resource available go further, the way resource is deployed needs to reflect the needs of the local population and both the symptoms and the actions that population seeks. It is here where the concept of allocative value is best serviced in improving outcomes and equity in a sustainable way whereby everyone is aligned to the priorities and holds stewardship over how resource matched need and expectation fairly.

Keywords: VBHC, NHS.

Acronyms, Tables, and Figures

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Introduction

Purpose

This paper explores how resources are deployed at the 'meso' (operational level) and how 'allocative' decisions impact upon both value and sustainability for health and care organisations, the health system, the patient, and society.

Nationally health expenditure as a percentage of Gross Domestic Product (GDP) has been rising yet improvements in outcomes have lagged (Landon et al., 2021). Healthcare demand continues to grow (Turner et al., 2021); however, the resources available for healthcare are explicitly limited. Consequently, ensuring the best "value for money" spent in healthcare has been placed high on the agenda for governments worldwide. These decisions are at a 'macro-economic' level and represent how the nation's finances are 'allocated' to achieve aims and ambitions. Gray (2023) proposes:

> *Healthcare is more complex than even warfare, however, and probably the most complex business on Earth. One reason for this is that it is the clinicians, the front-line soldiers, who determine the total amount of resource committed.*
>
> *What we need is for everyone, including clinicians, to feel concern about the sustainability of universal healthcare and to recognise that their behaviour as individuals has an influence on sustainability. If resources are wasted at their present level universal healthcare is unsustainable.*

For those working in healthcare, it is apparent that better decisions could be made locally by taking a different approach, based around the patient and their totality of care, irrespective of who delivers which part and to achieve this, we need to consider how the resource is allocated to competing demands. This is the basic issue which focuses on this study.

Objectives of Research

The objectives of this research are stated as follows:

- To determine what are the key contributory factors in promoting allocative value discussions operationally.
- To build a framework which supports NHS leaders to integrate the drivers of improving allocative value into decisions over how resources are prioritised.
- To determine what some of the competing factors might be.
- To test whether users recognise and practice the importance of allocative value.

Authors Interest and Motivations

The researcher is a Chartered Accountant with 25 years' experience with a particular interest in the interconnection between finance and patient experience. As part of a MSc into Value-based Health and Care (VBHC), the author explored the use of virtual words including the strategic case, implementation and establishing the right culture. Part of this work considered the role of allocative value locally and how projects were evaluated for their degree of 'success'.

The Context of the Study

The literature which underpins this contemporary challenge of how to optimise allocative value is drawn from professional management, academic peer reviewed and 'grey' literatures so that a holistic approach was taken to view allocative value for professional practice.

Research Focus and Contemporary Context

Discussions regarding how to distribute, or allocate, resources within a complex system are not new. All health systems contend with competing priorities, rising demand, policy and politics, all of which shape how the resources available to an organisation or system are deployed. Porter and Teisberg (2006) argue that "the way to transform health care is to realign competition with value for patients", competing on results. Porter's work was based on the US system, dominated by private health insurance and independent providers individually charging for their services. However, Porter's work has a role in considering the research question, namely is it possible to allocate resources in a different way which results in doing more of the right things and reducing waste within the resources available.

How Health Care Funding Is Allocated In England

In 2023, the Organisation for Economic Cooperation and Development (OECD) determined that during 2022, the United Kingdom (UK) spent 11.3% of GDP on health compared to an OECD average of 9.2%.

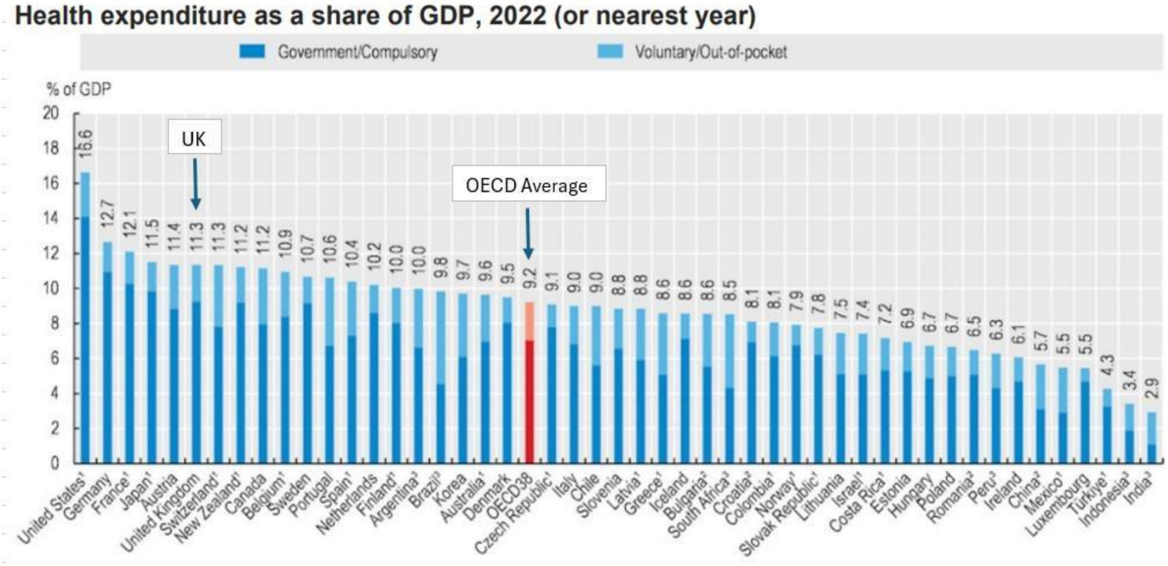


Figure 1: Health expenditure as a share of GDP, 2022 (OECD, 2023)

The UK government collects revenue primarily via taxation receipts. The total value of all goods and services produced in an economy is referred to as the Gross Domestic Product (GDP).

To allocate government resources, the Treasury undertakes three-year spending reviews to set departmental expenditure limits (DELs) for each government department (Green & Bence, 2016). This is the revenue or resource DELs which cover normal operating or running costs. Capital DELs are supplementary to revenue DELs and cover longer term infrastructure programmes such as new hospitals or roads.

Public expenditure falls into one of two categories:

- DEL spending is expenditure on the running costs of each government department. For the DHSC this includes the costs of running hospitals, including staff costs, as well as the provision of other healthcare services. Departments are not allowed to overspend the annual DEL
- annually managed expenditure (AME), is expenditure that cannot reasonably be subject to firm, multi-year limits in the same way as DEL. Examples of such spending are social security benefits that fluctuate depending on the level of unemployment.

Together, DEL plus AME equal total managed expenditure (TME).

(Green & Bence, 2016)

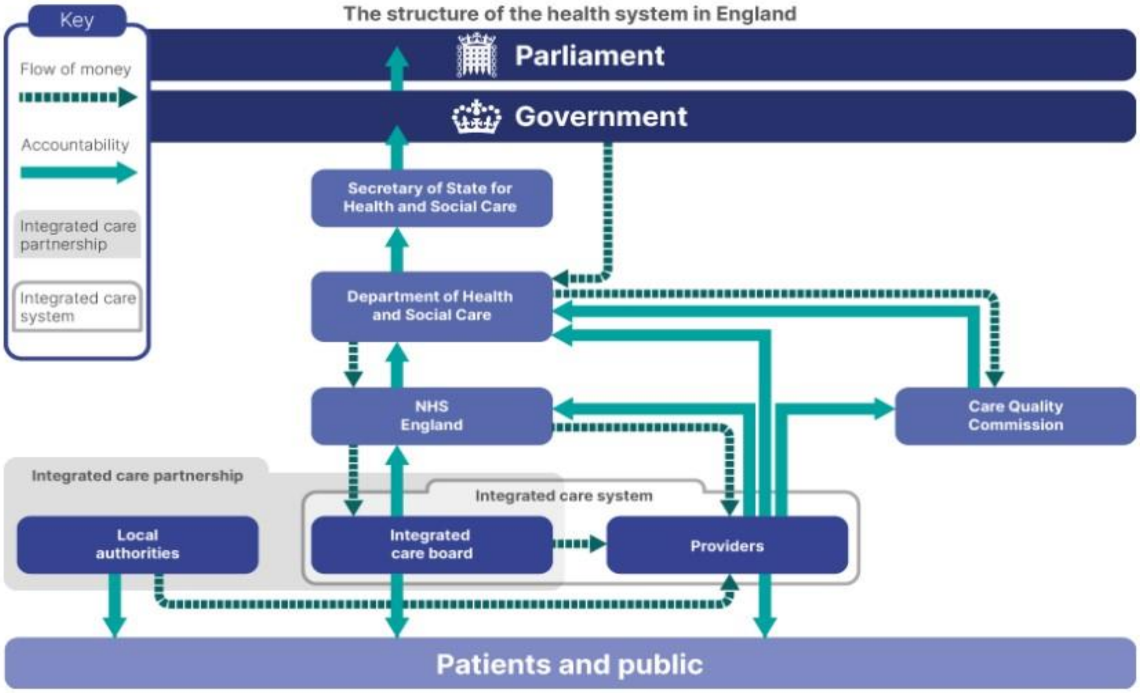


Figure 2: NHS Structure in England (Green & Bence, 2016)

Figure 3 illustrates the cascade of £176.1bn healthcare spending in England in 2022/23: £159.1bn (90.4%) allocated to NHS England.

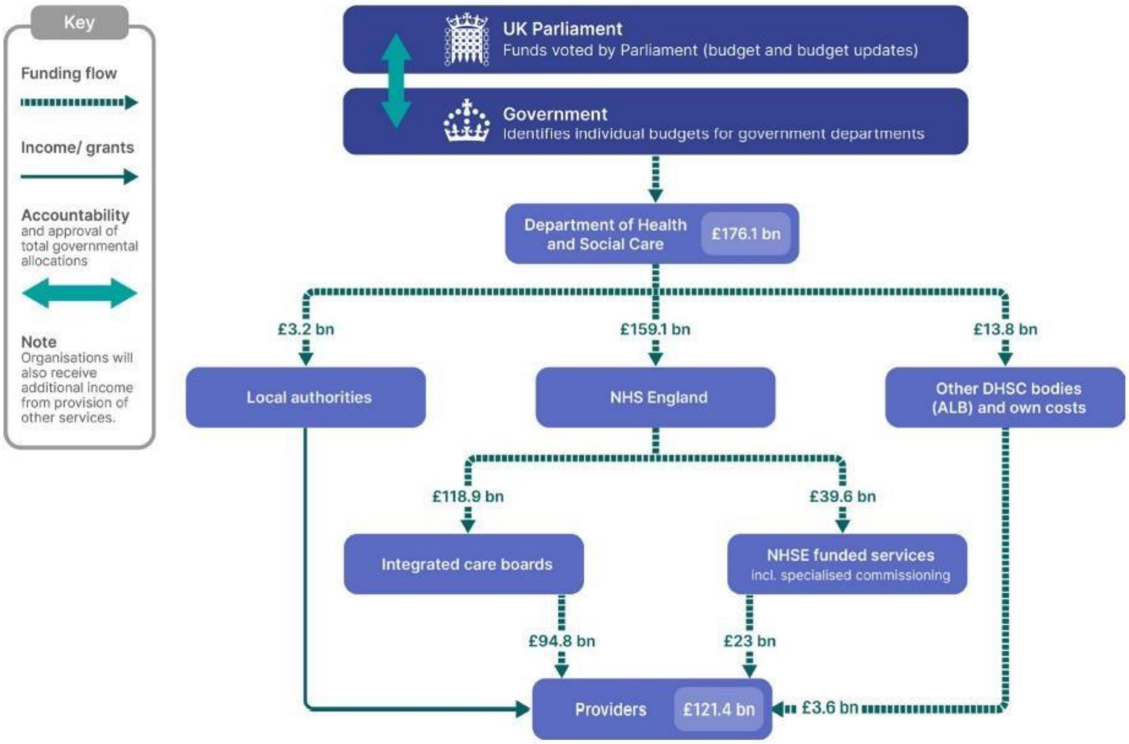
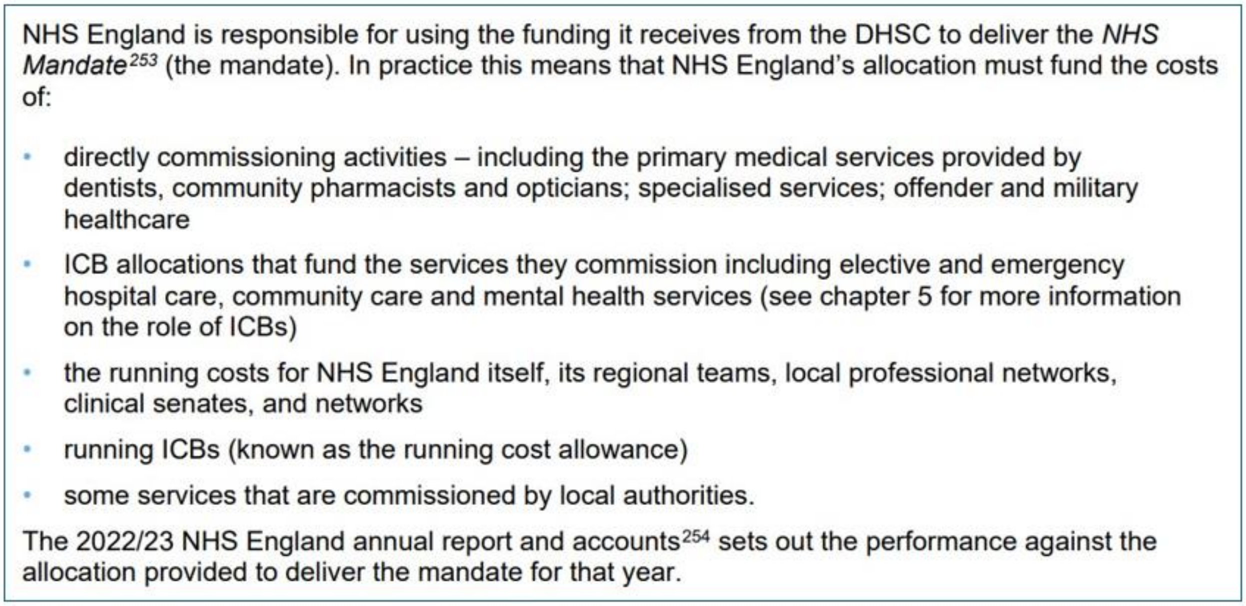


Figure 3: Resource DEL allocations in 2002/23 (Green & Bence, 2016)

NHS England uses the £159.1bn it receives to deliver the NHS Mandate (Figure 4).



NHS England is responsible for using the funding it receives from the DHSC to deliver the *NHS Mandate*[253] (the mandate). In practice this means that NHS England's allocation must fund the costs of:

- directly commissioning activities – including the primary medical services provided by dentists, community pharmacists and opticians; specialised services; offender and military healthcare
- ICB allocations that fund the services they commission including elective and emergency hospital care, community care and mental health services (see chapter 5 for more information on the role of ICBs)
- the running costs for NHS England itself, its regional teams, local professional networks, clinical senates, and networks
- running ICBs (known as the running cost allowance)
- some services that are commissioned by local authorities.

The 2022/23 NHS England annual report and accounts[254] sets out the performance against the allocation provided to deliver the mandate for that year.

Figure 4: The NHS Mandate (Green & Bence, 2016)

Illustrating 2022/23, NHS England received a resource of £159.1bn which was further cascaded as £118.9bn to the 42 Integrated Care Boards (ICBs) based on weighted population and £39.6bn for NHSE funded services (primary care, specialised commissioning).

The Meso Or Operational Level

For the purposes of this research, ICBs are the 'meso' level statutory boards accountable to NHS England with four key aims (Charles, 2022):

- Improving outcomes in population health and healthcare.
- Tackling inequalities in outcomes, experience, and access.
- Enhancing productivity and value for money.
- Helping the NHS to support broader social and economic development.

These four aims align local delivery of the 2019 Long Term Plan (NHSE, 2019).

This chapter therefore sets out **five major, practical, changes** to the NHS service model to bring this about over the next five years:

1. We will **boost 'out-of-hospital' care**, and finally dissolve the historic divide between primary and community health services.
2. The NHS will **redesign and reduce pressure on emergency hospital services.**
3. People will get more control over their own health, and **more personalised care** when they need it.
4. **Digitally-enabled primary and outpatient care** will go mainstream across the NHS.
5. Local NHS organisations will increasingly **focus on population health** and local partnerships with local authority-funded services, through new Integrated Care Systems (ICSs) everywhere.

Figure 5: The Five Principle aims of the NHS England Long Term Plan (NHSE, 2019).

The ICBs commission contracts for the provision of healthcare services. This paper will consider whether allocative value forms part of these decisions.

Gray (2023) writes we live in a world where decisions are made using bounded rationality. All we can seek to do is to make the best use of resources we can. Gray further notes that if resources are wasted at their present level, universal healthcare becomes unsustainable.

Below are two charts from the Commonwealth Fund which taken together suggest the return on investment in healthcare represents an opportunity for improvement – the macro allocation is increasing but not replicated in high level outcomes: survival being the most basic.

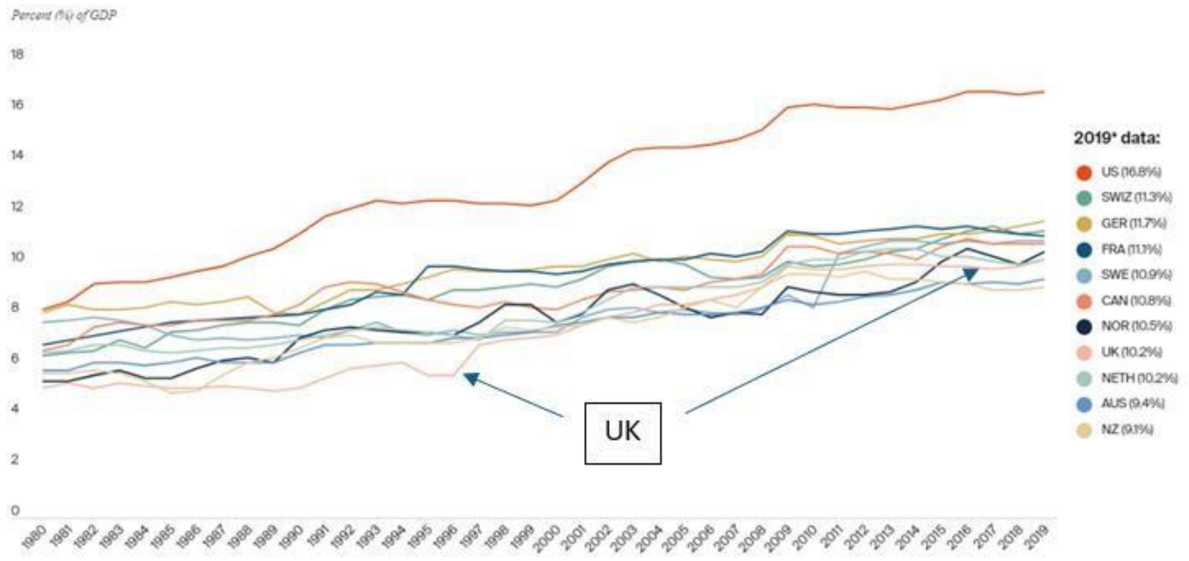


Figure 6: Health are spending as a Percentage of GDP, 1980-2019 (Schneider et al., 2021)

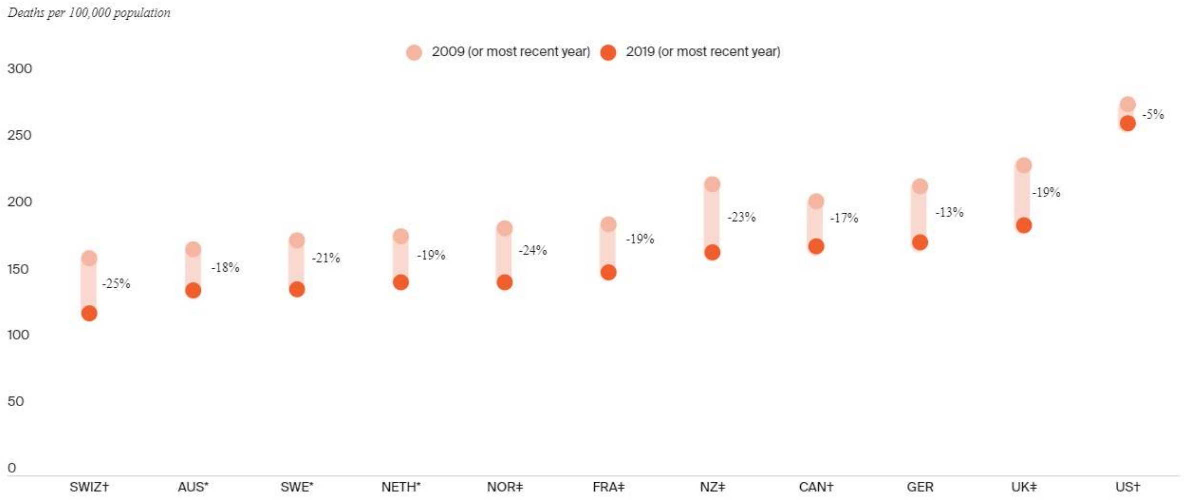
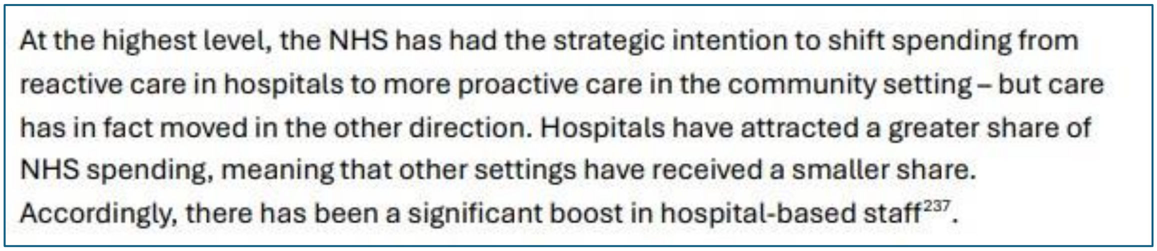


Figure 7: Avoidable deaths and 10-year reduction in avoidable mortality across countries (Schneider et al., 2021)

Healthcare spends in the UK increased steadily to 10.2% of GDP in 2019 (pre-Covid), yet avoidable deaths were second highest across the 10 commonwealth nations having already improved by 19% over the preceding 10 years. At a macro level, this suggests more money has reduced avoidable deaths, but the continued gap indicates a disconnect between investment and healthier outcomes.

This question is more relevant now than ever as per the Darzi (2024) report:



At the highest level, the NHS has had the strategic intention to shift spending from reactive care in hospitals to more proactive care in the community setting – but care has in fact moved in the other direction. Hospitals have attracted a greater share of NHS spending, meaning that other settings have received a smaller share. Accordingly, there has been a significant boost in hospital-based staff[237].

Figure 8: How the money is spent. Independent Investigation of the National Health Service. Darzi, 2024.

The Importance of Allocative Value

Demand for planned care services, crudely measured by the number of people on a waiting list, has been rising since 2009 (NHS-England, 2024a). The Covid pandemic led to unprecedented healthcare disruption in the UK (Shah et al., 2024) with elective waiting lists peaking at 7.8million in September 2023 (Warner & Zaranko, 2024) but with variation in demand for different services and specialties. Such an inequity of demand will likely disrupt allocative value as differing levels of resource will be required to achieve a consistent aim.

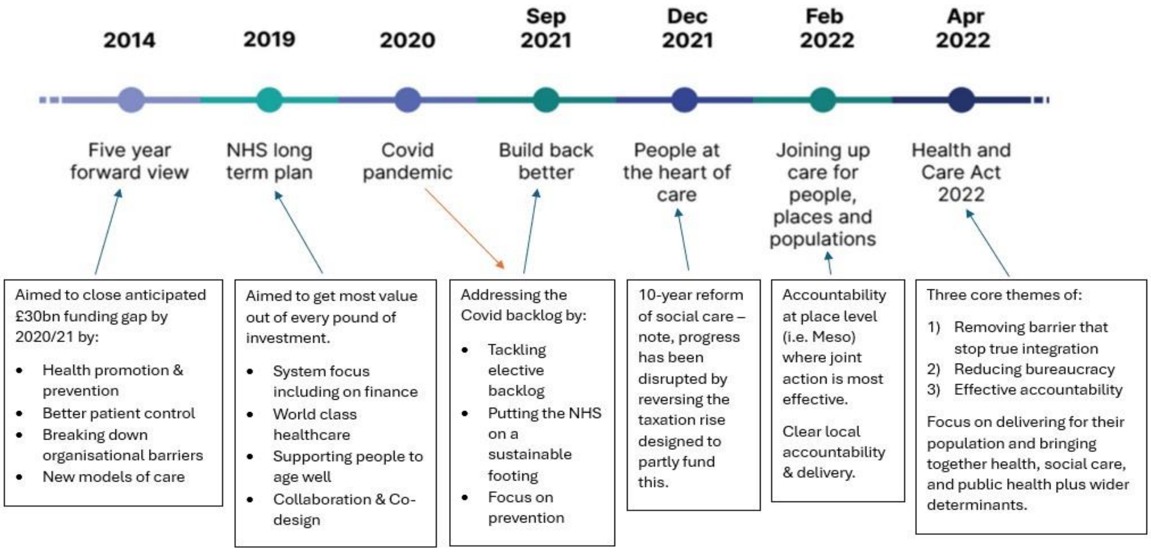
Source: NHS England, 2024a. • Note: Pre-pandemic trend calculated using the average monthly growth rate between January 2016 and January 2020.
Download the data

IFS

Figure 9: Size of the NHS elective waiting list in England, 2007 to 2023 (Warner & Zaranko, 2024)

To achieve the ambitions of both the elective recovery and long-term plans, it is necessary to redouble efforts to use resources efficiently, effectively, and economically (Kelly, 2024) and this also requires appropriate measurement.

In October 2022, NHS England published the elective recovery plan (NHS-England, 2022) aiming to tackle long waits for care and reinvigorate the key themes of previous planning milestones and policy initiatives going back to 2014.



Aimed to close anticipated £30bn funding gap by 2020/21 by:

- Health promotion & prevention
- Better patient control
- Breaking down organisational barriers
- New models of care

Aimed to get most value out of every pound of investment.

- System focus including on finance
- World class healthcare
- Supporting people to age well
- Collaboration & Co-design

Addressing the Covid backlog by:

- Tackling elective backlog
- Putting the NHS on a sustainable footing
- Focus on prevention

10-year reform of social care – note, progress has been disrupted by reversing the taxation rise designed to partly fund this.

Accountability at place level (i.e. Meso) where joint action is most effective.

Clear local accountability & delivery.

Three core themes of:

1) Removing barrier that stop true integration
2) Reducing bureaucracy
3) Effective accountability

Focus on delivering for their population and bringing together health, social care, and public health plus wider determinants.

Figure 10: Developments in UK Healthcare since 2014 (Researcher Adapted) (HFMA, 2024)

Allocative value at one level or another is present in all the above. However, it is the more recent developments which are really pushing the focus to greater local determination, accountability and recognition that focus must change if we are to seek different results and a continuation of the current model is neither sustainable nor conducive for improving the health of the nation.

Literature Review

Initial Literature Review

A variety of techniques have been used to measure how effectively resources are consumed in providing health care services with varying degrees of success and relevance, from traditional accountancy techniques to economics evaluations to sector-specific programme budgeting. These have relative advantages and disadvantages.

This initial literature review aims to identify the key areas which could be considered relevant for a conceptual framework for further discussion.

Allocative Value

The origins of value-based health care (VBHC) originate in the work of Michael Porter and Elizabeth Teisberg at Harvard Business School in the early 2000s, which was published in the book “Redefining Healthcare” (Porter & Teisberg, 2006). Their original definition was:

> *“Patient value is defined as patient-related outcomes, divided by the costs per patient across the full cycle of care to achieve those outcomes. Value-Based Healthcare focuses on maximising the value of care for patients and reducing the cost of healthcare”.*

Although Porter & Teisberg’s work was derived from healthcare provision in the USA, VBHC as a concept gained traction, including across Europe. There were limited developments in VBHC in the decade from 2006; most new research occurring after 2015.

In 2019, the European Commission’s Expert Panel on Effective Ways of Investing in Health (EXPH) attempted to further define VBHC and what value means for whom, introducing the four pillars.

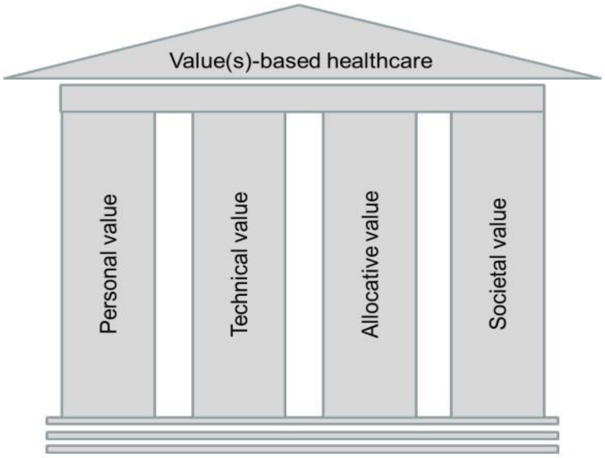
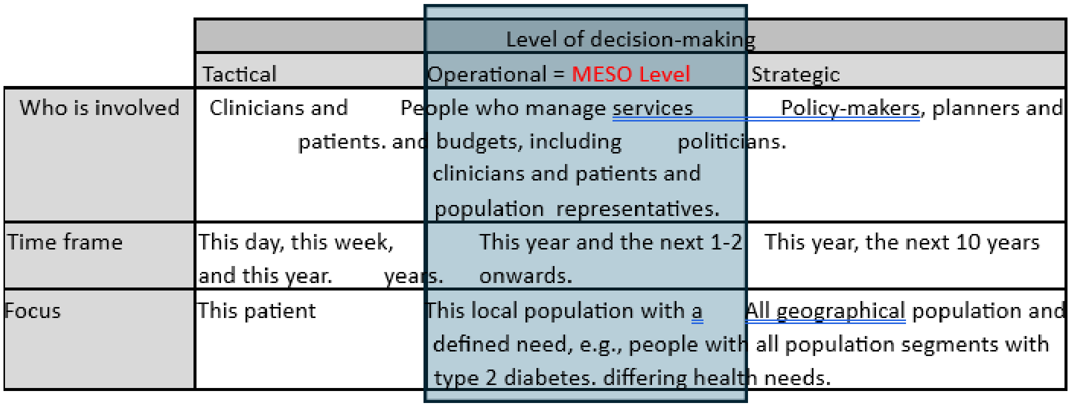


Figure 11: The Four Value Pillars for a value(s)-based healthcare in Europe (EXPH et al., 2019)

The premise of EXPH's work was that it should be possible to provide better personal, social, technical and allocative value in health-care provision for the resources spent EXPH et al. (2019) and Gray (2016).

Per Gray (2023), "there are different levels of allocation that can be seen in every health service. From the perspective of payers for healthcare, value is at its maximum when it is not possible to increase the benefit or decrease the harm by reallocating a single pound from one group of patients to another".



	Level of decision-making		
	Tactical	Operational = MESO Level	Strategic
Who is involved	Clinicians and patients.	People who manage services and budgets, including clinicians and patients and population representatives.	Policy-makers, planners and politicians.
Time frame	This day, this week, and this year.	This year and the next 1-2 years.	This year, the next 10 years onwards.
Focus	This patient	This local population with a defined need, e.g., people with type 2 diabetes.	All geographical population and all population segments with differing health needs.

Figure 12: Managing the three levels of decision-making (Gray, 2023)

Checkland et al. (2018) found that "an initial appetite for newly granted autonomy constrained vertically by an increasingly onerous managerial assurance regime, and constrained horizontally by a proliferation of bodies, networks, and forums with varied and sometimes overlapping remits. There is currently little available research that explores the role of meso-level organisations ion the health sector".

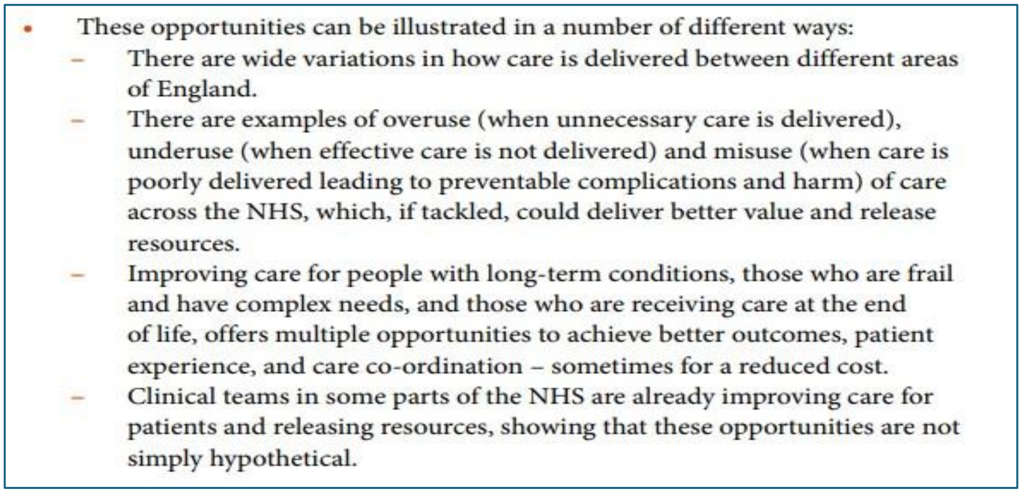
Barasa et al. (2015) promote that there are four recurrent concepts critical in priority setting processes:

1. Priority setting is necessitated to solve the fundamental economic problem of scarcity and choice, which entails making choices that desired outputs are maximised within the available resources.
2. The goal of maximising desired outcomes must be traded off against equity. Priority setting exercises in organisations should aim to achieve an appropriate balance between maximising intended outcomes for a given resource level whilst considering equity.
3. Using outcomes to determine short-term decisions is likely to be problematic given the complexity of the process and the operating environment.
4. Procedural justice and fairness are desired goals.

If we accept that complexity means universally achieving Gray's optimum allocative value is unlikely, then a successful outcome is to continually shift towards higher value activities. This connects the four pillars of VBHC by using resources efficiently to achieve the outcomes that matter to patient's personal goals in a way that balances need with equity mindful to the contribution to, and response from, wider society as part of corporate social responsibility.

Outcomes, culture and goals will be explored via the survey and interview questions.

As per the Kings Fund (Alderwick et al., 2015), the reality of the NHS has been an inherent focus on shorter term targets which influences the allocation of resources and creates a much more operational focus which treats the symptoms and not the cause.



- These opportunities can be illustrated in a number of different ways:
  - There are wide variations in how care is delivered between different areas of England.
  - There are examples of overuse (when unnecessary care is delivered), underuse (when effective care is not delivered) and misuse (when care is poorly delivered leading to preventable complications and harm) of care across the NHS, which, if tackled, could deliver better value and release resources.
  - Improving care for people with long-term conditions, those who are frail and have complex needs, and those who are receiving care at the end of life, offers multiple opportunities to achieve better outcomes, patient experience, and care co-ordination – sometimes for a reduced cost.
  - Clinical teams in some parts of the NHS are already improving care for patients and releasing resources, showing that these opportunities are not simply hypothetical.

Regarding equity, Gutmann and Thompson (2004) proposed three principles of ‘deliberative democratic processes’ as:

1. Publicity: rationales for decision-making are made explicit and publicly available.
2. Accountability: decision-makers are held responsible for their decisions; and
3. Reciprocity: everyone respects and listens to each other’s views during decision-making. Such principles are central to many NHS initiatives aimed at promoting democratic representation, including personalised care, health & well-being boards, governors and staffside representatives.

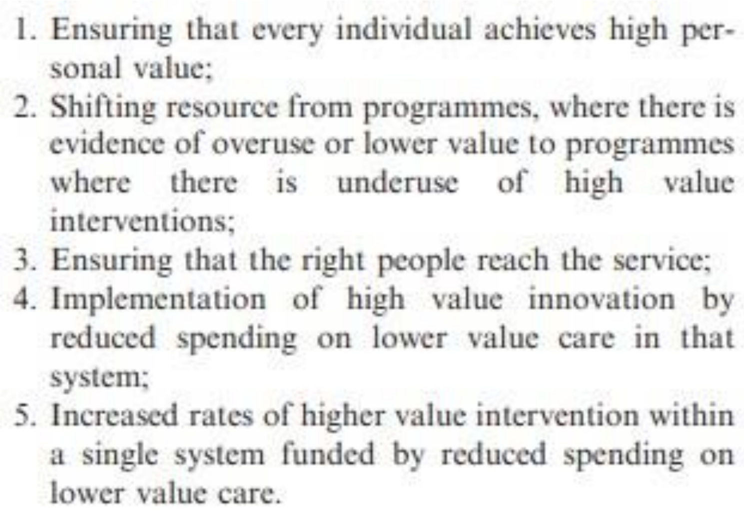
Following such a framework means there is opportunity for the local population to express their views regarding their personal health concerns and goals, that they will be listened to and decisions over balancing of resources are transparently pursued. This isn’t the same thing as pursuing reducing or removing health inequalities, which could be argued that if this is the primary focus, this could reduce allocative efficiency as more complex and/or harder to reach population groups are likely to have more complex needs and situations which consume more resource. Equity and stakeholder engagement will be explored via the survey and interview questions.

Stuart et al. (2023) states there are two initial steps which determine optimal allocation of health resources:

1. Clearly identify the problem.
2. Determine how outcomes depend on the allocation of resources.

Using virtual wards as the example, nationally the problem has been determined as being related to physical capacity followed by acceptance that not all patients receiving an acute level of care need a hospital bed. Once the decision has been made to invest in a particular programme, Stuart et al. (2023) argue this makes the determination of outcomes easier using the concept of ‘constrained allocation’ which provides a structured framework for answering a broad class of problems: namely, how to best achieve a particular outcome given a set of constraints. The constraints applied will determine how far such allocative decisions extend.

Gray (2016) asserts this is a population health approach. The focus is on better value for individuals and populations. Gray proposes five activities to achieve this:



1. Ensuring that every individual achieves high personal value;
2. Shifting resource from programmes, where there is evidence of overuse or lower value to programmes where there is underuse of high value interventions;
3. Ensuring that the right people reach the service;
4. Implementation of high value innovation by reduced spending on lower value care in that system;
5. Increased rates of higher value intervention within a single system funded by reduced spending on lower value care.

Figure 13: Achieving a population health approach

This links to the drive to improve productivity (Kelly, 2024) which sets out the key areas of ongoing focus which will contribute to improving productivity by 1.9% per year to 2030 across the whole system, not just the acute sector. Sustainability and culture of stewardship will be discussed as part of the survey and interview questions.

Table 1: Improving Productivity and the link to Value ((Kelly (2024) adapted by researcher).

Category	Key Ambitions	Value Connection
Operational and clinical excellence	Reducing unwarranted variation, addressing under- and over-use.	Technical Value. Allocative Value
	Optimising and standardising processes and clinical pathways where appropriate meaning staff spend more time providing care.	Technical value. Allocative value. Personal Value.
	Reducing procedures of limited clinical value	Technical Value. Allocative Value.
A healthy engaged workforce	Optimising skills to better meet needs.	Technical Value. Allocative Value. Societal Value.
	Improving how our staff are deployed including working practices, recruitment and retention.	Technical Value. Allocative Value. Societal Value.
A greater focus on health rather than illness	Greater investment in preventative care, keeping people independent for longer and caring for people as close to home as possible.	Allocative Value. Personal Value. Societal Value. Technical Value.
Embracing 21st Century technology.	Investing in IT systems that work well for patients and staff, putting technology in the hands of patients to improve their access and experience.	Allocative Value. Societal Value. Personal Value. Technical Value.
Maximising value for money	Reducing duplication, streamlining administrative processes, identify and tackle waste.	Technical Value. Allocative Value.

Increasing allocative value requires effective measurement, achieved using two principal tools:

1. Economic Decision Tools; and
2. Programme Budgeting and Marginal Analysis.

Economic Decision Tools

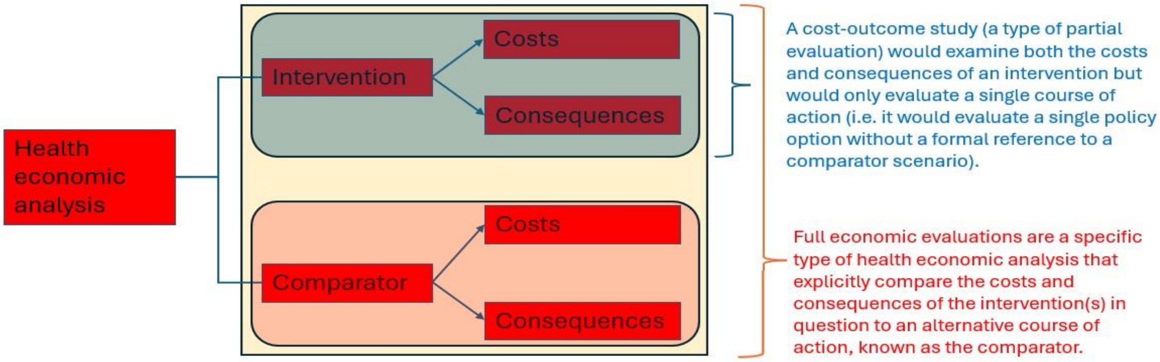
Decisions involving what resource (money being the common denominator) are often seen as being made by Finance; a common accountancy technique is the return on investment (ROI). Study findings into ROI models include:

Table 2: (Dis)Advantages of ROI Models

Advantages	Disadvantages
Easy to understand.	Ignores qualitative data (Choi et al, 2013).
Useful for comparisons. (Pokhrel, 2015).	The concept is not clearly defined or developed. The application method is unclear Its approriate use is unestablished. The conceptual boundariues are unclear (Milenova et al, 2022). Ignores complexity of real world decisions which are not usually based on a single variable. Decisions made in one country may not be applicable to another. (Pokhrel, 2015)

ROI models are not considered effective for measuring value – they are too simplistic in nature and cannot compute the complexities of person, sector and proposition.

Economic evaluations are increasingly being used for informing health priorities and take many forms, ranging from a single course of action to comparing the costs and outcomes of multiple dynamics.



A cost-outcome study (a type of partial evaluation) would examine both the costs and consequences of an intervention but would only evaluate a single course of action (i.e. it would evaluate a single policy option without a formal reference to a comparator scenario).

Full economic evaluations are a specific type of health economic analysis that explicitly compare the costs and consequences of the intervention(s) in question to an alternative course of action, known as the comparator.

Figure 14: The difference between full economic evaluations and cost-outcome partial evaluations. (Turner et al., 2021).

A single 'cost-outcome' study compares the cost and consequences of an individual decision. From a value perspective whilst this appears to answer Porter's definition, complexities would overwhelm all but the simplest decisions – who incurred the cost versus received the benefits, what period are the outcomes being realised, how is the economic benefit being determined. This would give a simple stop/go response to a proposal but could lack validity. Projects not returning a positive result in the time would be unlikely to proceed which means many good projects, including where this is doing the right thing which will benefit patients and the system, could be lost. Overall, this would decrease allocative value as investment would be made elsewhere.

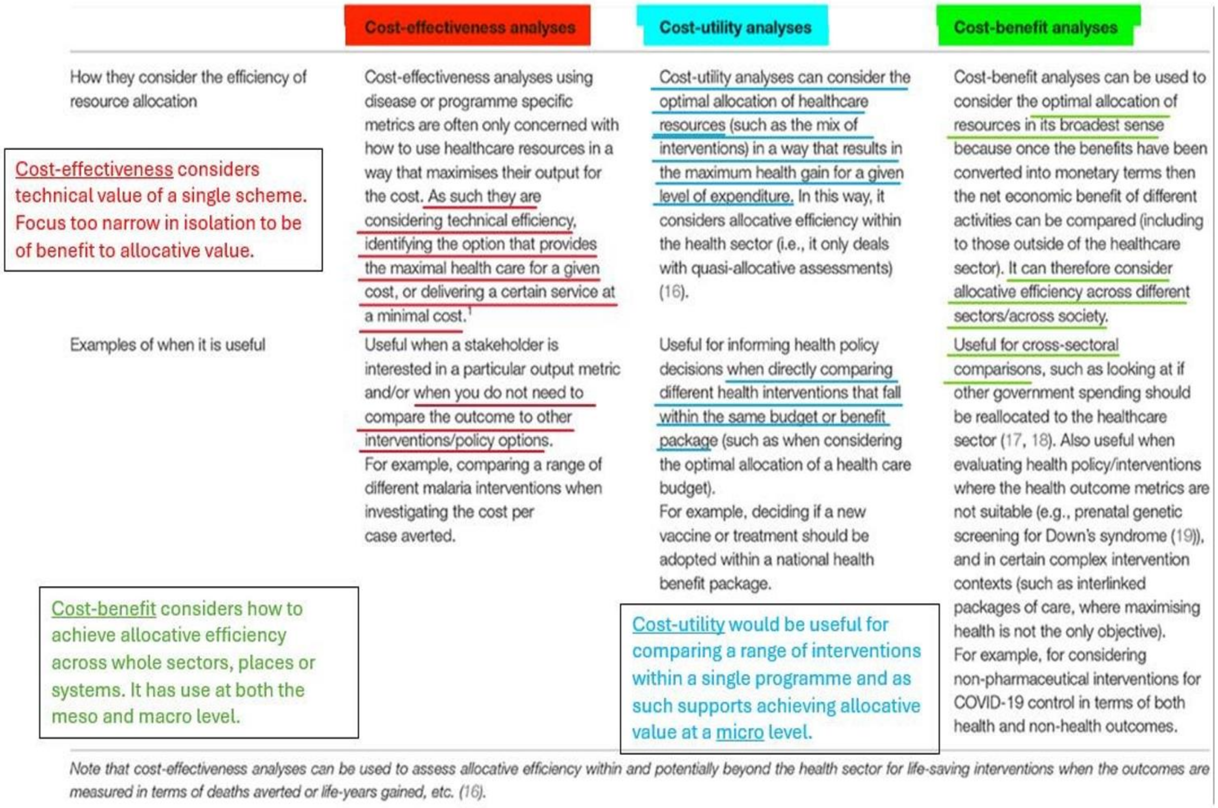
A full economic consideration of many variables gives a balanced view but is more intensive. Time remains a key determinant, as would benefits realisation and system maturity recognising the recent shift from a culture of organisational sovereignty. The use of decision tools will be discussed as part of the survey questions.

As productivity measures the relationship of inputs to outputs, cost-effectiveness analysis tests whether outputs can be increased through efficiency – doing more but not necessarily of the right value adding activities. Cost-utility analysis, however, looks at the allocative efficiency of a particular sector or segment such as cancer provision at place level. From a productivity perspective, this is more closely linked to doing more of the right activities but within the available resource envelope. Cost-benefit analysis considers how resources should be distributed (allocated) across competing demands principally at the macro-economic level (Figure 15).

In short, to improve productivity through allocative value at the meso level, a combination of all three approaches is required: cost-benefit to allocate resources to programmes or diseases, cost-utility to then focus on the best use of resources within a particular programme, and cost-effectiveness to consider the improvement in outcomes of one approach in comparison to another.

Table 3: (Dis) Advantages of Economic Evaluation Models

Advantages	Disadvantages
Cost-Benefit analysis: once the benefits have been converted into monetary terms then the economic benefit of different activities can be compared (including with those outside of the healthcare sector). (Turner et al, 2021).	Cost-benefit analysis for healthcare is based on a welfarist approach: 1) Each individual is the best judge of their own welfare. 2) Measures of welfare are based on the perceived value individuals receive from the consumption of healthcare - which will vary between individuals. 3) The reallocation of resources is justified as long as the net benefits increase. This could create inequity. Turner et al (2021)
Cost-Effectiveness: A more common measure because it avoids the differences in valuing social welfare. (World Health Organisation).	Cost-Effectiveness: cannot be used to compare different programmes with different aims/outcomes. (Turner et al, 2021).
Cost-Utility Analysis: Forgoes the need tomonetise benefits and the ethical and equity issues that can arise when monetising them (Jamison et al, 2006).	Cost-Utility analysis: Included costs vary especially if no standardised reference costs are available and their assumed discount rate. (Neumann et al, 2016).



	Cost-effectiveness analyses	Cost-utility analyses	Cost-benefit analyses
How they consider the efficiency of resource allocation	Cost-effectiveness analyses using disease or programme specific metrics are often only concerned with how to use healthcare resources in a way that maximises their output for the cost. As such they are considering technical efficiency, identifying the option that provides the maximal health care for a given cost, or delivering a certain service at a minimal cost.[1]	Cost-utility analyses can consider the optimal allocation of healthcare resources (such as the mix of interventions) in a way that results in the maximum health gain for a given level of expenditure. In this way, it considers allocative efficiency within the health sector (i.e., it only deals with quasi-allocative assessments) (16).	Cost-benefit analyses can be used to consider the optimal allocation of resources in its broadest sense because once the benefits have been converted into monetary terms then the net economic benefit of different activities can be compared (including to those outside of the healthcare sector). It can therefore consider allocative efficiency across different sectors/across society.
Examples of when it is useful	Useful when a stakeholder is interested in a particular output metric and/or when you do not need to compare the outcome to other interventions/policy options. For example, comparing a range of different malaria interventions when investigating the cost per case averted.	Useful for informing health policy decisions when directly comparing different health interventions that fall within the same budget or benefit package (such as when considering the optimal allocation of a health care budget). For example, deciding if a new vaccine or treatment should be adopted within a national health benefit package.	Useful for cross-sectoral comparisons, such as looking at if other government spending should be reallocated to the healthcare sector (17, 18). Also useful when evaluating health policy/interventions where the health outcome metrics are not suitable (e.g., prenatal genetic screening for Down's syndrome (19)), and in certain complex intervention contexts (such as interlinked packages of care, where maximising health is not the only objective). For example, for considering non-pharmaceutical interventions for COVID-19 control in terms of both health and non-health outcomes.

Cost-effectiveness considers technical value of a single scheme. Focus too narrow in isolation to be of benefit to allocative value.

Cost-benefit considers how to achieve allocative efficiency across whole sectors, places or systems. It has use at both the meso and macro level.

Cost-utility would be useful for comparing a range of interventions within a single programme and as such supports achieving allocative value at a micro level.

Note that cost-effectiveness analyses can be used to assess allocative efficiency within and potentially beyond the health sector for life-saving interventions when the outcomes are measured in terms of deaths averted or life-years gained, etc. (16).

Figure 15: A summary of how the different types of analyses consider the efficiency of resource allocation (Turner et al. (2021) Researcher Modified)

Programme Budgeting and Marginal Analysis

Programme budgeting and marginal analysis (PBMA) is a priority setting framework that has been used over since 1974 in the health sector (Mitton & Donaldson, 2001). Standardised as policy by the UK Department of Health in 2002 to develop a source of information to show 'where the money is going' and 'what are we getting for the money we invest in the NHS' (DH, 2011).

Programme budgeting is a retrospective exercise designed to classify expenditure into 23 disease programmes irrespective of which institution delivered the service. From a policy perspective, this supports informing ‘resource allocation’ as well as aiding health technology agencies decide whether their cost-effectiveness thresholds for accepting new technologies are set at the right level (Martin et al., 2008).

Mitton and Donaldson (2001) concluded that “for the exercises where the longer-term impact was known, the approach was viewed as having had a positive impact, as defined by the setting of priorities, or shifting of resources. The primary reason why PBMA was discontinued included personnel changes and lack of internal champions”. Tsourapas and Frew (2011) found that the success of PBMA was influenced by how success is defined – different users having different measures of success which creates ambiguity.

Gray et al. (2017) argued that there is no record of allocative value having been achieved anywhere, namely, the allocation at which it is not possible to achieve greater benefit for the population as a whole by shifting one pound from one budget to any other budget: The opportunity cost is the value of benefits foregone by not using resources in their next best alternative use (Charles et al., 2016). Gray further contends that the allocation of budgets in most countries follows traditional lines based on the location of the health service professional but instead the focus must be on allocating resources according to population need. Gray asserts PBMA is a tool which can help change the language that is used to move towards this new way of looking at services, even if sovereign organisational budgets remain.

Charles et al. (2016) concluded that PBMA demonstrates the potential for health boards to use evidence-based approaches to reach potentially controversial disinvestment and investment decisions. However, as Martin et al. (2008) found, in allocating funds between programmes of care, well specified econometric models are then developed to support the process – suggesting PBMA is insufficient as a decision-tool on its own. Programme budgeting will be explored via the survey and interviews.

The NHS RightCare programme was driven by programme budgeting, but as Dropkin (2017) concluded commissioners “cannot expect to match the average performance of the RightCare ‘Best 5’ until the methodology is examined with data of known quality and claims that RightCare is a ‘proven approach’ are unsubstantiated”.

Table 4: (Dis) Advantages of Programme Budgeting

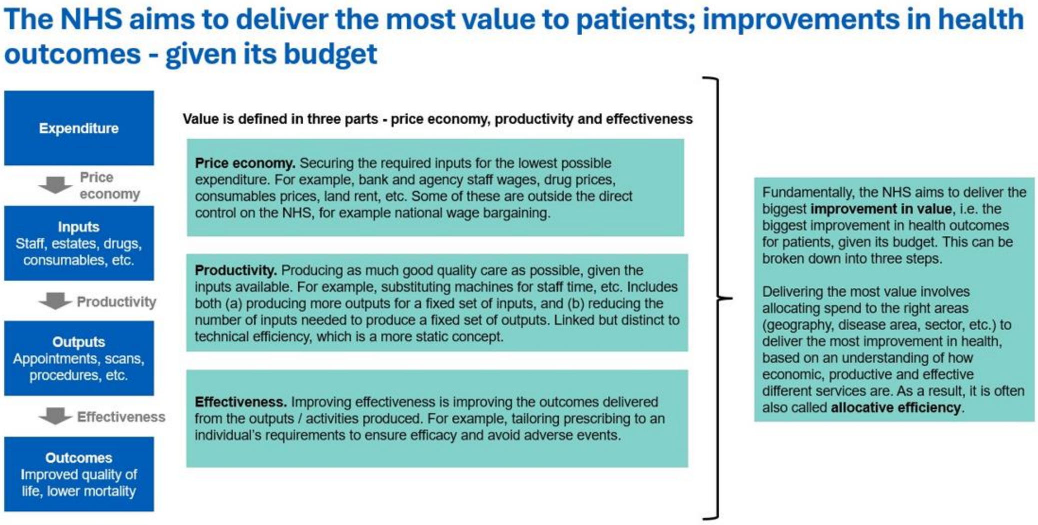
Advantages	**Disadvantages**
Collates pathway spend beyond organisational boundaries and organises this into categories (Gray 2017).	Definitional uncertainty (Gray 2017 vs. DH 2011).
Measures of success can be defined relative to the group or task (Frew 2011).	Ambiguity over measures of success (Frew 2011).
If championed, a positive way of building connections and unity of direction between clinicians and finance.	Needs championing to build the connection between finance and clinicians (Mitton 2001).
Building consensus and transparency for decisions regarding investment and disinvestment (Charles, et al 2015).	Very labour intensivce to do an individual study (Charles, et al 2015).
General agreement on the validity of the economic principles underlying PBMA (Mitton, 2001).	Rurality is likely to produce different answers (Charles, et al 2015).
Clinician involvement drives a culture of stewardship (Gray 2017).	Comparisons of spend do not tell you the context of the service (Charles, at al, 2015).
When universally collected this is a vast data resource which supports effective benchmarking.	Indicators of helth system inputs, such as expenditure, are endogenous, in the sense that they have been influenced by the levels of health outcomes achieved in the past (Martin, 2008).
	Reliance upon a time series of health outcome data for an individual health system makes it diofficult to disentangle the impact of expenditure from a wide range of other temporal influences on health (Martin, 2008).
	Data quality varies (Dropkin, 2017).

Time Driven Activity Based Costing

Time driven activity-based costing (TDABC) is an extension of programme budgeting which deploys greater focus on costing, following all events along the pathway and assigning a true cost based on utilisation, following a bottom-up approach whereas programme budgeting is a topdown assignment approach. The fundamental principles and approach are similar literature regarding TDABC has separately been explored.

Productivity

There are different measures for improving productivity. To promote allocative efficiency, productivity is a function of delivering services at the lowest cost, delivering the right services, and assessing the effectiveness of services by considering the benefits and outcomes delivered to our patients. Collectively this brings a combined focus on personal value, technical value, societal value to then drive allocative value. Attitudes to productivity and organisational culture are explored via the survey questions.



The NHS aims to deliver the most value to patients; improvements in health outcomes - given its budget

Value is defined in three parts - price economy, productivity and effectiveness

Price economy. Securing the required inputs for the lowest possible expenditure. For example, bank and agency staff wages, drug prices, consumables prices, land rent, etc. Some of these are outside the direct control on the NHS, for example national wage bargaining.

Productivity. Producing as much good quality care as possible, given the inputs available. For example, substituting machines for staff time, etc. Includes both (a) producing more outputs for a fixed set of inputs, and (b) reducing the number of inputs needed to produce a fixed set of outputs. Linked but distinct to technical efficiency, which is a more static concept.

Effectiveness. Improving effectiveness is improving the outcomes delivered from the outputs / activities produced. For example, tailoring prescribing to an individual's requirements to ensure efficacy and avoid adverse events.

Fundamentally, the NHS aims to deliver the biggest **improvement in value**, i.e. the biggest improvement in health outcomes for patients, given its budget. This can be broken down into three steps.

Delivering the most value involves allocating spend to the right areas (geography, disease area, sector, etc.) to deliver the most improvement in health, based on an understanding of how economic, productive and effective different services are. As a result, it is often also called **allocative efficiency**.

Figure 16: Productivity, Efficiency, Effectiveness and Allocative Value.

Summarising The Literature Review & Conceptual Framework V1

Taking the priorities of the ICBs as being the intended deliverables at the meso, or operational / place level, then decisions the ICB takes with regards to how it spends its allocation should take into consideration:

1. Improving outcomes.
2. Tackling inequalities.
3. Enhancing productivity; and 4) Having a wider societal benefit.

The aim of the conceptual framework at this stage is to identify the drivers determined by literature review which can then be tested through user experience, triangulating the data to refine the framework into a supportive process which assists leaders in improving their allocative efficiency.

The aim must be clearly defined from the outset by being transparent on what the intended deliverables and desired outcomes are and how this will promote equity. Outcomes are important because we want to understand what good looks like and how this relates to the population's need. The starting point for benchmarking is using data to understand variation and then taking this forward to connect to need. Regarding equity, which includes reducing inequalities, an appropriate model suggests proposals and decisions should be outlined with appropriate publicity to ensure inclusion, those responsible remain accountable and there is reciprocity with regards all participants listening to and respecting each other's views in determining what the scheme is being designed to achieve.

With this in place, securing stakeholder buy-in for both making and operationalising the decisions should support a culture of stewardship. As stewards of how we spend our resources probing questions can be asked particularly about reducing waste and improving sustainability, including both finance and the green agenda. Benefits may accrue separately to the investment and should reflect wider benefits to society. This connects to achieving technical value which is the link between productivity, efficiency and value recognising the value to the patient and the need to ensure they have a positive outcome relative to the thing that was bothering them the most. Finally comes the role of economic decision-making tools which support the productivity and value approach by considering the efficiency, effectiveness and economics of the proposal. It is important to be cognisant of service creep, which simplistically is services which are more sophisticated at recording their activity appear to have greater demand resulting in accepted practice and higher budgets.

Programme specific funding devolved via national initiatives is usually ringfenced. There are still benefits in using this framework to support optimum local deployment.

A feedback loop ensures this is a circular process and allows for consideration of the wider benefits of initiatives, or mitigating reasons, looking beyond the financial measures of success.

The key drivers outlined in bold will now be discussed in greater detail.

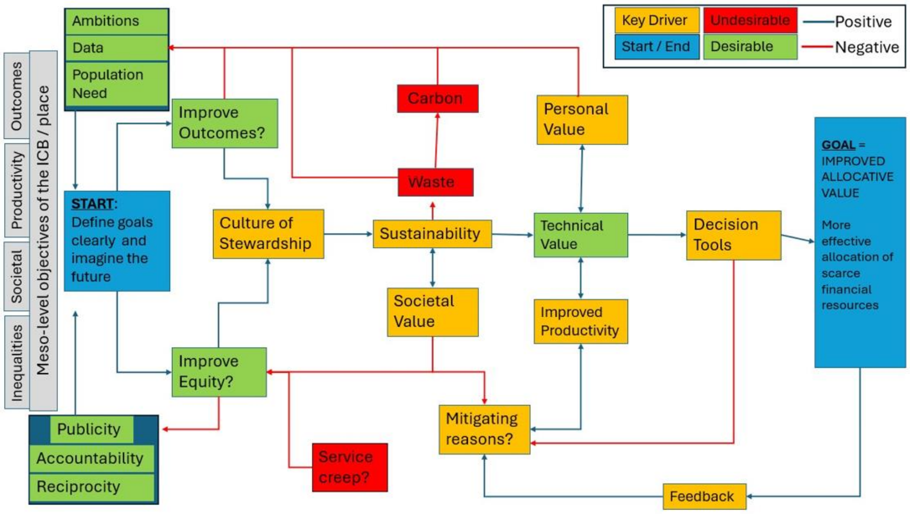


Figure 17: Initial Conceptual Framework Based on Literature Review

Note, this process is primarily based on uncommitted local resource. The framework could also be used to test the efficacy of how ringfenced allocations are optimised locally.

Methodology And Research Design

The study of a modern health and care management approach that is evolving and immature as a field of study necessitates a context-rich and qualitative (interpretivist) epistemology and methodology. The research was guided by the Saunders et al (2014) ‘research onion’.

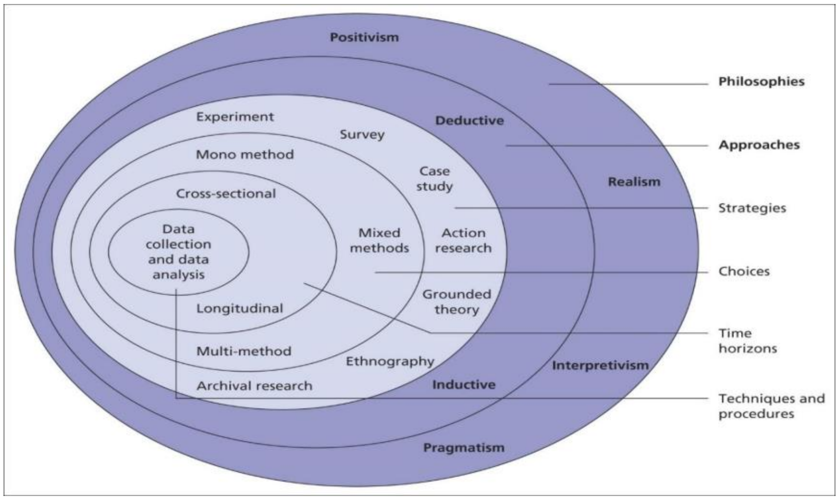


Figure 18: The Research Onion

The research design included:

- An interpretivist approach to theory building using
- An inductive approach (context rich)
- A literature review
- A case study of the NHS in the UK
- Mixed methods of expert interviews with world-class experts
- An online survey using a snowballing of NHS staff known to the researcher and those to whom the study was introduced to (by references and an introduction made by the initial contact). These individuals represent a cross-sectional view of the health and care system.

Literature Review

Table 5: Literature Search

Activity	Purpose
Literature Search Criteria	Allocative value, allocative efficiency + healthcare, resource distribution, healthcare return non ibvestment
Repositories Used	i-Find. Google Scholar. Business Source Complete.
Search Criteria 2	Publications since 2015 sorted by quality of journal, peer review. Further explored references to additional papwers of interest found via citations in earlier documents of interest.

Online Survey

An online survey was developed which was designed to test the validity of findings from the literature review as well as individual perception regarding both the importance and application of allocative value. Statements within the survey were deliberately randomly presented to avoid bias.

Table 6: Online Survey

Participant selection	Equally interested in responses from finance and non-finance staff. Survey was predominently aimed at Executive level representation. Main focus was NHS / UK health care employees and not private sector or industry representatives.
Soft Testing	A final draft of the survey was shared with a small number of colleagues prior to full launch, including representatives from finance and operations. Feedback was used to positively improve the survey for full launch.
Survey distribution	The link was shared using the following distribution channels: 1. via LinkedIn. 2. Via the North West Regional Planning & Delivery Group. 3. Across Executive Groups in NHS Scotland and subsequerntly the "Realistic Medicine" team within Scotland. 4. Across Value Based Health Care network in NHS Wales.
Survey design	An opening statement introducing allocative value. Consent statement. Participant background info - current role, type of organisation, & country. Years experience within the NHS. Participants were given 5 complexities of allocative value which they were aske to rank 1-5 (5 being the most complex). 49 statements to be individually scored by participants from Strongly Agree to Strongly Disagree. Statements were randomly sorted for participants but to support the researcher a supporting document linked each statement to a particular theme to assist with analysis. Final open question asking the participant of their view of the importance of allocative value which allowed for a freetext response.
Survey format	Qualtrics.
Period of Response	Soft testing = 26/7/2024 to 5/8/2024 Full launch = 6/8/2024 Survey closed on 28/8/2024 which allowed 15 working days and 22 calendar days for response.

Interviews

Semi-structured interview questions were developed based on exploring both the general principle and application of allocative value as well as lifting the emerging themes from the literature review to explore further.

Table 7: Interviews

Participant selection	The aim was to conduct a small number of interviews with the key practitioners in both value based health care and allocative value. Interviewees were selected based on their known experience and prominence in this area. Not all the participants' were known to the researcher.
Interview length	Interviews ranged in length from 21 minutes to 72 minutes based on availability of the interviewee.
Type of questions	Open questions which were connected to the dominant themes emerging from the literature review.
Interview themes	Does allocative value have the right status? The role of allocative value and engaging the audience. Moving to a whole population approach. Building a culture of stewardship. Changing the focus from organistaional sovereignty. Changing the culture on how waste occurs and unwarranted variation. Equity and outcomes. Carbon and sutainability.
Interviewees	Prof. Sally Lewis. International advisor in healthcare systems; valuebased healthcare; Founder Welsh Value in Health Centre. Hon. Professor General Practitioner 24 yrs. Prof. Hamish Laing. Professor of Enhanced Innovation, Engagement and Outcomes; Director of Value-Based Health and Care Academy, Swansea University. Prof. Sir Muir Gray. Director of OAP Ltd. Physician who has held senior positions in screening, public health, information management, & value in healthcare. Mr Lee Outhwaite - Director of Finance, South Yorkshire ICB and 2024/25 President of the Healthcare Financial Management Association with value and population health as his presidential theme.
Form of recording	All interviews were conducted via MS Teams and recorded with permission.

Triangulation

The main survey statements were deliberately randomised for the study but each relates to a particular theme of the literature review and conceptual framework (Table 8: Online survey statements and the connected theme). For the findings, the survey and interview questions were triangulated with the literature for each theme (Table 9: Mapping of questions to themes).

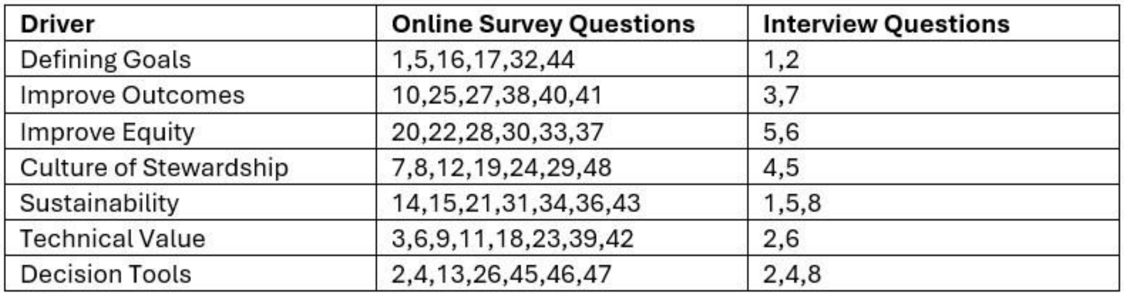
Table 8: Online survey statements and the connected theme

1	There is an open and transparent culture with regards investment in services.	Defining Goals
2	Decisions to invest are aligned to desirable outcomes relevant to a particular disease.	Decision Tools
3	Decisions to invest are based on achieving a level of activity output.	Technical Value
4	The Board regularly reviews the effectiveness of how resources are deployed.	Decision Tools
5	Decisions about service or pathway investment involve operational representatives from the service.	Defining Goals
6	The decisions a provider makes regarding the operational delivery are consistent with the aims of the commissioner, either through the contract or the commissioning intentions.	Technical Value
7	Decisions are made according to the aims and outcomes of the organisation for a particular service or condition, irrespective of national policy.	Culture of Stewardship
8	Decisions to invest in services or conditions vary according to whether national funding is provided or if this is part of the organisation’s own budget.	Culture of Stewardship
9	Productivity is assessed by looking at outputs or units of activity.	Technical Value
10	Productivity is assessed by evaluating the outcomes to patients.	Outcomes
11	Generating value forms part of external conversations.	Technical Value
12	The provider routinely reports to the commissioner on how allocative value is being achieved.	Culture of Stewardship

13	The organisation has a framework for ensuring decisions are effective, efficient and economic.	Decision Tools
14	The sovereignty of my individual organisation is the top priority.	Sustainability
15	Where a pathway or programme crosses organisational boundaries, parties consider both investment and return.	Sustainability
16	It is possible to achieve allocative value at operational level.	Defining Goals
17	It is possible to achieve allocative value on a pathway level beyond organisational boundaries.	Defining Goals
18	The board is more focused on technical value than allocative value.	Technical Value
19	Everyone in the organisation feels a collective responsibility for managing and getting the best value from all resources available.	Culture of Stewardship
20	Service decisions take account of both known demand and unknown.	Equity
21	My job is to help balance the books, not worry about allocative value.	Sustainability
22	Paying tariff is more important than allocative efficiency.	Equity
23	Internal costing is used to understand efficiency.	Technical Value
24	Internal costing results are shared across the pathway to inform how resource decisions might be improved.	Culture of Stewardship
25	Clinicians appreciate costing data.	Outcomes
26	We use economic decision-making tools, such as cost-benefit analysis.	Decision Tools
27	Equity and outcomes are of equal importance.	Outcomes
28	The board understands variation, both warranted and unwarranted.	Equity
29	The board seeks to reduce waste through systematic identification of unwarranted variation.	Culture of Stewardship
30	The organisation reviews levels of over-treatment resulting in inefficiency.	Equity
31	Maximising income is key to my budgets.	Sustainability
32	Hospitals are the best places to provide care.	Defining Goals
33	Equity of access & treatment is inefficient to achieve.	Equity
34	My organisation seeks to derive learning and improve value from the national programme budgeting exercise.	Sustainability
36	Decisions take account of carbon.	Sustainability
37	Equity is more important than outcomes.	Equity
38	Waste and inefficiency are inevitable.	Outcomes
39	Personal outcomes data is the gold standard.	Technical Value
40	Budgets are set based on desired outcomes	Outcomes
41	Outcomes are established at the start of projects to devise suitable metrics	Outcomes
42	Performance monitoring is based on units of activity.	Technical Value
43	The organisation has strategic long term plan (at least five years)	Sustainability
44	The strategic plan is reviewed annually and forms the guiding principle of annual operational planning and delivery.	Defining Goals
45	Resources are committed and monitored using a longer term view.	Decision Tools
46	Projects allow for negative returns in earlier periods providing the overall scope is positive.	Decision Tools
47	Projects which do not generate a positive monetary benefit can be approved.	Decision Tools
48	Patients are involved in setting investment priorities.	Culture of Stewardship

This section triangulates the findings from the literature review which informed the drivers to be explored via the online survey and interviews.

Table 9: Mapping of questions to themes



Driver	Online Survey Questions	Interview Questions
Defining Goals	1,5,16,17,32,44	1,2
Improve Outcomes	10,25,27,38,40,41	3,7
Improve Equity	20,22,28,30,33,37	5,6
Culture of Stewardship	7,8,12,19,24,29,48	4,5
Sustainability	14,15,21,31,34,36,43	1,5,8
Technical Value	3,6,9,11,18,23,39,42	2,6
Decision Tools	2,4,13,26,45,46,47	2,4,8

Limitations Of This Research

- The research does not consider the macro-economic decisions about what is the right proportion of GDP to be allocated to healthcare or to a particular aspect of healthcare.
- This paper is intended to apply universally across the four UK nations even though for the purpose of examples, the system in England is quoted.
- This paper does not explore different funding systems, instead focusing on the UK Beveridge system which is a single payer service (taxpayer funded).
- Complex system theory is not explored. It is, however, appropriate to consider the new role of systems against that of organisational sovereignty.
- Research is based on a planned (elective) care model, the assumption being if planned care is efficient, unplanned contacts are minimised. However, in a pressured system, there is a danger that value is skewed by the nature of attendance and access.

Ethics

Ethics approval for the research was granted by the Humanities and Social Sciences ethics committee of Swansea University on 18 July 2024 (approval: 1 2024 11031 9730), copy at Appendix 1: Ethics Approval. Research has been conducted in accordance with the approval.

Findings And Analysis

This section explores the key stages of the conceptual framework and brings together pertinent further literature with the online survey findings and interview discussions.

Findings

84 respondents started the survey

79 respondents gave willing consent. None withheld.

38 respondents completed the survey in full.

There were 84 responders who opened the survey and 38 completed in full. The findings reported are drawn from the cohort of 38.

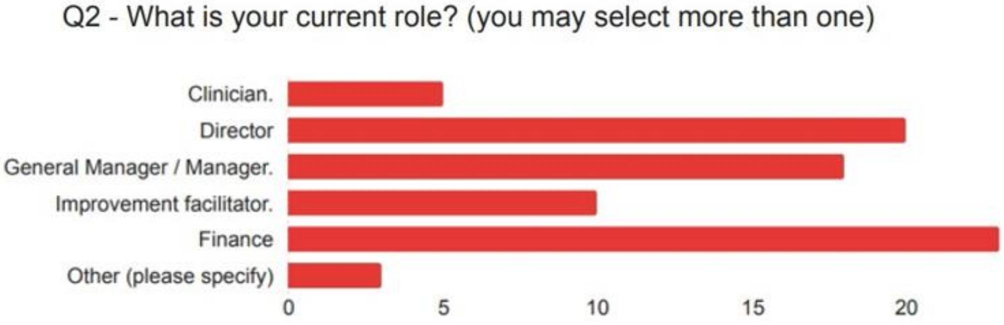
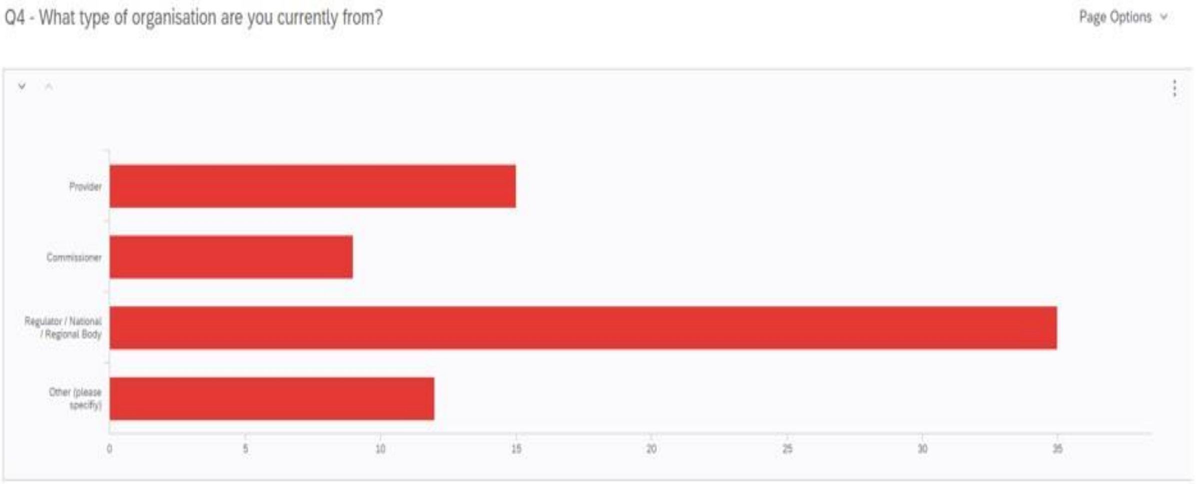


Figure 19: Responders by Staff Group

Responses were received from across the range of NHS organisations. Fewer responses from commissioners as expected – there are only 42 commissioning organisations in England and the provider/commissioner split is not applicable in the devolved nations.



Q4 - What type of organisation are you currently from?

Figure 20: Responses by Type of Organisation

Most responders have long service in the NHS (16+ years). This was consistent across the different staff groups. This is reassuring as had there been stark differences in responses from newer starters this could indicate a change in attitude. As this isn't evident, they survey responses will not be broken down by length of service.

Staff groups by country of employment were also reviewed with no standout observations.

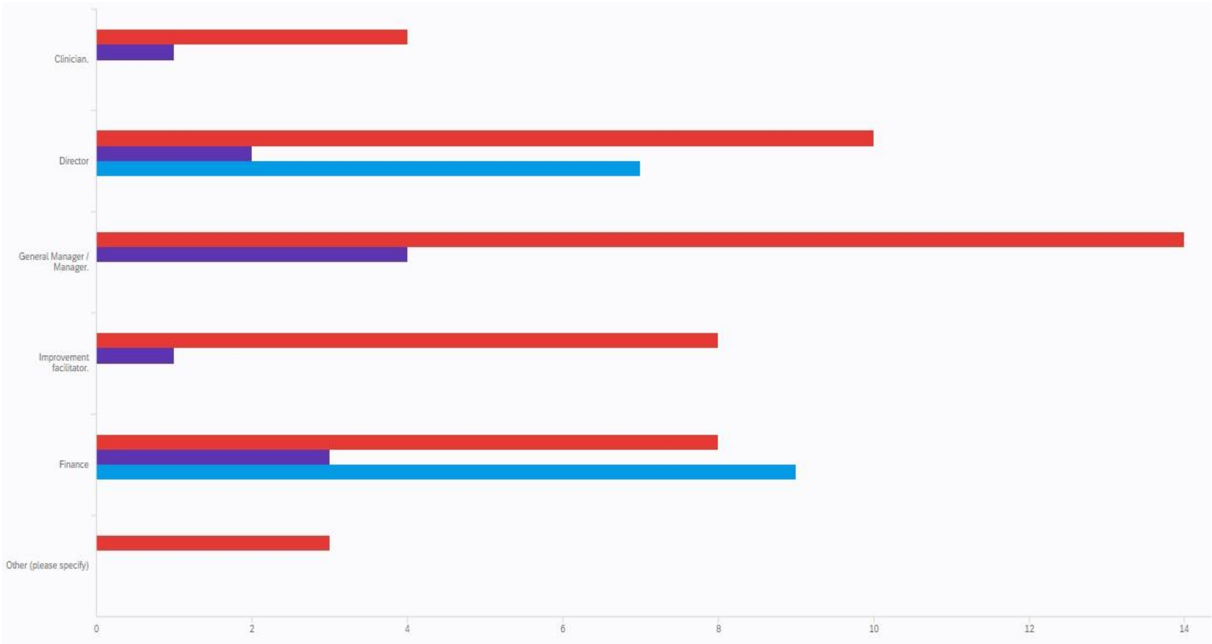


Figure 21: Responses by staff group

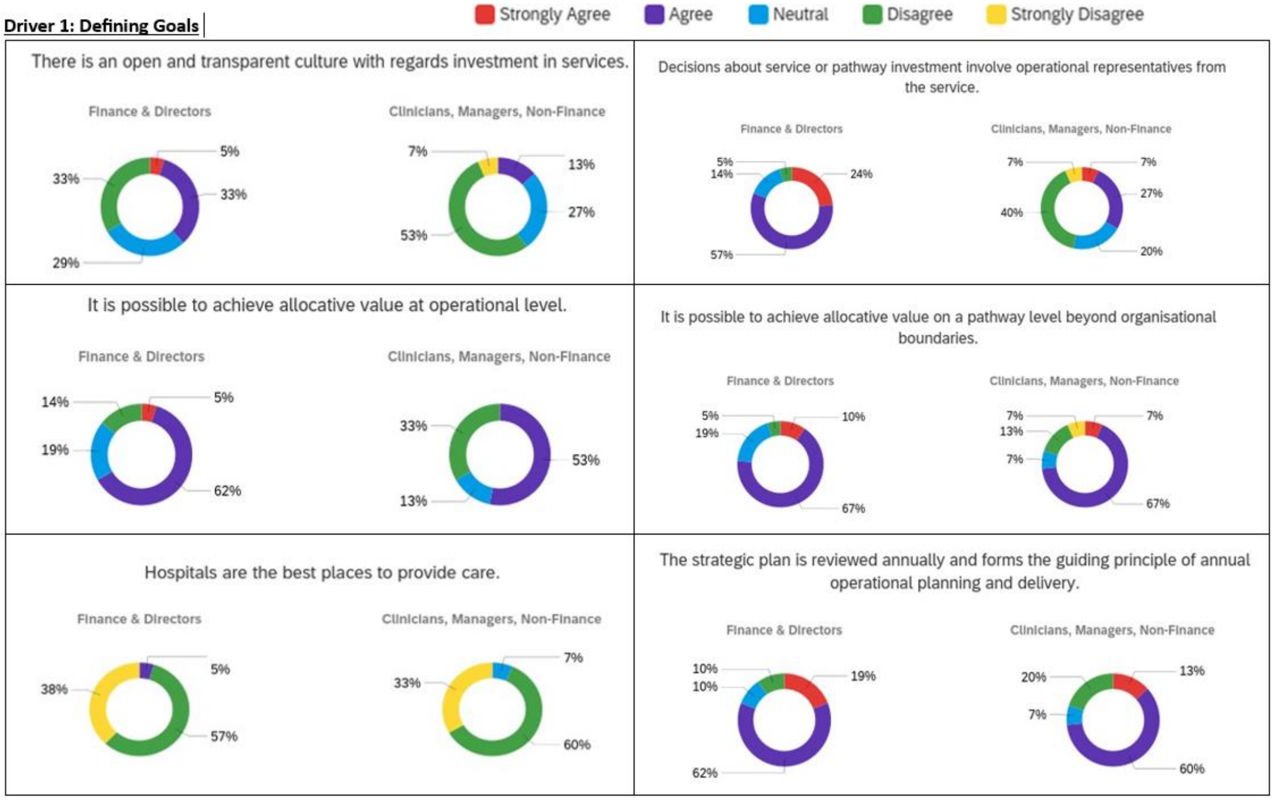
The researcher has grouped the responders into two groups: Finance and Directors, and Clinicians, Managers and Non-Finance. This gives an effect split to highlight any differences between those broadly executing the decisions and those enacting the decisions.

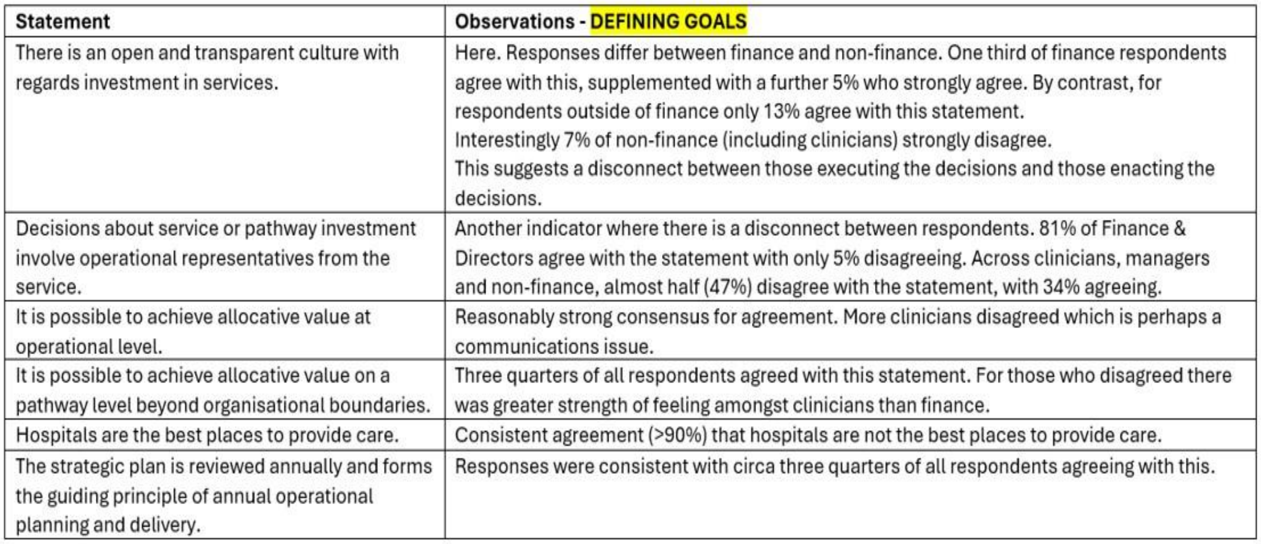
They survey opened asking participants to rate what they considered the biggest barriers to allocative efficiency to be, which are ranked as:

Table 10: Investment priorities across different staff groups

Ranked Priority	Observations
1. Length of investment	Managers rated this strongly with 11 votes cast. Clinicians don't see this as a barrier and its low for finance and directors.
2. Source of funding.	Finance and Managers rated this highly, but it was a low priority for clinicians.
3. Patient pressure	Finance regard this as a comparatively strong priority with 7 votes cast
4. Political pressure	Finance suggests this is a comparatively strong barrier and likely reflects how ringfenced resource is cascaded to the local system.
5. Alignment of objectives between the programme and the organisation	No one scored this particularly highly. Overall, this was low down the clinicians' priorities but higher for other groups.

Driver 1: Defining Goals





Statement	Observations - DEFINING GOALS
There is an open and transparent culture with regards investment in services.	Here. Responses differ between finance and non-finance. One third of finance respondents agree with this, supplemented with a further 5% who strongly agree. By contrast, for respondents outside of finance only 13% agree with this statement. Interestingly 7% of non-finance (including clinicians) strongly disagree. This suggests a disconnect between those executing the decisions and those enacting the decisions.
Decisions about service or pathway investment involve operational representatives from the service.	Another indicator where there is a disconnect between respondents. 81% of Finance & Directors agree with the statement with only 5% disagreeing. Across clinicians, managers and non-finance, almost half (47%) disagree with the statement, with 34% agreeing.
It is possible to achieve allocative value at operational level.	Reasonably strong consensus for agreement. More clinicians disagreed which is perhaps a communications issue.
It is possible to achieve allocative value on a pathway level beyond organisational boundaries.	Three quarters of all respondents agreed with this statement. For those who disagreed there was greater strength of feeling amongst clinicians than finance.
Hospitals are the best places to provide care.	Consistent agreement (>90%) that hospitals are not the best places to provide care.
The strategic plan is reviewed annually and forms the guiding principle of annual operational planning and delivery.	Responses were consistent with circa three quarters of all respondents agreeing with this.

Statement	Observations – IMPROVING OUTCOMES
Productivity is assessed by looking at outputs or units of activity.	Very strong sense of agreement with this statement. From a value perspective, this is disappointing – we need assurance that more of the right things are happening within the system and not just more regardless.
Clinicians appreciate costing data.	A consistent response, with circa 40% agreeing. More interestingly, 33% of finance and directors' responses disagreed that clinicians appreciate costing data, compared with 43% of clinicians and managers. This could indicate variability in what is shared and discussed.
Equity and outcomes are of equal importance.	In both groups, circa 40% agree and circa 30% disagree. The strength of feeling and level of neutrality was lower than similar question in the equity section which found a higher level of indifference.
Waste and inefficiency are inevitable.	The results show a crude 50/50 split but with an interesting twist. More than half of finance and directors agreed about the inevitability and 54% of clinicians disagreed that waste is inevitable. Clinicians are closer to addressing waste, so this creates the question of whether front line teams are afforded sufficient opportunity to learn and reflect.
The organisation reviews levels of over-treatment resulting in inefficiency.	60% of clinicians disagree and only 13% agree. In finance, 53% disagree and 10% agree. Organisations may wish to review if time spent on learning & reflection could reduce inefficiency.
Outcomes are established at the start of projects to devise suitable metrics.	In both groups circa 40% agree. However, amongst clinicians & non-finance 54% disagree compared to 29% of finance & directors, with 33% answering as neutral (perhaps suggesting don't know).

Statement	Observations – IMPROVING EQUITY
Service decisions take account of both known demand and unknown.	Non-finance and clinicians very strongly disagreed with this (80%), double the rate amongst finance and directors. Interestingly a further 10% of finance respondents strongly disagreed – which suggests it is known that decisions are made which are not based on population health need and totality.
Paying tariff is more important than allocative efficiency.	This question would be expected to deliver a difference between those who manage budgets and those delivering services. 35% of non-finance disagreed compared to 46% of finance. 20% of finance agreed which is double the rate amongst non-finance.
The board understands variation, both warranted and unwarranted.	The responses suggest a degree of uncertainty over this statement. 53% agreed or strongly agreed amongst finance & directors, compared with 40% outside of finance, where 47% were neutral compared to 10% in finance.
The organisation reviews levels of over-treatment resulting in inefficiency.	60% of clinicians disagree and only 13% agree. In finance, 53% disagree and 10% agree. Such responses could signpost to the demand pressures and the lack of time to reflect. This is a consideration which organisations may wish to consider whether how time is spent on learning and reflection could reduce further perpetuating inefficiency.
Equity of access & treatment is inefficient to achieve.	Roughly half of respondents disagree with this – which might suggest achieving equity is efficient if achieved.
Equity is more important than outcomes.	A quarter of clinicians agree and equally a quarter disagree. Only 5% of finance agree and 62% disagreeing. A high level of neutrality suggests indifference.

Driver 4: Culture of Stewardship

Decisions are made according to the aims and outcomes of the organisation for a particular service or condition, irrespective of national policy.

Decisions to invest in services or conditions vary according to whether national funding is provided or if this is part of the organisation's own budget.

The provider routinely reports to the commissioner on how allocative value is being achieved.

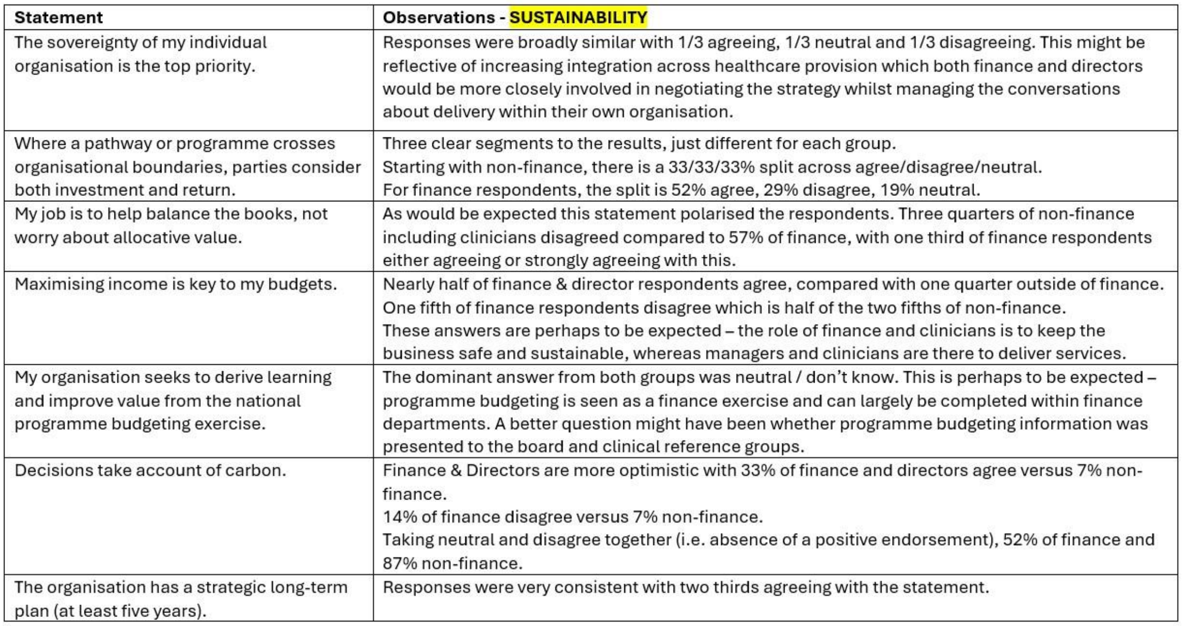
Everyone in the organisation feels a collective responsibility for managing and getting the best value from all resources available.

The board seeks to reduce waste through systematic identification of unwarranted variation.

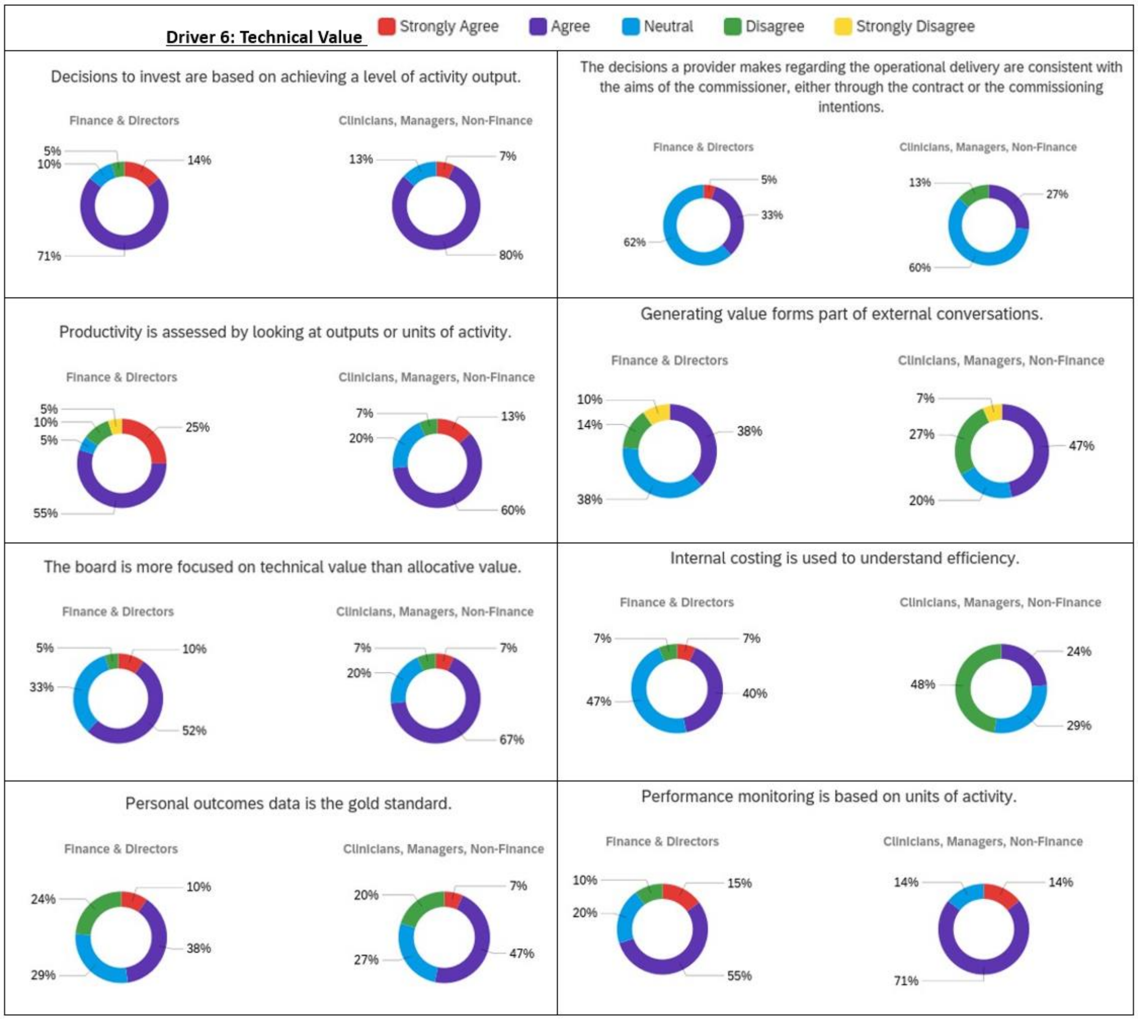
Internal costing results are shared across the pathway to inform how resource decisions might be improved.

Patients are involved in setting investment priorities.

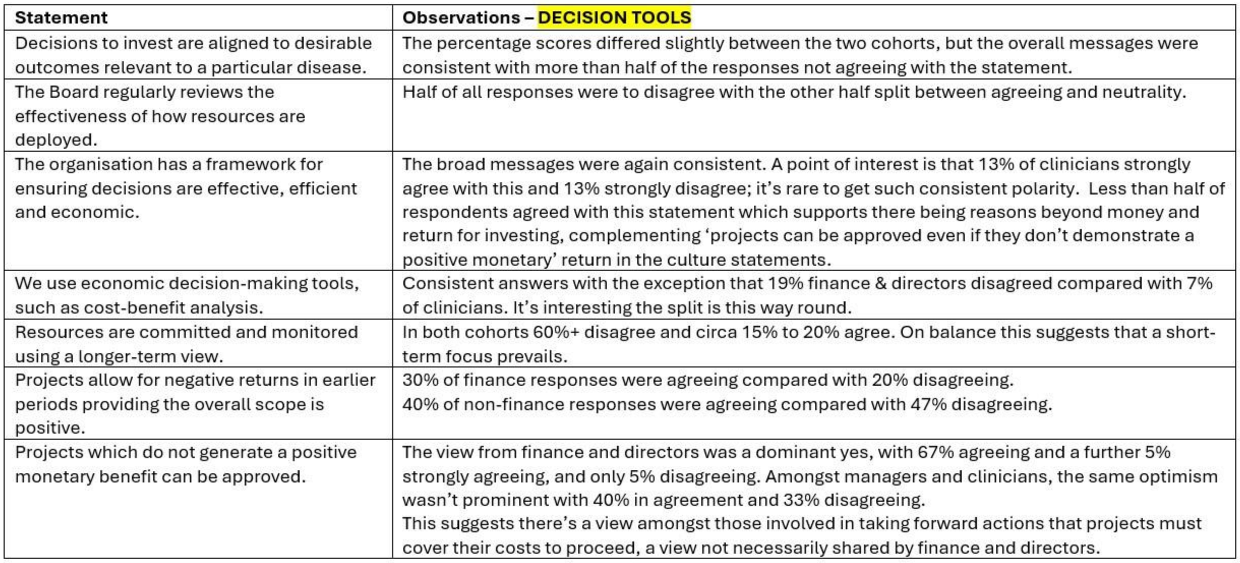
Statement	Observations – CULTURE OF STEWARDSHIP
Decisions are made according to the aims and outcomes of the organisation for a particular service or condition, irrespective of national policy.	A largely consistent three-way split: One third agreeing, one third disagreeing, and up to one third remaining neutral.
Decisions to invest in services or conditions vary according to whether national funding is provided or if this is part of the organisation's own budget.	High degree of consistency with many respondents noting that national funding is often directed, and such directions must be followed.
The provider routinely reports to the commissioner on how allocative value is being achieved.	A consistent three-way split, with up to 40% neutral, 33-38% disagreeing and up to 20% agreeing. Another indicator which signposts how well the pathway functions as a system.
Everyone in the organisation feels a collective responsibility for managing and getting the best value from all resources available.	A very stark response. 87% of finance and director responses argued this was not the case, compared with 57% across clinicians and non-finance. This is one of several indicators highlighting a communications issue between those charged with executing the decisions and those who deliver.
Internal costing results are shared across the pathway to inform how resource decisions might be improved.	Broadly similar answers of roughly 50/50 here for the two groups.
The board seeks to reduce waste through the systematic identification of unwarranted variation.	50-60% of respondents were agreeing with this. However, 24% of finance and directors' responses disagreed plus a further 5% strongly disagreeing. This suggests a difference between what the board discuss and what people believe the board discusses.
Patients are involved in setting investment priorities.	Overall, respondents disagreed with this but to differing degrees. Half of finance respondents disagreed that patients are involved, rising to three quarters of non-finance responses.



Statement	Observations - SUSTAINABILITY
The sovereignty of my individual organisation is the top priority.	Responses were broadly similar with 1/3 agreeing, 1/3 neutral and 1/3 disagreeing. This might be reflective of increasing integration across healthcare provision which both finance and directors would be more closely involved in negotiating the strategy whilst managing the conversations about delivery within their own organisation.
Where a pathway or programme crosses organisational boundaries, parties consider both investment and return.	Three clear segments to the results, just different for each group. Starting with non-finance, there is a 33/33/33% split across agree/disagree/neutral. For finance respondents, the split is 52% agree, 29% disagree, 19% neutral.
My job is to help balance the books, not worry about allocative value.	As would be expected this statement polarised the respondents. Three quarters of non-finance including clinicians disagreed compared to 57% of finance, with one third of finance respondents either agreeing or strongly agreeing with this.
Maximising income is key to my budgets.	Nearly half of finance & director respondents agree, compared with one quarter outside of finance. One fifth of finance respondents disagree which is half of the two fifths of non-finance. These answers are perhaps to be expected – the role of finance and clinicians is to keep the business safe and sustainable, whereas managers and clinicians are there to deliver services.
My organisation seeks to derive learning and improve value from the national programme budgeting exercise.	The dominant answer from both groups was neutral / don't know. This is perhaps to be expected – programme budgeting is seen as a finance exercise and can largely be completed within finance departments. A better question might have been whether programme budgeting information was presented to the board and clinical reference groups.
Decisions take account of carbon.	Finance & Directors are more optimistic with 33% of finance and directors agree versus 7% non-finance. 14% of finance disagree versus 7% non-finance. Taking neutral and disagree together (i.e. absence of a positive endorsement), 52% of finance and 87% non-finance.
The organisation has a strategic long-term plan (at least five years).	Responses were very consistent with two thirds agreeing with the statement.



Statement	Observations – TECHNICAL VALUE
Decisions to invest are based on achieving a level of activity output.	Strong level of consistent agreement here.
The decisions a provider makes regarding the operational delivery are consistent with the aims of the commissioner, either through the contract or commissioning intentions.	The strongest answer was neutral followed by agreement, with only 13% of non-finance responses disagreeing. The significance of this answer is that value isn't being owned by the system, along whole pathways irrespective of organisational boundaries or responsibilities.
Productivity is assessed by looking at units of activity or outputs.	Very strong agreement here. From a value perspective, this is disappointing as assurance should be sought that productivity is connected to doing more of the right things not just more regardless.
Generating value forms part of external conversations.	Nearly half of respondents agreed this was the case but with a higher proportion in finance remaining neutral (38% compared to 20% in non-finance).
The board is more focused on technical than allocative value.	More than half of both groups agreed this was the case. What differed was the level of neutrality – one third amongst finance and one fifth non-finance.
Internal costing is used to understand efficiency.	Different perspectives gave different answers here. Nearly half of finance respondents agreed with the other half mainly neutral. For clinicians, half disagreed and only a quarter agreed (the other quarter being neutral).
Personal outcomes data is the gold standard.	Almost identical answers between the two groups, approximately half in agreement and one quarter disagreeing.
Performance monitoring is based on units of activity.	A very strong sense of agreement here.



Statement	Observations – DECISION TOOLS
Decisions to invest are aligned to desirable outcomes relevant to a particular disease.	The percentage scores differed slightly between the two cohorts, but the overall messages were consistent with more than half of the responses not agreeing with the statement.
The Board regularly reviews the effectiveness of how resources are deployed.	Half of all responses were to disagree with the other half split between agreeing and neutrality.
The organisation has a framework for ensuring decisions are effective, efficient and economic.	The broad messages were again consistent. A point of interest is that 13% of clinicians strongly agree with this and 13% strongly disagree; it's rare to get such consistent polarity. Less than half of respondents agreed with this statement which supports there being reasons beyond money and return for investing, complementing 'projects can be approved even if they don't demonstrate a positive monetary' return in the culture statements.
We use economic decision-making tools, such as cost-benefit analysis.	Consistent answers with the exception that 19% finance & directors disagreed compared with 7% of clinicians. It's interesting the split is this way round.
Resources are committed and monitored using a longer-term view.	In both cohorts 60%+ disagree and circa 15% to 20% agree. On balance this suggests that a short-term focus prevails.
Projects allow for negative returns in earlier periods providing the overall scope is positive.	30% of finance responses were agreeing compared with 20% disagreeing. 40% of non-finance responses were agreeing compared with 47% disagreeing.
Projects which do not generate a positive monetary benefit can be approved.	The view from finance and directors was a dominant yes, with 67% agreeing and a further 5% strongly agreeing, and only 5% disagreeing. Amongst managers and clinicians, the same optimism wasn't prominent with 40% in agreement and 33% disagreeing. This suggests there's a view amongst those involved in taking forward actions that projects must cover their costs to proceed, a view not necessarily shared by finance and directors.

Analysis

Introduction

This section brings together the findings from both the online survey and the interviews together with relevant literature arranged according to the main drivers in the conceptual framework.

Clearly Define the Goals and Imagine the Future

From the start it is important to be clear and transparent about what the project is designed to achieve.

The greater opportunity for improving allocative value at the meso level is to consider the organisational and system budgets as a whole and consider how they can be aligned to specific initiatives. Setting out the aims of the project, it is prudent to equally consider reasons why the project could fail. A review of complex system theory is beyond the scope of this paper, but complexities include uncertainty, unpredictability and emergence in both relationships and interactions (Greenhalgh & Papoutsi, 2019).

This is also an ideal opportunity to start to develop metrics which can be used to determine success. Hamish Laing (personal communication, August 14, 2024) "allocative value is the big opportunity. When Doctors come with an idea it's often an allocative value proposition – if we could do this it would save money further down the pathway – and the place to start is looking at data of what happens compared with the optimum pathway to identify extra steps and duplication. You need to be clear you are focused on getting better outcomes and greater efficiency from the same or a similar level of resource as before".

Two interesting observations from the online survey were there was popular agreement that hospitals are not the best places to provide care and that it is possible to achieve allocative value beyond organisational boundaries. This latter point reinforces the opportunities of system collaboration recognising investment and return may not occur in the same place.

A cautionary note is sounded from that over half of clinicians did not agree that there was an open and transparent culture with regards investment in services. As can be seen from Greenhalgh's complexities, a lack of trust and transparency negatively affects relationships and behaviours. The culture of the team is indicative of the organisational culture.

80% of clinicians disagreed that service decisions take account of both known and unknown demand, compared to 38% of finance and directors. There's a disconnect in the messaging. The operating environment is complex. More organisations are reporting challenging positions. Per Lee Outhwaite (personal communication, August 29, 2024), "It's hard to make strategic choices about the things that are going to add value when largely the conversation you are having is around keeping the lights on". There will never be enough resources available to meet all the competing demands which results in a life full of choices (Gawande, 2014).

Equity

The gap in life expectancy between the North and South of England is widening with those living in the Northeast of England likely to have a shorter life span and to spend a larger proportion of their shorter lives in poor health, as well as being more likely to die earlier from preventable disease (Corris et al., 2020).

The years of austerity in the 2010s have contributed to both increased poverty and starker outcomes between different socio-economic groups: There is a substantial increase in mortality linked to income poverty between 2013 and 2017 (Case & Kraftman, 2024).

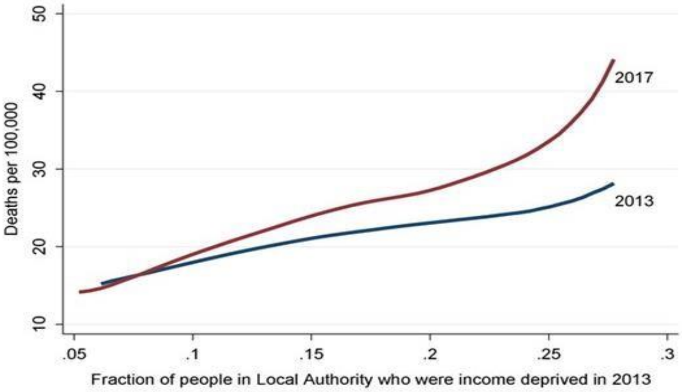


Figure 22: Age-adjusted mortality for the three deaths of despair (drug, alcohol, and suicide), indicative of how levels of income poverty have wider consequences.

Deaths from COVID-19 reporting show the UK fared better than the USA, Belgium and Italy but worse than our European neighbours (Case et al, 2024). The reasons are unclear but the COVID19 Marmot Review (Marmot et al., 2021) argues that growing inequality and government austerity policies provide an explanation as to why England's infection and mortality rates were high.

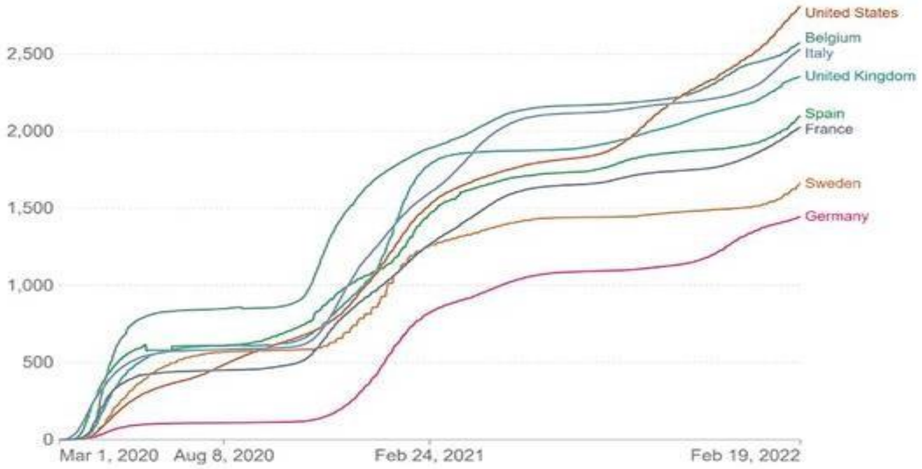


Figure 14 Cumulative COVID-19 mortality in the UK, in comparison with other wealthy countries.

Note: Cumulative confirmed COVID-19 deaths per million people. For some countries, the number of confirmed deaths is much lower than the true number of deaths. This is because of limited testing and challenges in the attribution of the cause of death.

Source: Ritchie et al. (2020), using Johns Hopkins University CSSE COVID-19 data.

Figure 23: Cumulative COVID-19 mortality in the UK, in comparison with other countries. (Ritchie et al., 2020)

Gray (2023) proposes that there is point of optimality which has pertinence to equity; below this level there is under-use of services (and that is likely to be more prevalent as levels of deprivation increases), and above this point there is over-use and waste. This forms the basis of Gray's population health approach.

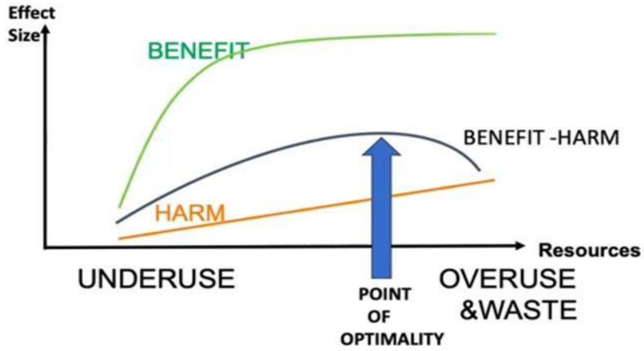


Figure 24: The Point of Optimality (Gray, 2023).

The survey responses highlight two areas of concern: that the board understands variation, and the organisation reviews levels of treatment. The split between whether the board understands variation is roughly 50/50 but when asked if the organisation reviews levels of over-treatment, then no is the dominant answer.

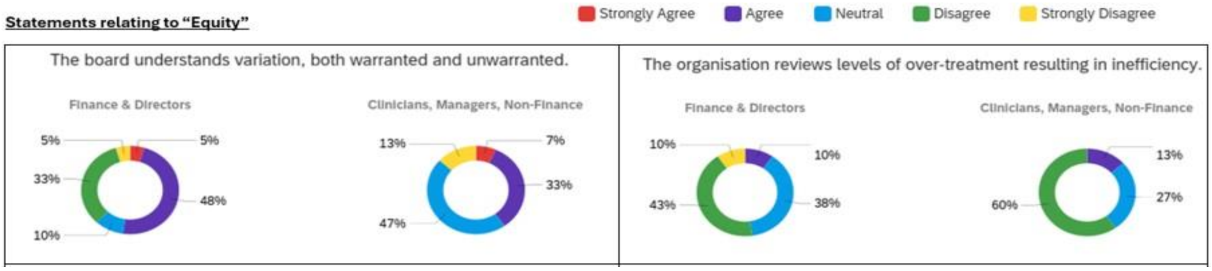


Figure 25: Online survey extract

This is partly expected in a pressurised system which is responding to political pressure to restore services and bring waiting times down – there isn't necessarily the time for reflection. However, looking at the national picture of worsening equity resulting in poorer outcomes, then it's arguable that allocative efficiency is deteriorating and one of the ways that this can be arrested locally is to thoroughly understand the data to drive challenging conversations.

Per Sally Lewis (personal communication, August 14, 2024) "If we truly want clinicians to review practices, to own the data, and to act, we must incentivise them with benefits that are realisable. This links strongly to culture of stewardship". Such approaches often include an agreement to either not reduce budgets or that a proportion of any savings achieved are available for reinvestment locally in their services. Financial deficits mean such open thinking is being forgone.

This contributes to issues of equity and inequality particularly if wasteful use of resources continues. Barasa et al. (2015) says the goal of maximising desired outcomes must be traded off against equity. Priority setting exercises should aim to achieve an appropriate balance between maximising intended outcomes at a given resource level whilst considering equity. This is an important point – achieving true equity is difficult because of human factors. Laing (personal communication, August 14, 2024) commented that "outcomes in rural places can be poorer because people are more reluctant to travel". This is an issue of equity which then impedes outcomes. As Lewis (personal communication, August 14, 2024) concludes, "seeing the variation is part of it – what matters is what you do about it".

Having a realistic approach to equity commensurate with the outcomes which we are working towards is therefore an essential part of the discussion.

Outcomes

Just as there are different views as to what good outcomes look like there are differing opinions on the importance of outcomes at the meso level. Per Lewis (2022), we are seeking the optimum allocation of resources and optimisation of all interventions across the whole pathway of care, underpinned by a person-centred approach.

Hamish Laing (personal communication, August 14, 2024) says "outcomes data has a dual purpose. Firstly, this tells us the degree to which we have satisfied the patient and how they feel about the 'thing that was bothering them the most'. Secondly, using different types of outcome measurements at different stages of the pathway gives an assessment of the likelihood of success and should support true patient engagement". Two factors must be considered for productive outcomes – the right patient must be having the right procedure, and the procedure must be carried out efficiently.

Returning to the ambition of the scheme, there must be clarity and transparency over the desired outcomes which can be measured and critiqued. Without this, how do we truly know whether the intended course of action is the right one. Cataract surgery is a frequently quoted example. Per Seth et al. (2022), the CatQuest-9SF tool can accurately address both visual functioning and visual satisfaction and as such can be routinely used to assess visual functioning in primary care, ensuring the only patients referred into secondary care for a cataract procedure are those who will clinically benefit. This saves precious resources and avoids being efficient at a procedure which itself may not generate personal value for the patient.

Logic suggests system plans are assessed according to their outcomes, but the survey found instead that units of activity rather than outcomes are the dominant decision driver. When asked whether waste and inefficiency are inevitable, there was a profound difference in feedback:

- 57% of finance and directors' responses agreed with only 19% disagreeing.
- Amongst non-finance responses, 54% disagreed that waste was inevitable.
- Together this suggests a disconnect between those making the decisions and those charged with implementing the decision.

The connection to the culture of stewardship is key, as everyone involved must act in a positive manner; think like a patient, act like a taxpayer (Stevens, 2014).

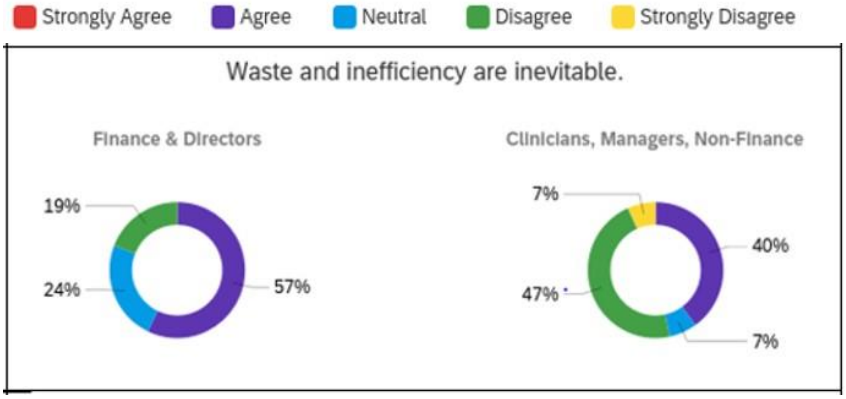


Figure 26: Online Survey Extract

VBHC is about achieving the best outcomes across the entire pathway and so it is necessary to think of the wider meso-system, whether that is the place footprint or the geographic area of the ICB. Care will be provided by different players along the pathway and likely span different sectors – delivery of healthcare is not just done within health services, but social care as well as the societal impacts of the wider determinants.

Defining and measuring outcomes is therefore fundamental to success. But it must be kept in perspective. Per Lewis (2022) discusses the limitations of standardised outcome measures and the danger of hitting the target yet missing the point: an outcome may be better defined as a milestone in a person's healthcare journey rather than an endpoint.

Per Muir Gray (personal communication, August 19, 2024) "outcomes are one part of the value equation as is equity, but you need to measure the postcodes and see where people are being referred from and treated. Almost always you will find there were more people from the middleclass areas being treated than the more deprived areas". There must be a clear record on every patient's entry of what is bothering the person the most: 100% of people will doubtfully have a positive result but this does provide essential data as to the degree to which their most troublesome complaint has been addressed.

Culture Of Stewardship

Clinicians, and all staff, must accept they are the stewards of resources already allocated to them. (Gray, 2023) argues this must be universally accepted before any consideration of bidding for additional resources can be made.

Since universal health care is for the benefit of the whole population, boundaries should be defined by population groups, not institutions, firstly, by geographical area, and second by a common need (Wilson et al., 2020). An important principle in how resources are managed is for those doing so to see the benefit of improving value in resource use. An appeal to clinicians to 'find savings' on its own is likely to be ineffective, whereas a challenge to increase high value activity will stimulate discussion.

Per Lewis (2022), value in health is a multi-professional activity, which can provide a common language that is understood by clinicians, patients, financial and operational managers. As we aim for a culture of stewardship, every profession has roles and responsibilities in the system. VBHC should never be just about clinicians reducing cost through reducing unwarranted variation and low value care, or by cost improvement plans, in isolation. The whole team, front and back-office, need to work together across an entire care pathway, managing the risks of investment and dis-investment, as a team. The outcomes sought play an important part in both defining the goal and then assembling the right skill mix for the process.

Hamish Laing (personal communication, August 14, 2024) said "it is critical to have clinicians who are interested in the project as well as understand the business side. The key players should include the medical director, finance to help unblock the movement of money, the support of the board particularly if there is likely to be a period of double running costs moving from one state to another, the chief executive is useful in promoting the work via their own discussions. And of course, each specialty has different ways of promoting what they are doing, "BOASTs" in orthopaedics were a good way of quickly publicising a new way of working", for example (Sacks et al., 2020).

Sally Lewis (personal communication, August 14, 2024) says "Part of building that influence is embarking on a shared journey to find out what data is needed and then to determine what's readily available, what could be available and what's not collected at all".

The survey results indicate there are more closed conversations in practice. 86% of clinicians and non-finance responses said patients aren't involved in setting investment priorities, patients are often engaged to test an idea rather than conceptually. Regarding the system-wide discussion of value, this drew a mixed response, with over one third saying this wasn't the case and a similar amount remaining neutral. If true pathway leadership and transformation is to happen, across the system and beyond organisational boundaries, repeatedly revisiting, testing and reporting alignment with aims and goals is critical.

Sustainability

The topic of sustainability was utilised in its ecological and environmental terms as well as including the decision-making/investment decision processes within health and care systems. In the survey these were operationalised as:

- Carbon (from culture and sustainability)
- Projects not generating a positive benefit (decision tools)
- Organisation has a framework for economic, effective and efficient decision making. (decision tools)
- Internal costing results shared and discussed (decision tools)
- Programme budgeting serves as a learning and development exercise in understanding population health and where value can be created (decision tools)
- Organisational boundaries versus true system working (stakeholders)

Hamish Laing (personal communication, 2024, August 14) argues "the best time to try something new is when things are going wrong. The temptation is to try and shift the dial towards primary prevention but that takes far longer and is more problematic, whereas significant progress can be made by focusing initially on secondary prevention. We need to be clear about what it is we are trying to achieve and then measure the improvement – which is very different to measuring performance"

Sustainability is seen too narrowly as financial, but the importance of Carbon reduction and the NHS Green Agenda is understated. Gray (2023) argues the latest paradigm is 'net-zero Carbon healthcare'. Sustainable models of care equate to better value healthcare: where unwarranted variation is minimised, divesting from low value interventions to higher value also results in using less carbon. As Gray (2023) concludes:

> *'Better sustainable value healthcare = Better for human health = Better for planetary health = Better for financial health'.*

And this takes us back to some of the questions which Gray (2023) proposes that allocative value should help to answer including:

- Is respiratory care better in Manchester or Liverpool.
- How do the outcomes for COPD patients compare between places.
- How much is Place A spending on new hips versus place B, and how does this compare to their relative demographics.
- What proportion of health care spend is on prevention rather than treatment – and how do we shift the dial – as this supports future sustainability.

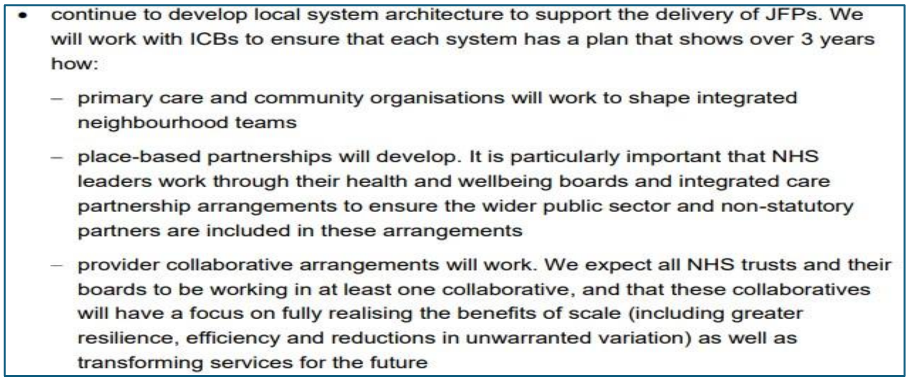
The role of Carbon is a more important primary driver than the literature suggests. Globally environmental awareness is increasing and discussing the green agenda tests value of every activity, building clinical engagement, fostering a culture of stewardship and working towards delivering better outcomes, equitably for our patients. A focus on doing the right thing efficiently and effectively will yield far greater financial gains than starting with the question of what cost improvement is required.

Technical Value

The 2022 Act defined one of the four purposes of ICBs as ensuring sustainability of the NHS by enhancing productivity and value for money. Productivity typically compares the relationship of inputs to outputs: the number of operations per surgeon. The next step is efficiency, which compares inputs to outcomes: the number of successful procedures. This is closer to Porter's view of VBHC. Gray (2023) contends there is a third factor, that of technical value, which considers how resources are utilised across the whole population including equity. "In future, payers will not only expect the provider to use the resources to achieve the best outcomes for the people who happen to reach a service but also to make the best use of resources for all people with a particular need, and to remain aware of the possibility that there may be underuse of a service by people in the most deprived sub-groups of the population" (Gray (2023), page 49).

There are complications to this, not least the organisational dominance and silo budgets not reflecting how patients access services.

The NHSE annual planning process makes considerable demands of in-year deliverables related to specific targets but also extends the longer-term shift to system by default.



- continue to develop local system architecture to support the delivery of JFPs. We will work with ICBs to ensure that each system has a plan that shows over 3 years how:
  - primary care and community organisations will work to shape integrated neighbourhood teams
  - place-based partnerships will develop. It is particularly important that NHS leaders work through their health and wellbeing boards and integrated care partnership arrangements to ensure the wider public sector and non-statutory partners are included in these arrangements
  - provider collaborative arrangements will work. We expect all NHS trusts and their boards to be working in at least one collaborative, and that these collaboratives will have a focus on fully realising the benefits of scale (including greater resilience, efficiency and reductions in unwarranted variation) as well as transforming services for the future

Figure 27: Key actions for systems, 2024/25 Operational Planning Guidance (NHSE, 2024).

Technical value aligns the goals of achieving personal value in a more efficient, productive way. Personal value is critical – per Drucker (1961) 'there is nothing quite so useless as doing with great efficiency what should not be done at all': examples include unnecessary appointments, duplicated tests, diagnostics ordered for peace of mind.

Sally Lewis (personal communication, August 14, 2024) says "productivity doesn't guarantee an outcome. You could be the most productive hospital in the world in the sense that people don't have to wait too long, they get through the system, all your processes are optimised, you're hitting the targets. The trouble is you haven't addressed the early part of the pathway. If you're getting too many cancers coming through to secondary care you haven't optimised your value across the whole pathway. We need to be productive in what we do but we also need to focus on the outcomes that matter to people. That's where personal value comes in".

Both personal and societal value can demonstrate benefits than purely economic which need fair weighting. Where benefits accrue and their liquidity will vary. A greater focus on the contribution of the wider determinants will spread those benefits further.

Muir Gray (personal communication, August 19, 2024) again says this pushes the case further for a population view. "The comparison must always start with comparing against other health systems before we consider how productively they are doing it. If they are doing three times more hip procedures than anywhere else that might be right for their population – but it could be their population needs is more knee or cardiac procedures. Remember, there's limitless ways to spend the money but limited resources".

Returning to the survey, what is clear is that value needs to form a greater part of the conversation. Roughly half of responders agreed that personal outcomes data is the gold standard – a valid question would be how integrated this data in the conversation with the patient is and between clinicians and leaders regarding shaping services and delivering value equitably across the local population.

Discussing financial frameworks to support integrated care systems, Brown (2021) reports that the structures for finance often drive organisational behaviour and sometimes dictate decisionmaking structures. Governance and decision-making should show the way finances should flow. Transparency show duplication can be taken out of the system to understand the primary cost of delivering care otherwise you get mixed messages. This returns to the original goals, the culture and the willingness to achieve something better even if the process of getting there might be difficult.

Decision Tools

The relative advantages and disadvantages of different approaches to decision tools have been covered during the initial literature review including arguments which support how such tools can create value and productivity rather than just drive performance numbers.

Conclusion And Recommendations

This study set out to explore the dimensions and perspectives of allocative value. The study has found many new additions to the current body of academic knowledge and has successfully explored current practice connecting with the literature to support developments in this area.

The conclusion is that value can definitely be enhanced at the local level and by aligning the pillars of value, then both productivity in the short to medium term and longer-term sustainability can both be improved. Insights from this study which will drive improved productivity include:

- Aligning equity, outcomes and environmental sustainability: will this proposal deliver better outcomes, more fairly and universally, for our patients in our local area and commit to using resources in a more sustainable way focusing on higher value care.
- Teams are tasked with finding solutions pertinent to their areas of expertise at the whole pathway not to establish who does what but to consider who is best placed to deliver which parts of the pathway and what is the optimum order which supports health promotion.
- The opportunities of the 2022 Act regarding system working and the challenges identified by Lord Darzi's 2024, combined with current performance and delivery creates a turbulent system which recognises change is needed to drive sustainability, to change the focus onto strategic opportunities and away from micro-management. The components of change are present, and technologically, we live in a very rich digital era with ever increasing possibilities for delivering better value.

Having a focus on the operational place level and re-evaluating how resources are distributed relative to needs and aims starts that journey.

The findings of the study have modified the initial conceptual framework as shown at Figure 28.

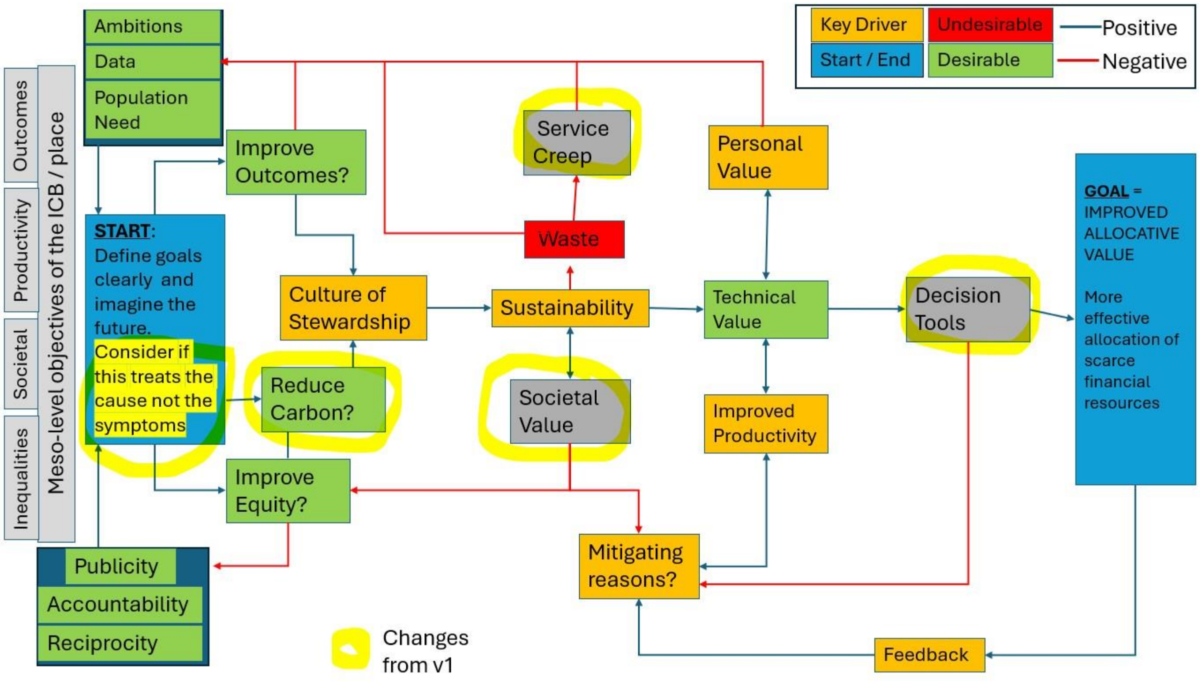


Figure 28: The revised conceptual model (v2) reflecting the findings of qualitative research

Table 11: Changes to the conceptual framework v1 to v2

Driver	**Reason for the Change**
Defining the goals	Reflecting on the Darzi review that the social contract between the NHS and the people establishing performance and quality metrics of the NHS Constitution is not being met, that the NHS budget is not being spent where it should be, and that productivity is too low (Darzi, 2024) together with findings that investment is too often driven by performance not value, a key ask at the start should be to both define the goals and describe exactly what problem this seeks to address. The root of the problem must be established and not just the presenting symptoms.
Reduce Carbon	Shifting from lower to high value care and promoting a Greener future are directly connected. Low value activities have a comparatively high carbon footprint and the easiest change to make is to stop doing things which contribute no value. Sustainability is a challenge to all and should be taken forward using the culture of stewardship. The message must be reframed connected to being more efficient recognising how and where resources are used with how that connects to the outcomes that matter to the patient. Clinical engagement in efficiency is greater through ownership and significantly diminished when finance is the driver.
Societal Value	Societal value was not deemed by the researcher to be a primary driver but having influence. If the earlier parts of the framework have been addressed, namely equity, outcomes and carbon, then what follows is reflective of the impact of health, and reducing ill health by promoting better outcomes, on wider society.
Service creep	Service creep was considered to have influence in a system not following the principles of value and allocative efficiency. Improving allocative value is an incremental process so service creep will have reduced influence as more areas adopt allocative principles.
Decision tools	Proposals are already aligned to making the best use of resources to deliver on behalf of the needs of our local population. Considerations of economic effectiveness and efficiency should be already determined by understanding the data, the demographics and the delivery.

High level recommendations and next steps for the research are:

Table 12: Next steps

Focus	Recommendation
Geography	Review the model beyond England. The UK devolved nations are likely to be similar so more significant testing and development would be expected from other European nations and beyond which operate a largely taxpayer funded system. Testing this model and refining the questions in France, Italy and Holland, would be particularly interesting as these nations have an active interest in value.
Macro influence	Meso-allocations are impacted by macro decisions determining the cascade of resource from Government to the local system. Programme Budgeting provided a robust picture of population health spending relative to demographics and this invaluable tool should be re-established and strengthened, promoting the link to local work on improving population health.
Understanding of allocative value	There are definitional ambiguities which the use of a common language could address. The topic of allocative value should be given greater prominence through further research and should play a greater role in the teaching of value-based health and care.
Organisational understanding	Value should be the central topic across health and care systems from the board to all supporting functions. Everyone must consider themselves in a stewardship role.
Financial sustainability	Financial sustainability is not going to be achieved recurrently through efficiency programmes. We must look at how we use our resources, and we must ask our experts how we could achieve better outcomes for the patient and how our services could be better aligned recognising need and what matters. Opportunities to drive forward positive change should be embraced but teams must be incentivised to participate with proportional re-investment in further improving value which will itself contribute to reducing the need for future efficiencies. Case studies should be explored and championed. The time to start is now, if we wait until waiting times are recovered, for example, the current crisis will have worsened and other issues will have emerged.
Complex systems	The complexity of systems should be considered including bringing together partners across the system and pathway, understanding where costs are incurred, how to create a true programme budget which looks beyond organisational silos, and connects how and where benefits are accrued.
Whole system consideration	This framework has concentrated on planned care. The underlying assumption is that if planned care is operating efficiently then the unplanned system should follow suit, particularly as unplanned demand impacts elective capacity disrupting service. One area to test further is the degree to which improving allocative value shifts the balance towards more planned care and fewer unplanned attendances thereby supporting proactive delivery.
Study questions	As a result of further testing and consideration of different health and care systems, the questions should be calibrated further to narrow the focus of the study to dimensions of allocative value.

Final Words

This research has taken many weeks of applied effort and has made significant findings on the subject of ‘allocative value’, it is hoped that other researchers will take this study, extend it and add to this work.

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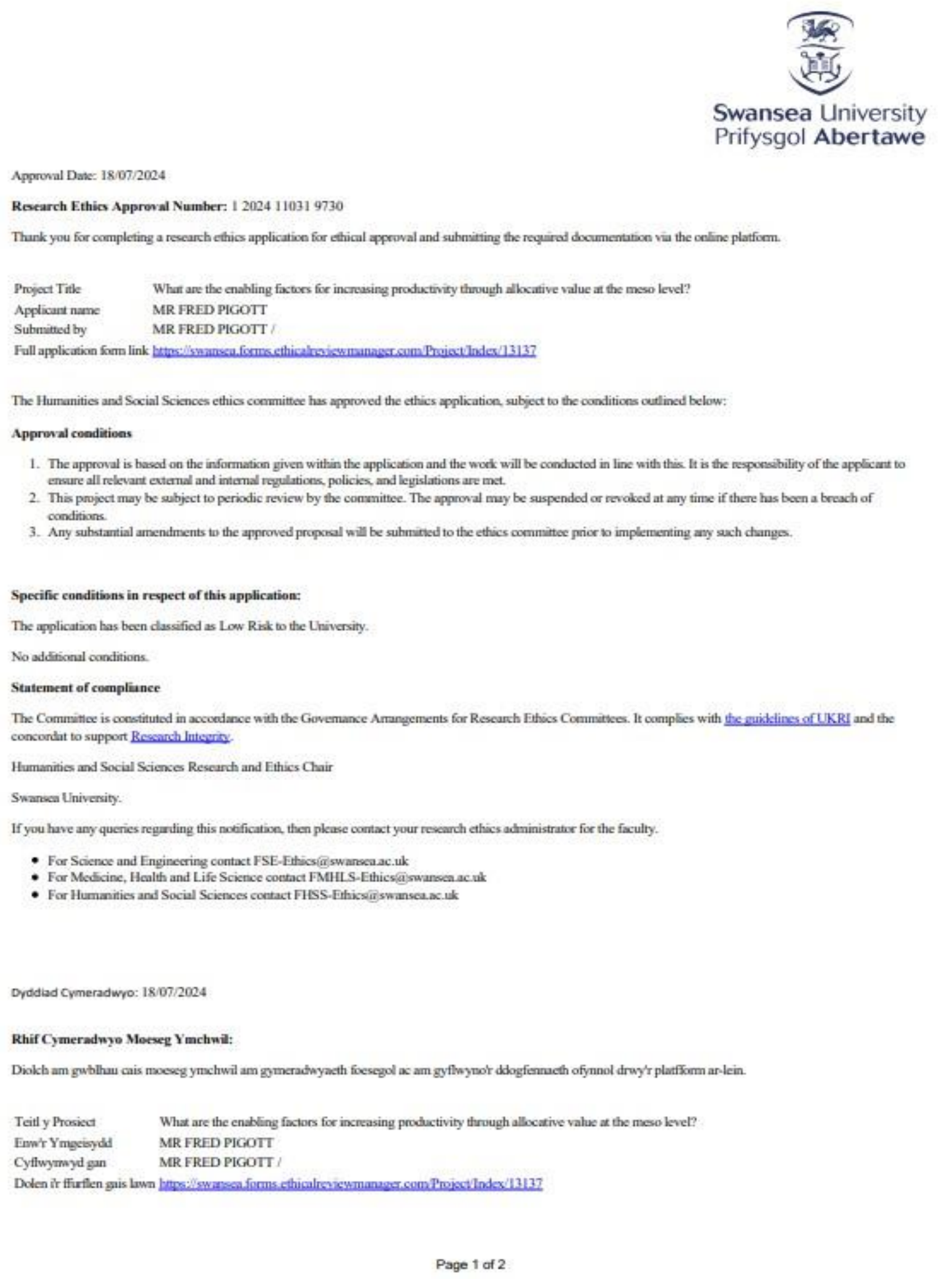
Appendix 1: Ethics Approval



Swansea University
Prifysgol Abertawe

Approval Date: 18/07/2024

Research Ethics Approval Number: 1 2024 11031 9730

Thank you for completing a research ethics application for ethical approval and submitting the required documentation via the online platform.

Project Title	What are the enabling factors for increasing productivity through allocative value at the meso level?
Applicant name	MR FRED PIGOTT
Submitted by	MR FRED PIGOTT /
Full application form link	https://swansea.forms.ethicalreviewmanager.com/Project/Index/13137

The Humanities and Social Sciences ethics committee has approved the ethics application, subject to the conditions outlined below:

Approval conditions

1. The approval is based on the information given within the application and the work will be conducted in line with this. It is the responsibility of the applicant to ensure all relevant external and internal regulations, policies, and legislations are met.
2. This project may be subject to periodic review by the committee. The approval may be suspended or revoked at any time if there has been a breach of conditions.
3. Any substantial amendments to the approved proposal will be submitted to the ethics committee prior to implementing any such changes.

Specific conditions in respect of this application:

The application has been classified as Low Risk to the University.

No additional conditions.

Statement of compliance

The Committee is constituted in accordance with the Governance Arrangements for Research Ethics Committees. It complies with the guidelines of UKRI and the concordat to support Research Integrity.

Humanities and Social Sciences Research and Ethics Chair

Swansea University.

If you have any queries regarding this notification, then please contact your research ethics administrator for the faculty.

- For Science and Engineering contact FSE-Ethics@swansea.ac.uk
- For Medicine, Health and Life Science contact FMHLS-Ethics@swansea.ac.uk
- For Humanities and Social Sciences contact FHSS-Ethics@swansea.ac.uk

Dyddiad Cymeradwyo: 18/07/2024

Rhif Cymeradwyo Moeseg Ymchwil:

Diolch am gwblhau cais moeseg ymchwil am gymeradwyaeth foesegol ac am gyflwyno'r ddogfennaeth ofynnol drwy'r platfform ar-lein.

Teitl y Prosiect	What are the enabling factors for increasing productivity through allocative value at the meso level?
Enw'r Ymgeisydd	MR FRED PIGOTT
Cyflwynwyd gan	MR FRED PIGOTT /
Dolen i'r ffurflen gais lawn	https://swansea.forms.ethicalreviewmanager.com/Project/Index/13137

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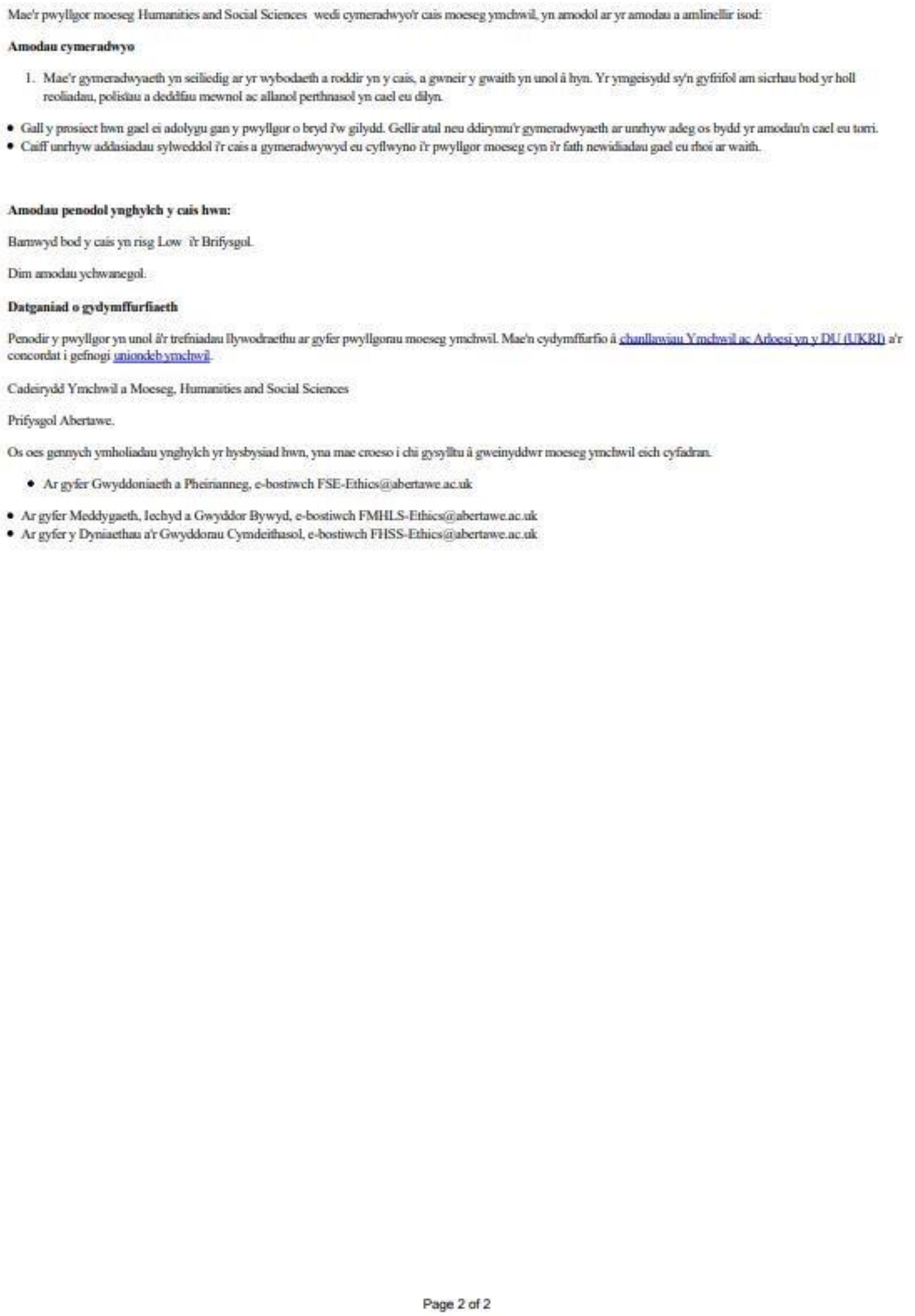

Mae'r pwyllgor moeseg Humanities and Social Sciences wedi cymeradwyo'r cais moeseg ymchwil, yn amodol ar yr amodau a amlinellir isod:

Amodau cymeradwyo

1. Mae'r gymeradwyaeth yn seiliedig ar yr wybodaeth a roddir yn y cais, a gwneir y gwaith yn unol â hyn. Yr ymgeisydd sy'n gyfrifol am sicrhau bod yr holl reoliadau, polisïau a deddfau mewnol ac allanol perthnasol yn cael eu dilyn.

- Gall y prosiect hwn gael ei adolygu gan y pwyllgor o bryd i'w gilydd. Gellir atal neu ddirymu'r gymeradwyaeth ar unrhyw adeg os bydd yr amodau'n cael eu torri.
- Caiff unrhyw addasiadau sylweddol i'r cais a gymeradwywyd eu cyflwyno i'r pwyllgor moeseg cyn i'r fath newidiadau gael eu rhoi ar waith.

Amodau penodol ynghylch y cais hwn:

Barnwyd bod y cais yn risg Low i'r Brifysgol.

Dim amodau ychwanegol.

Datganiad o gydymffurfiaeth

Penodir y pwyllgor yn unol â'r trefniadau llywodraethu ar gyfer pwyllgorau moeseg ymchwil. Mae'n cydymffurfio â chanllawiau Ymchwil ac Arloesi yn y DU (UKRI) a'r concordat i gefnogi uniondeb ymchwil.

Cadeirydd Ymchwil a Moeseg, Humanities and Social Sciences

Prifysgol Abertawe.

Os oes gennych ymholiadau ynghylch yr hysbysiad hwn, yna mae croeso i chi gysylltu â gweinyddwr moeseg ymchwil eich cyfadran.

- Ar gyfer Gwyddoniaeth a Pheirianneg, e-bostiwch FSE-Ethics@abertawe.ac.uk
- Ar gyfer Meddygaeth, Iechyd a Gwyddor Bywyd, e-bostiwch FMHLS-Ethics@abertawe.ac.uk
- Ar gyfer y Dyniaethau a'r Gwyddorau Cymdeithasol, e-bostiwch FHSS-Ethics@abertawe.ac.uk

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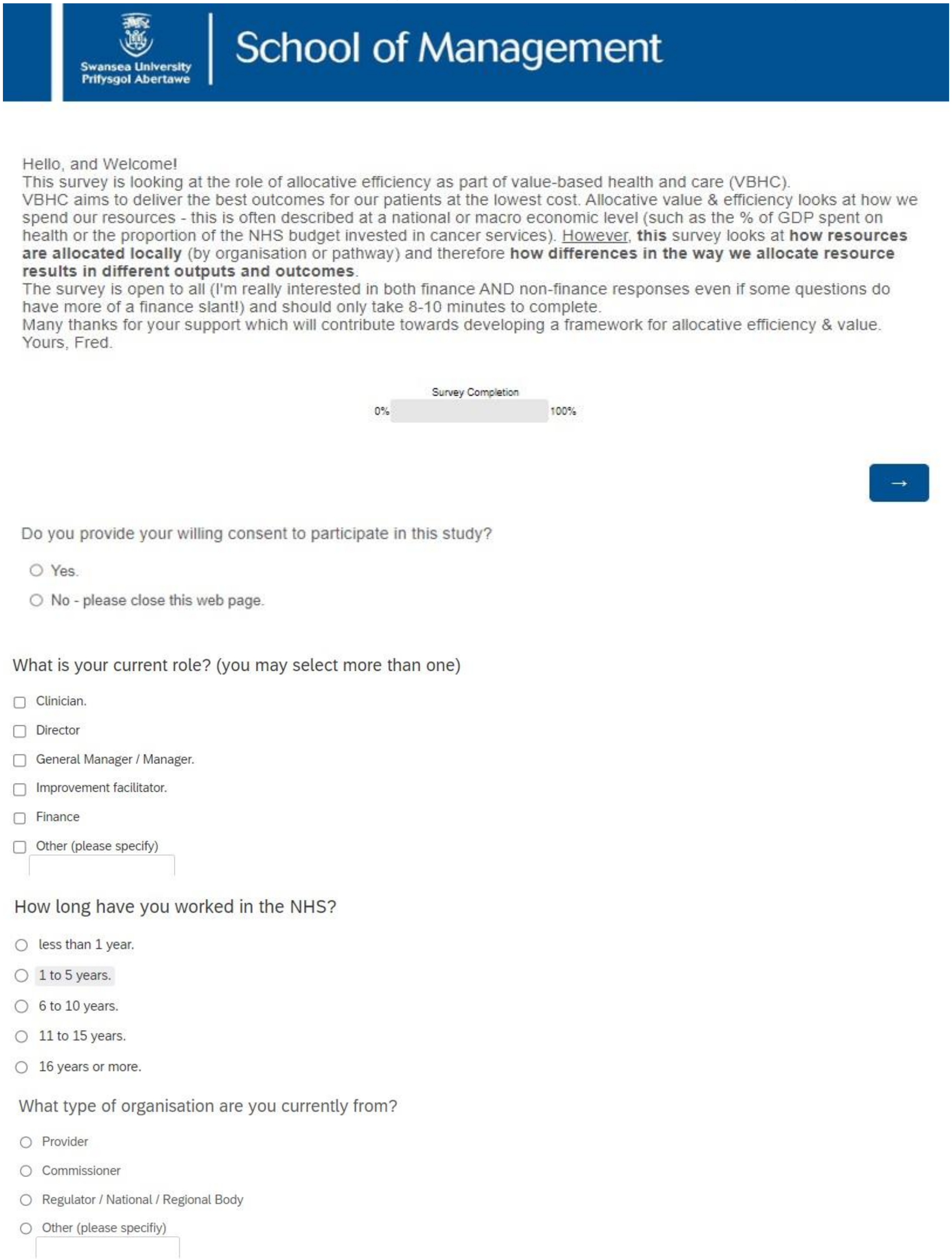
Appendix 2: On-Line Survey Responses – Online Survey Template



Hello, and Welcome!
This survey is looking at the role of allocative efficiency as part of value-based health and care (VBHC).
VBHC aims to deliver the best outcomes for our patients at the lowest cost. Allocative value & efficiency looks at how we spend our resources - this is often described at a national or macro economic level (such as the % of GDP spent on health or the proportion of the NHS budget invested in cancer services). However, **this** survey looks at **how resources are allocated locally** (by organisation or pathway) and therefore **how differences in the way we allocate resource results in different outputs and outcomes**.
The survey is open to all (I'm really interested in both finance AND non-finance responses even if some questions do have more of a finance slant!) and should only take 8-10 minutes to complete.
Many thanks for your support which will contribute towards developing a framework for allocative efficiency & value.
Yours, Fred.

Do you provide your willing consent to participate in this study?

○ Yes.
○ No - please close this web page.

What is your current role? (you may select more than one)

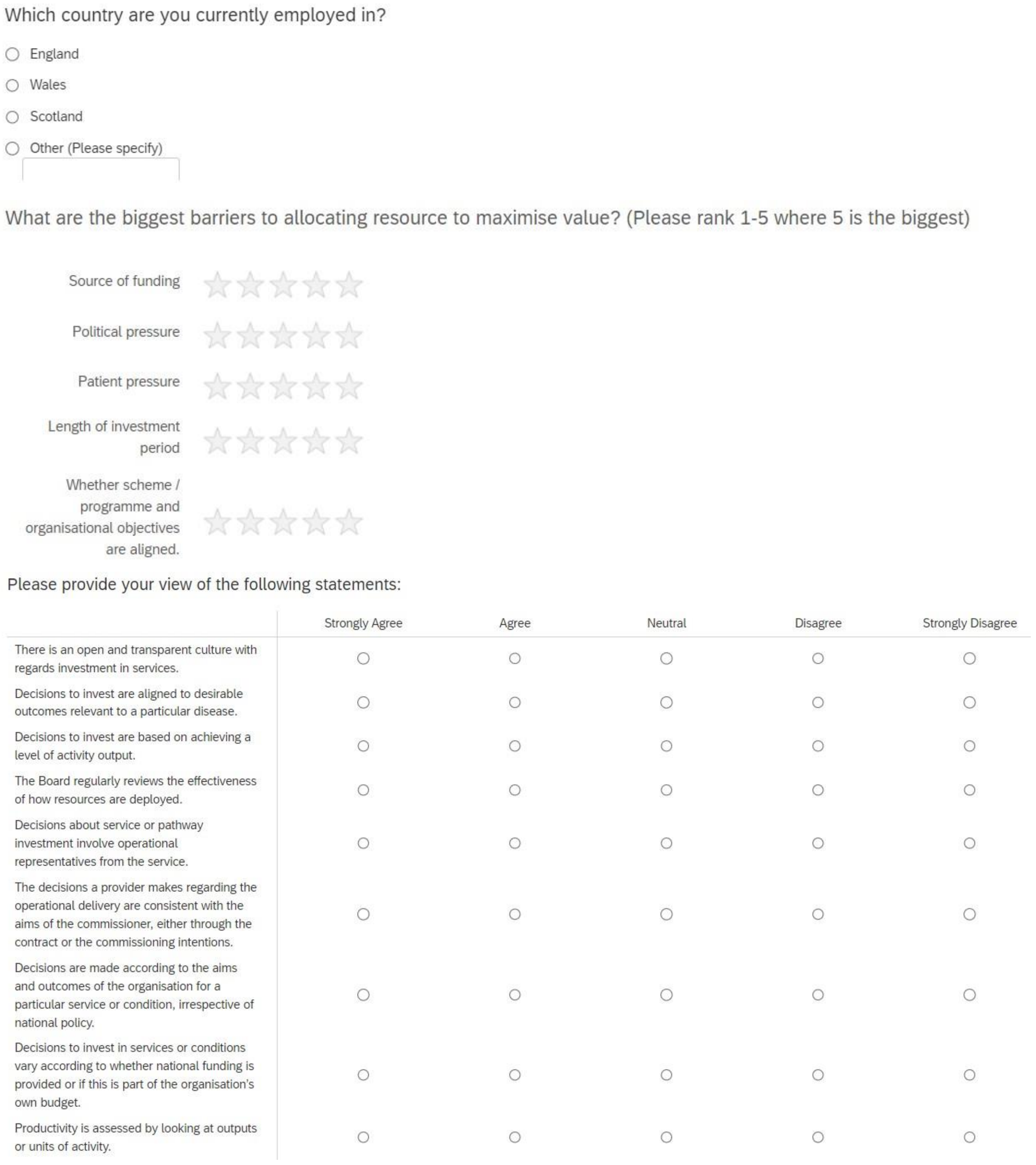
☐ Clinician.
☐ Director
☐ General Manager / Manager.
☐ Improvement facilitator.
☐ Finance
☐ Other (please specify)

How long have you worked in the NHS?

○ less than 1 year.
○ 1 to 5 years.
○ 6 to 10 years.
○ 11 to 15 years.
○ 16 years or more.

What type of organisation are you currently from?

○ Provider
○ Commissioner
○ Regulator / National / Regional Body
○ Other (please specifiy)



Which country are you currently employed in?

○ England
○ Wales
○ Scotland
○ Other (Please specify)

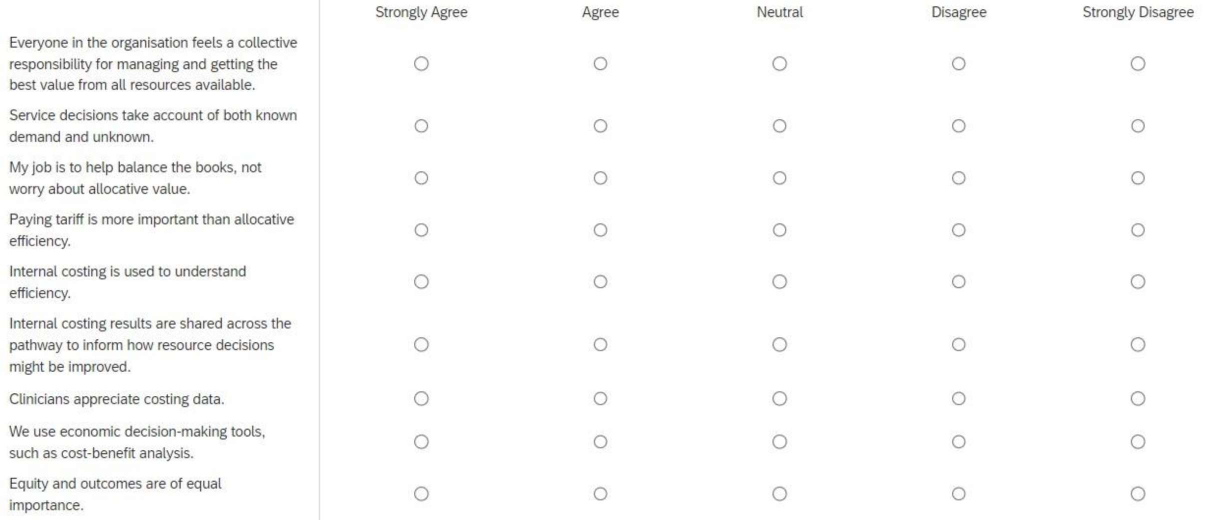
What are the biggest barriers to allocating resource to maximise value? (Please rank 1-5 where 5 is the biggest)

Source of funding	☆☆☆☆☆
Political pressure	☆☆☆☆☆
Patient pressure	☆☆☆☆☆
Length of investment period	☆☆☆☆☆
Whether scheme / programme and organisational objectives are aligned.	☆☆☆☆☆

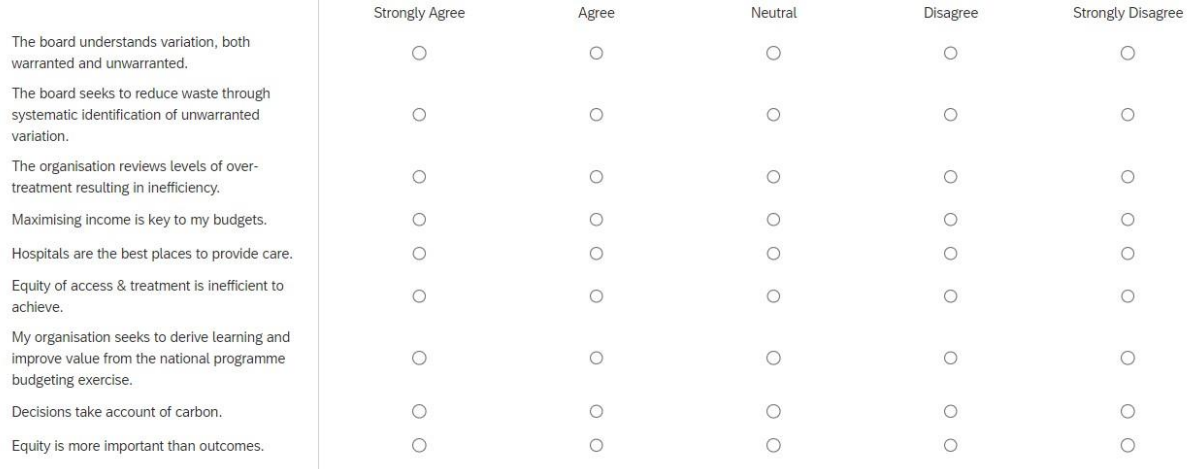
Please provide your view of the following statements:

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
There is an open and transparent culture with regards investment in services.	○	○	○	○	○
Decisions to invest are aligned to desirable outcomes relevant to a particular disease.	○	○	○	○	○
Decisions to invest are based on achieving a level of activity output.	○	○	○	○	○
The Board regularly reviews the effectiveness of how resources are deployed.	○	○	○	○	○
Decisions about service or pathway investment involve operational representatives from the service.	○	○	○	○	○
The decisions a provider makes regarding the operational delivery are consistent with the aims of the commissioner, either through the contract or the commissioning intentions.	○	○	○	○	○
Decisions are made according to the aims and outcomes of the organisation for a particular service or condition, irrespective of national policy.	○	○	○	○	○
Decisions to invest in services or conditions vary according to whether national funding is provided or if this is part of the organisation's own budget.	○	○	○	○	○
Productivity is assessed by looking at outputs or units of activity.	○	○	○	○	○

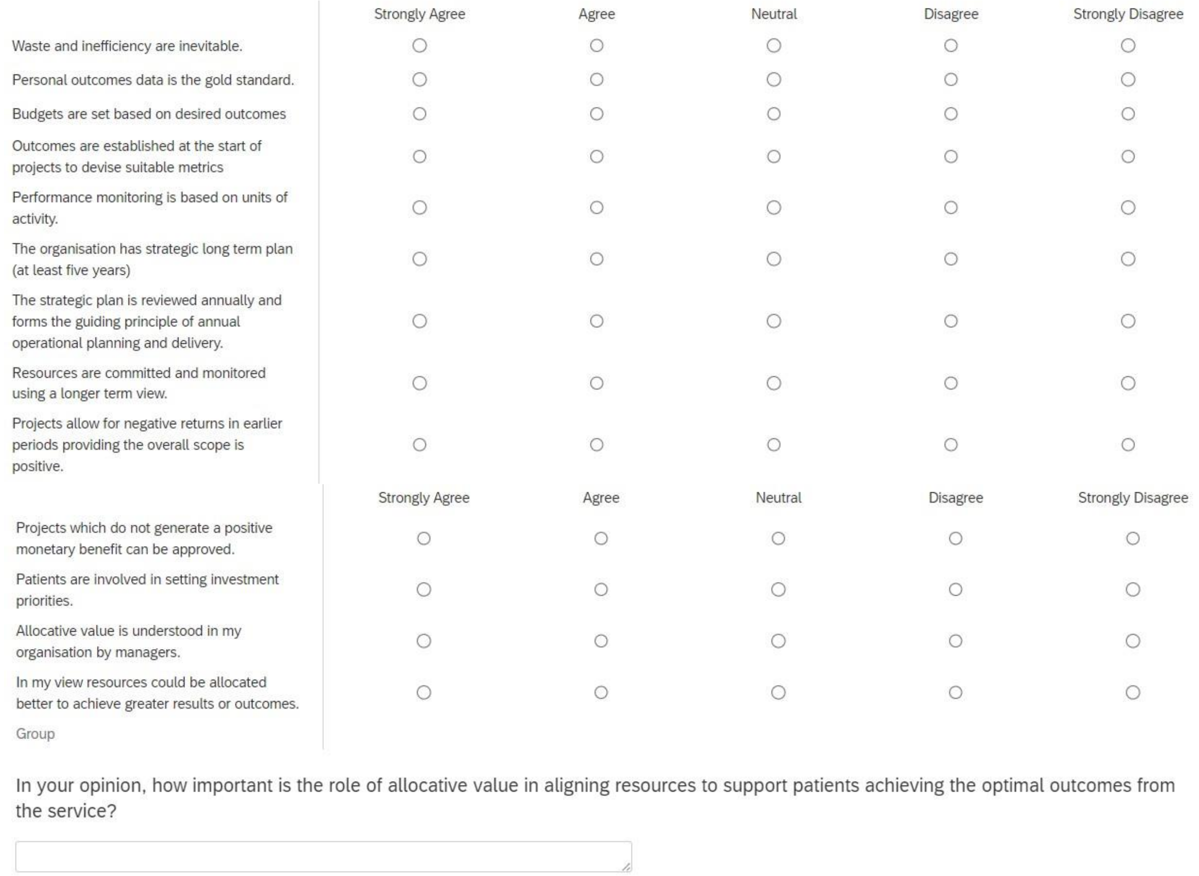
	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Productivity is assessed by evaluating the outcomes to patients.	○	○	○	○	○
Generating value forms part of external conversations.	○	○	○	○	○
The provider routinely reports to the commissioner on how allocative value is being achieved.	○	○	○	○	○
The organisation has a framework for ensuring decisions are effective, efficient and economic.	○	○	○	○	○
The sovereignty of my individual organisation is the top priority.	○	○	○	○	○
Where a pathway or programme crosses organisational boundaries, parties consider both investment and return.	○	○	○	○	○
It is possible to achieve allocative value at operational level.	○	○	○	○	○
It is possible to achieve allocative value on a pathway level beyond organisational boundaries.	○	○	○	○	○
The board is more focused on technical value than allocative value.	○	○	○	○	○



	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Everyone in the organisation feels a collective responsibility for managing and getting the best value from all resources available.	○	○	○	○	○
Service decisions take account of both known demand and unknown.	○	○	○	○	○
My job is to help balance the books, not worry about allocative value.	○	○	○	○	○
Paying tariff is more important than allocative efficiency.	○	○	○	○	○
Internal costing is used to understand efficiency.	○	○	○	○	○
Internal costing results are shared across the pathway to inform how resource decisions might be improved.	○	○	○	○	○
Clinicians appreciate costing data.	○	○	○	○	○
We use economic decision-making tools, such as cost-benefit analysis.	○	○	○	○	○
Equity and outcomes are of equal importance.	○	○	○	○	○



	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
The board understands variation, both warranted and unwarranted.	○	○	○	○	○
The board seeks to reduce waste through systematic identification of unwarranted variation.	○	○	○	○	○
The organisation reviews levels of over-treatment resulting in inefficiency.	○	○	○	○	○
Maximising income is key to my budgets.	○	○	○	○	○
Hospitals are the best places to provide care.	○	○	○	○	○
Equity of access & treatment is inefficient to achieve.	○	○	○	○	○
My organisation seeks to derive learning and improve value from the national programme budgeting exercise.	○	○	○	○	○
Decisions take account of carbon.	○	○	○	○	○
Equity is more important than outcomes.	○	○	○	○	○



	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Waste and inefficiency are inevitable.	○	○	○	○	○
Personal outcomes data is the gold standard.	○	○	○	○	○
Budgets are set based on desired outcomes	○	○	○	○	○
Outcomes are established at the start of projects to devise suitable metrics	○	○	○	○	○
Performance monitoring is based on units of activity.	○	○	○	○	○
The organisation has strategic long term plan (at least five years)	○	○	○	○	○
The strategic plan is reviewed annually and forms the guiding principle of annual operational planning and delivery.	○	○	○	○	○
Resources are committed and monitored using a longer term view.	○	○	○	○	○
Projects allow for negative returns in earlier periods providing the overall scope is positive.	○	○	○	○	○

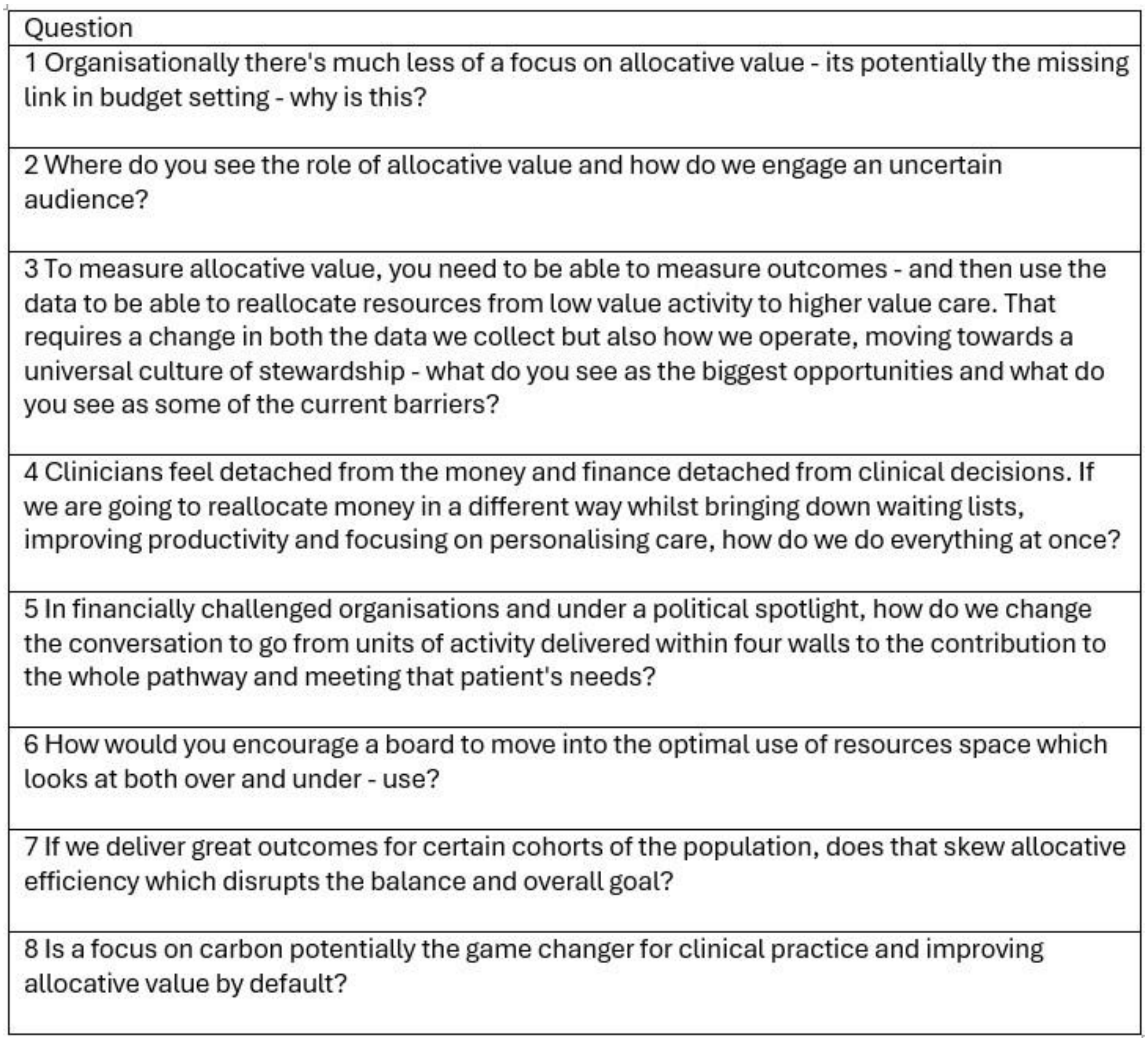
	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Projects which do not generate a positive monetary benefit can be approved.	○	○	○	○	○
Patients are involved in setting investment priorities.	○	○	○	○	○
Allocative value is understood in my organisation by managers.	○	○	○	○	○
In my view resources could be allocated better to achieve greater results or outcomes.	○	○	○	○	○
Group					

In your opinion, how important is the role of allocative value in aligning resources to support patients achieving the optimal outcomes from the service?

Appendix 3 Interview Questions

The interviews were based around eight open questions:

Table 13: Interview questions



Question
1 Organisationally there's much less of a focus on allocative value - its potentially the missing link in budget setting - why is this?
2 Where do you see the role of allocative value and how do we engage an uncertain audience?
3 To measure allocative value, you need to be able to measure outcomes - and then use the data to be able to reallocate resources from low value activity to higher value care. That requires a change in both the data we collect but also how we operate, moving towards a universal culture of stewardship - what do you see as the biggest opportunities and what do you see as some of the current barriers?
4 Clinicians feel detached from the money and finance detached from clinical decisions. If we are going to reallocate money in a different way whilst bringing down waiting lists, improving productivity and focusing on personalising care, how do we do everything at once?
5 In financially challenged organisations and under a political spotlight, how do we change the conversation to go from units of activity delivered within four walls to the contribution to the whole pathway and meeting that patient's needs?
6 How would you encourage a board to move into the optimal use of resources space which looks at both over and under - use?
7 If we deliver great outcomes for certain cohorts of the population, does that skew allocative efficiency which disrupts the balance and overall goal?
8 Is a focus on carbon potentially the game changer for clinical practice and improving allocative value by default?

What are the barriers and enablers to the implementation of Patient Reported Outcome Measures (PROMs) within the Cardiff and Vale (CAV) University Health Board?

Gurdit Singh Dosanjh
Junior Doctor in Cardiff and Vale University Health Board
Email: Gurdit.Dosanjh2@wales.ac.uk

Abstract:

The use and collection of Patient Reported Outcome Measures (PROMs) has been mandated for Health Boards across Wales by the Welsh Government. As with any organisational change, it is anticipated that there will be a mixture of enablers and barriers across various aspects of the healthcare landscape that will impact the uptake of this tool across Wales. This research project sets out to begin to understand some of these factors by focusing in on one of the seven Welsh Health Boards, by gathering data from surveys and semi-structured interviews of staff involved in PROMs implementation in the Cardiff and Vale University Health Board. There is poor understanding of the various barriers and enablers that may be faced, particularly in a Welsh context. The findings of this survey will aid in filling this gap. The results of the research indicated there were various enablers. Having a dedicated PROMs team guiding implementation efforts alongside motivated staff was a key facilitator. National PROMs licensing eased the process of selecting PROMs for clinical use. However, these enablers are hindered by poor digital support, a lack of digital integration and poor advertisement of available resources which would help ease the adoption process. Key recommendations, therefore, are made based off the findings, to amplify the key enablers, whilst aiming to mitigate the barriers, encouraging the wider proliferation of the PROMs tool throughout CAV and Wales as a whole.

Keywords: PROMs, cystic fibrosis, transition, paediatric, adolescence.

Table of Contents

Executive Summary

The NHS in Wales is suffering from increasing demands in the face of reduced resourcing (Mansel Aylward, 2013). A new paradigm to structure the way services are delivered was pushed by the Welsh Government. The inspiration for this push was drawn from the concept of Value Based Healthcare (VBHc), which espouses a new way of defining what value means to maximise the effect of the resources put into healthcare. It says that value is equal to the outcomes that matter to a patient against the costs of deliverig the healthcare (Michael Porter & Elizabeth Olmsted Tesiberg, 2006). Therefore, patient outcomes must be effectively measured. A number of methods to do this have been postulated, with Patient Reported Outcome Measures (PROMs) being one of the preferred methods for Welsh leadership. Each of the seven Welsh Health Boards are mandated to collect PROMs (Welsh Government, 2020).

PROMs are validated questionaries which seek to gather information on patient perspectives about their healthcare and its outcomes. They can be used to understand the subjective effect of an intervention or the impact of a particular symptom on a patient. PROMs can help clinicians and patients with co-production, helping to guide more value-based decisions (Kate Churruca et al., 2021).

Several studies highlight that the majority of implementation initiatives (60-70%) fail. Research suggests this is because organisations poorly understand the various barriers and enablers which can affect the implementation process (Abdelouahab Errida & Bouchra Lotfi, 2021). Thus, it is important for an organisation to understand these factors for more effective change management processes.

The purpose of this research project was to ascertain these facilitators and barriers, within the Cardiff and Vale (CAV) Health Board. A mixed method approach consisting of a survey and semi-structured interview was used to do this.

The formation of a VBHc specialist team helping to guide adoption of PROMs alongside having motivated staff were seen to be key drivers of implementation. The data highlighted a digital platform is useful to have. However, a multitude of issues with the digital platform chosen to deliver PROMs in CAV was noted. This included a poor integration and interoperability with existing electronic record systems, useability issues for staff and patients alongside poor data presentation. Some participants did perceive a lack of organisational support, with issues such as poor advertising of available support services and a scarcity of guidance on PROMs implementation.

The key recommendations derived from this research included encouraging communication with key stakeholders such as staff and patients in devising strategies for PROMs adoption, particularly when developing new digital platforms. The provision of teaching to staff and patients to aid in understanding PROMs was a key suggestion. Allocating extra resources in the form of staff and funding to help adjust workflows to capture PROMs was also recommended. The hope is that this research will improve uptake and diffusion of PROMs throughout the organisation.

Introduction

Background and context

The National Health Service (NHS) in Wales is facing unprecedented challenges, like its global counterparts, in an era of 'severe financial constraint' (Mansel Aylward, 2013). Despite a rising budget for the Welsh NHS, public satisfaction with the NHS has been declining in recent years, with a record low satisfaction level recorded in 2023 (The King's Fund, 2024). This is leading to questions regarding the sustainability of the contemporary modes of health-care provision.

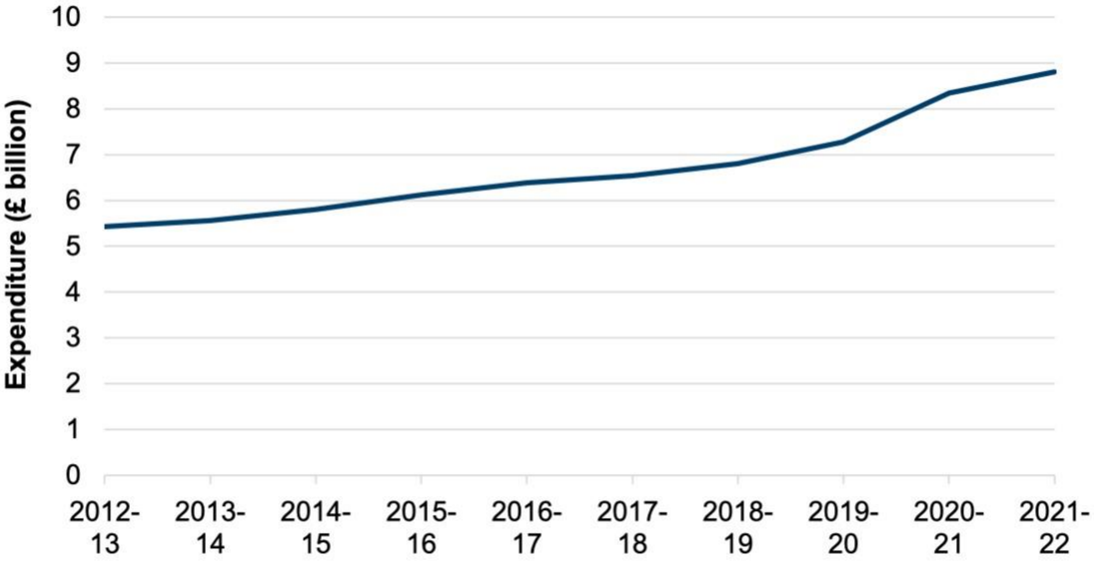


Figure 1: This chart shows NHS expenditure over time, with a year-on-year increase in spending evident over the last decade (Welsh Government, 2023).

The Welsh response to this was to devise an ambitious strategy to shake up healthcare.

The initial movement taken by the Government in 2014, was surmised in the concept of Prudent Healthcare (PH). This marked the transition to placing greater value on patient outcomes, aiming to use resources in the most efficient way (The Bevan Commision, 2015). The successor strategy built upon PH, was given voice to, in the document, 'A Healthier Wales: our Plan for Health and Social Care'. It had the key aim of 'higher value' care, focused on patient outcomes (Welsh Government, 2022a). In order to achieve these aims, a 'Value Based Health Care (VBHC) approach' was advocated for by the Welsh Government (Welsh Government, 2020).

Value is often defined as:

$$\frac{Outcomes}{Cost}$$

This is the achievement of the best possible outcomes for patients receiving care, at the lowest possible cost (Sally Lewis, 2022).

In order to be able to achieve value, patient outcomes must be measured (Michael Porter & Elizabeth Olmsted Tesiberg, 2006). This allows the pursuit of interventions which maximise the positive effects of a patient's interaction with healthcare – so called 'high value' activities (Cwm Taf Morganwg University Health Board, 2024).

PROMs

Patient Reported Outcome Measures (PROMs) are one method of collecting information about a patient's perspective of their healthcare. This can help clinicians assess what issues matter most and can help ascertain the impact of a treatment or intervention (Cwm Taf Morganwg University Health Board, 2024). PROMs are mandated to be collected nationally, across all Health Boards to help achieve a value-based transformation of the Welsh healthcare system (Welsh Government, 2020).

Motivation of the researcher and project requirements

A study of PROMs in Cardiff and Vale (CAV), one of the seven Health Boards in Wales, will be undertaken to understand what barriers and enablers are faced when attempting to implement PROMs in routine clinical care. Research shows that optimal PROM implementation is poorly understood (Hanh Nguyen et al., 2021) (Mayara Silveira Bianchim et al., 2023). Researching what barriers and enablers there are to successful implementation of PROMs may help in informing better decisions to improve the process of adoption, helping to achieve the national directive of better value patient care.

Objectives of the research

- To highlight the importance of understanding the barriers and enablers to PROMs adoption to assist in understanding the change management process
- To identify the relevant enablers and barriers to PROMs implementation in CAV at various levels of the system, by understand staff-stakeholder views on the issue
- To suggest methods of improving implementation of PROMs by understanding forces which may be a barrier or enabler, for the benefit of patients and colleagues

Summary

This chapter has introduced the context behind the introduction of PROMs into CAV. Exploring the positive and negative factors in harnessing this tool will better prepare CAV in taking advantage of PROMs.

The next section will review the literature on PROMs implementation, exploring the existing ideas in this field.

Main analysis: Literature review

Defining Value

The NHS cares for an increasing number of multi-morbid patients, which places an ever-increasing strain upon the healthcare system. This is coupled with rising costs of healthcare provision – the result of new expensive medical technologies and increased resource utilisation (Jonathan Shapiro, 2010).

This prompted debate on what 'value' means in healthcare. Porter and Teisberg made the largest impact on this debate in Redefining health care. This forms the basis of VBHc, with value being defined as (Michael Porter & Elizabeth Olmsted Teisberg, 2006):

$$Value = \frac{Outcomes\ that\ matter\ to\ patients}{Cost\ to\ achieve\ those\ outcomes}$$

Muir Gray built on this from a British perspective, focusing on value in the NHS. Unlike in the United States, the NHS is a national, taxpayer funded system. This perspective acknowledged personalised value (patient's perspective of value), but alongside this, we must ensure resources are used fairly and efficiently (allocative value), whilst also reducing wastage of skill and resources (technical value) (Muir Gray, 2011).

In 2014, Wales launched PH. It aimed for the equitable and sustainable usage of resources and the achievement of better outcomes for all patients (Welsh Government, 2019).

Figure 2: Displaying the key concepts of Prudent Healthcare. This concept was developed to maximise value in the Welsh NHS, by improving outcomes, patient experience and making fair and effective usage of resources (Welsh Government, 2019).

Measuring Outcomes

It was recognised that 'we cannot improve what we do not measure'; thus, patient outcomes data needed to be captured in order to achieve a 'value-based' transformation of healthcare (Tim Benson, 2023). The importance of measuring standardised outcomes was also noted, as it allows benchmarking and comparisons between the care provided by different organisations (Michael Porter & Elizabeth Olmsted Teisberg, 2006). Clinical outcomes and patient reported outcomes (PROs) could be used as vehicles to capture this key aspect of VBHc (Welsh Government, 2020).

PROMs

PROMs are standardised questionnaires which collect outcomes data from patients; this can help determine the effect of interventions on quality of life, functional status or symptoms (Kate Churruca et al., 2021).

Originally a research tool, their use has broadened out into routine clinical practice. It was recognised in trials for drug development, that although a certain treatment may improve clinical outcomes, such as length of survival, PROs may identify patients who are not compliant with the therapy due to unacceptable side effects. Therefore, a clinical intervention cannot just be evaluated on its clinical outcomes to ascertain its effectiveness in treating patients. PROMs therefore are tools to capture PROs in an effective manner to aid in understanding the patient's perspective on their care (Theresa Weldring & Sheree M.S. Smith, 2013). PROMs have gone on to be developed and utilised in triaging waiting lists, improving patients-clinician communication and supporting clinical decision making (Sana Ishaque et al., 2019).

PROMs can generally be split into two types:

Table 1: Descriptions of the two major classifications for the types of PROMs utilised in clinical practice (Kathryn Williams et al., 2016), (Welsh Value in Health Centre, 2023a)

Type	Detail
Generic	Measures health and quality of life by combining various different metrics and generalised measures. Can be utilised across a wide range of diseases for a generalised overview of a patient's experience during treatment. Can compare patient responses across a wide range of conditions.
Disease-specific	Measures specific to a disease, such as a type of cancer. Provides a more detailed view of symptoms across the duration of treatment for a specific disease. Used to compare care for patients with the same condition.

PROMs are standardised and validated tools, meaning that they undergo testing to ensure they measure what they are intended to measure (Julian Higgins et al., 2008). Any change or adjustment to the questionnaire itself can threaten the validity of the tool (Joanne Greenhalgh et al., 2018).

PROMs in Wales

In 2018, the Welsh Government, set out their vision for health and social care policy, with an aim to manifest PH principles in practice and to improve value for citizens with the publication of 'A Healthier Wales' (Welsh Government, 2022a). Outcomes data would be a key driver of implementation. Thus, PROMs gained a level of importance for the nation's health service to adopt (Welsh Government, 2020). In line with the national agenda, the Cardiff and Vale Health Board also identified PROMs adoption as being key for service improvement (Cardiff and Value University Health Board, 2023).

This research question for this project is looking to identify barriers and enablers to the implementation of PROMs within CAV. It can be difficult when any change is made to the way an organisation operates. The way a change is managed will impact how effectively it will spread across the organisation. As part of managing a change, barriers and enablers to the uptake of the innovation must be understood. The next section will briefly explore literature on change management and the relevancy of understanding barriers and enablers to this process.

Change management

Organisations are continuously in flux, responding to new threats and adapting to new innovations; this poses both a strategic and operational challenge (Bernard Burnes, 2001). Implementation is the 'constellation of processes intended to get an intervention into use within an organisation' (Borsika A. Rabin et al., 2008). Organisational change is treacherous, with several studies highlighting that the majority of implementation initiatives (60-70%) fail (Abdelouahab Errida & Bouchra Lotfi, 2021). This is often due a poor understanding of the various barriers and enablers an organisation faces when introducing an alteration to established practice (Abdelouahab Errida & Bouchra Lotfi, 2021). This highlights how crucial it is for an organisation, such as CAV, to embark on understanding the factors which assist and hinder the adoption of a new practice or innovation.

Many organisations, such as CAV, are complex adaptive systems (CAS). A simple definition for CAS is a system, within which, various agents interact with each other in complex and unpredictable ways. This can make managing change an onerous task (The Health Foundation, 2010).

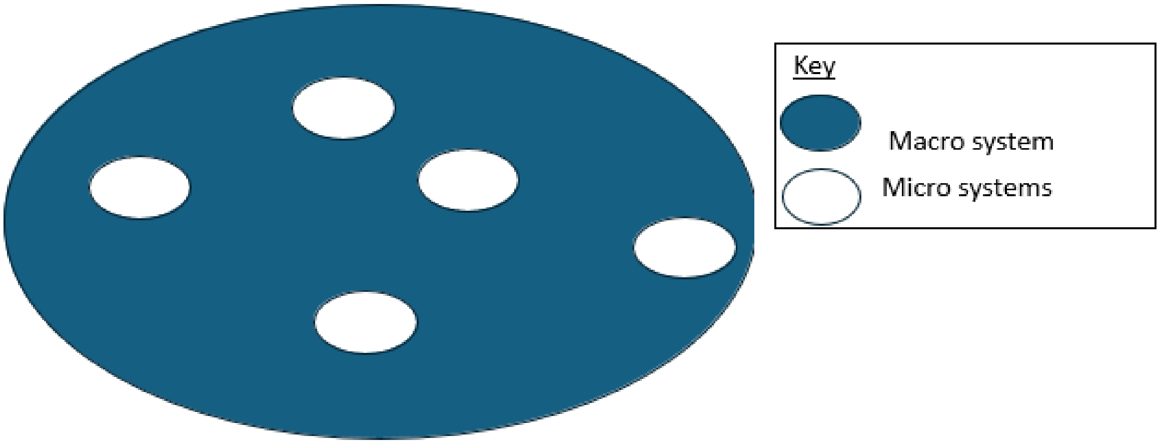


Figure 3: Illustration demonstrating how complex healthcare systems such as the NHS can be structured, with micro systems in the form of departments and specialities with their own culture and norms making up the larger macro system which they exist within (The Health Foundation, 2010).

These various microsystems, made up of individual employees coalescing into their respective teams and services, are influential stakeholders for determining whether a new change will thrive or fail. Research has identified the key role of involving stakeholders when planning to undertake service transformation (Rune Todnem By, 2005). Considering key stakeholders such as physicians, nurses and auxiliary staff, three themes emerge in the literature when it comes to achieving successful change endeavours (Per Nilsen et al., 2020):

1. Opportunities to influence change
2. Preparedness for change
3. Valuing the change

Other than stakeholder factors, organisational factors were also noted to be important in the literature. This includes factors such as adequate resources being allocated to support the change, infrastructure, 'buy-in' from managers and leaders within an organisation, adequate training and visible positive examples of the change being available for the entire organisation to see (Ruth M. Tappen et al., 2017) (Guillaume Fontaine et al., 2024).

The academic literature on change management also speaks of multiple steps that must be taken in order to counteract barriers and to amplify enablers in order to achieve a positive outcome.

Early change management theory by Lewin proposed the following model of change steps:

Figure 4: This shows Lewin's Phases of Change Theory highlighting key steps along the journey to implementing a new idea within an organisation (Maria R. Shirey, 2013).

These ideas were further developed by Lippitt and eventually culminated in the creation of Kotter's 8-step Change Model and Roger's Diffusion of Innovation Theory (Jennifer Barrow et al., 2022).

Both of these theories highlight the importance of stakeholders having a shared vision and clear plan for change, with clear communication between all parties and ensuring stakeholders are motivated and understand the value of the change being initiated. (Jennifer Barrow et al., 2022).

The literature above clearly demonstrates the value of understanding the various enablers and barriers at the various levels of the organisation (from employee level concerns to organisational and strategic level issues) to organisations like CAV in order to make the process of change successful.

Micro, meso and macro levels

The above section suggested different factors are important at different levels of a system in affecting how well a change is embraced overall. To explore the various known barriers and enablers to PROM implementation, it may help to break complex healthcare systems down into micro, meso and macro levels.

Table 2: Descriptions of the structural levels the healthcare system operates at (Naomi Fullop & Glenn Robert, 2015).

Micro	The clinical team level
Meso	The organisational level
Macro	The health system level

The sum of the factors across these levels determines organisational success in achieving change (Naomi Fullop & Glenn Robert, 2015).

Implementation frameworks were developed to guide the implementation process. They can provide insights to help predict the relevant factors at each level of a system, which could impact the likelihood of success for implementation endeavours (Per Nilsen, 2015). One such model takes a macro, meso and micro-level approach to identify barriers and enablers – this is the Consolidated Framework for Implementation Research (CIFR) (Laura J Damschroder et al., 2009).

A demonstration of how this framework could be used to identify relevant factors and thus create a strategic and operation plan to aid implementation can be seen in the diagram below:

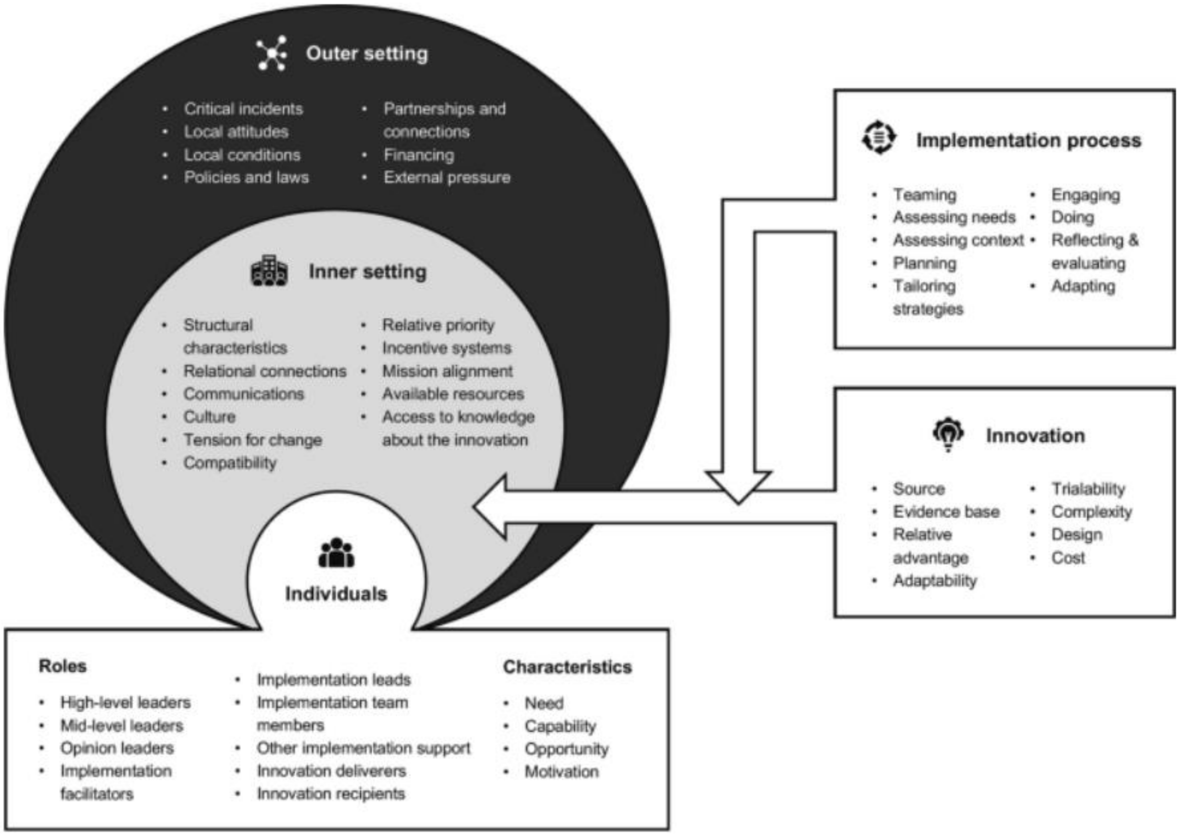


Figure 5: Diagram demonstrating the domains used in the CFIR model to classify and type barriers and enablers. Such a manage the change they will be undergoing framework can help an organisation in understanding what issues they may have to tackle or amplify in order to (Guillaume Fontaine et al., 2024)

Due to the limited time for this research, I will be unable to utilise the CFIR framework to categorise the barriers and enablers I have discovered, but it is useful to highlight the literature that this is a valid approach with which to identify issues an organisation faces in the implementation journey.

Barriers and enablers to using PROMs

The next section of this literature review will focus in on key barriers and enablers to using PROMs in clinical settings.

Much of the focus in Wales has been around macro and meso level enablers and barriers – with a particular focus on the digital and infrastructural barriers to PROMs adoption. PROMs collection was typically done physically (paper and pen), with manual scoring. This was a cumbersome process and often lead to frustrations developing with the collection process. Digital methods of PROMs collection were seen as advantageous, with digital collection and automated scoring procedures being more efficient (Erin McCabe et al., 2023).

The Welsh Government identifies the development of national digital platforms for PROMs collection to be of foundational importance (Welsh Government, 2020). A macro level enabler is the founding of organisations such as the Welsh Value in Health Centre (to work alongside technology orientated Welsh research centres such as the Centre for Healthcare Evaluation (CEDAR) and the NHS Wales Informatics Service, who aim to develop digital and technological solutions to healthcare problems), which aims to support the development of digital platforms for PROMs collection (Kathleen Withers et al., 2021).

The fact that there is a strategic and cultural push at the very echelons of Welsh Healthcare should spur the adoption of PROMs in practice and act as an enabler at the macro level (Michael Beddard et al., 2023).

There is a drive for the creation of digital dashboards to allow interpretation of the collated data (Welsh Government, 2022b). A barrier to using PROMs is clinicians being unable to interpret the outcomes of a

PROM easily (Hanh Nguyen et al., 2021). A CEDAR report notes that dashboards can be used to assimilate data for individual patients – this can help identify issues with their care plans to help improve their outcomes (Michael Beddard et al., 2023). National dashboards also allow for benchmarking and comparisons of outcomes and efficiencies between service providers (Marian Krawczyk et al., 2019). This aids in minimising inappropriate variations in care and can help in service improvement, which is a key aim of PH (The Bevan Commision, 2015). This will enable further use of PROMs as they become an important tool in the arsenal for quality improvement.

Currently, CAV utilises a number of different patient administration systems, such as the nationally used Welsh Clinical Portal (WCP) and PARIS (CAV's mental health clinical record system and database (Cardiff and Vale University Health Board, 2024)). Currently, PROMs data is being collected on commercial systems, whilst other health data is collected on separate platforms. This prevents data being collated on one system and prevents the formation of accurate dashboards which will limit how beneficial they will be to key stakeholders, such as clinicians and service managers. This also means that the digital aims of the Welsh Government are currently not being met. CAV currently utilises My Clinical Outcomes (MCO), as a collection platform; the platform can aggregate data and allows for interpretation of data to take place (My Clinical Outcomes, 2024). MCO does not currently have interoperability (the ability of data systems to interact with each other to allow for the exchange and use of data (NHS England, 2023)) with clinical platforms such as WCP or PARIS (Welsh Government, 2021). Having multiple electronic records can cause disengagement from staff by being time-consuming and hampering the flow of data (Thomas Payne & David Liebovitz, 2012) (Hanh Nguyen et al., 2021). Thus, this issue has been a significant barrier to a more comprehensive roll out in Wales (Kathleen Withers et al., 2021).

There are a number of papers utilising MCO to explore the role of electronic PROMs collection tools, but the scope of these papers was to understand whether digital platforms were effective, rather than a specific critique of the MCO platform itself (Tim Benson et al., 2016) (Jess Shelagh Tyrrell & Clare Helen Redshaw, 2016) (Eleanor Stewart et al., 2022). None of the papers critically analysed MCO itself as a platform, hence, this is a gap in the literature. It may be useful to CAV to generate insights for the effectiveness of MCO as a platform for PROMs collection.

To mitigate the aforementioned barrier, PROMs standard operating model for Wales (PSOM) is being developed, to help guide the formation of standardised PROM collection tools, to reduce the variation in data that is being collected across Wales and to guide interoperability standards across Health Boards (Welsh Value in Health Centre, 2023). The International Consortium for Health Outcomes Measurement (ICHOM) (an international organisation, which works with health experts, patients and leading providers to create global standards to measure health outcomes (ICHOM, 2024)) notes the desirability for large providers (such as the Welsh NHS) to have such a system in place (ICHOM, 2014).

Having a heavy digital focus for collecting PROMs, however, can act as a barrier for many patients. Government data shows at least 7% of the Welsh population do not have access to the internet, the highest rate in the UK; digital exclusion particular effects lower income adults/families, the disabled, those with chronic health issues and the elderly (Welsh Government, 2023). This can act as a barrier to using PROMs as these groups are more likely to have contact with the NHS and are more likely to have an impaired ability to interact with digital systems (Kathleen Withers et al., 2021). A possible solution to this however, is to allow third party access (family, friend or clinical staff) to aid with completion; enabling access to remote digital PROM recording (Kathleen Withers et al., 2021).

An advantage of the Welsh system, which will be an enabler for Health Boards including CAV, is the role of CEDAR in selecting and validating PROMS and national PROM licensing. This prevents each Health Board from needing to obtain individual licenses if the PROM they wish to use has been acquired on a national level. This could restrict teams to using only the available PROMs; however, ultimately, this national licensing does represent a significant cost saving and makes it easier for organisations to engage with PROMs collection (Kathleen Withers et al., 2021).

An appropriate PROM must be selected which can extract the necessary data from patients but minimises the collection of unessential information. Patients may not engage with collection, if the PROM is too time consuming or too difficult to complete. Questions must be easy to interpret (Hanh Nguyen et al., 2021).

There is a lack of research in Cardiff and even across Wales at the meso and micro level of the healthcare system, in regard to barriers and enablers other than digital and infrastructural issues. However, we can turn to literature on other health systems across the globe, seeking to understand what potential issues may affect stakeholders.

The table below features a summary from the literature such as journal articles, research papers and ICHOM case studies regarding possible barriers and enablers to PROM implementation across various organisations:

Meso level barriers

Table 3: Barriers to PROM implementation found in the literature at the meso level.

Service/organisation level barriers:	Poor IT infrastructure in place, hampering the ability to collect and make us of PROM. This includes poor integration of PROM data with existing electronic record systems (Claire F. Snyder et al., 2013) (Alexis Foster et al., 2018) (Hanh Nguyen et al., 2021) Poor interoperability and integration of PROMs with existing workflows. Poor data management (Freya Trautmann et al., 2016) (S. Duman-Lubberding et al., 2017) Lack of adequate resources being provided to allow for PROM collection, lack of staff assisting patients during collection, no space/digital resources (tablets/computers) to collect PROM (Hanh Nguyen et al., 2021) Poor direction and guidance from senior leadership (Michael Anderson et al., 2022) (Mayara Silveira Bianchim et al., 2023)**Error! Bookmark not defined.**

Micro level barriers

Table 4: Barriers to PROM implementation found in the literature across the micro level.

Patient level barriers:	Negative perceptions from patients due to time consuming nature of completing the PROM (Hanh Nguyen et al., 2021) (Michael Beddard et al., 2023) (Mayara Silveira Bianchim et al., 2023) Patients not understanding the need or importance of PROM collection. Patients believing questions asked in the PROM were irrelevant to their condition (Claire F. Snyder et al., 2013) (Freya Trautmann et al., 2016) (S. Duman-Lubberding et al., 2017) (Mayara Silveira Bianchim et al., 2023)
	Patients finding it difficult and time consuming to complete a PROM (Claire F. Snyder et al., 2013) (Freya Trautmann et al., 2016)29/09/2024 20:21:00
Clinician level barriers:	Lack of time for clinicians to educate patients on importance/process of completing PROM. Lack of time/resources to discuss, interpret and act upon findings of PROM during consultations (S. Duman-Lubberding et al., 2017) (Mayara Silveira Bianchim et al., 2023) Clinician fatigue if system being utilised required multiple programs and logins to collect, view and interpret PROMs (Hanh Nguyen et al., 2021) Poor ability to interpret PROMs due to lack of knowledge and training (Freya Trautmann et al., 2016) (Anouk S. Huberts et al., 2024) (Mayara Silveira Bianchim et al., 2023) Clinician unmotivated to utilise PROM. Perceptions of data being unhelpful to clinical care as no new information was provided by the PROM (Claire F. Snyder et al., 2013) (Mayara Silveira Bianchim et al., 2023) Clinicians feel PROMs may be utilised to scrutinise their practice and judge them, thus causing lack of engagement with the process (Alexis Foster et al., 2018)

Meso level enablers:

Table 5: Enablers for PROM implementation found in the literature at the meso level

Meso level: Service/organisational level enablers:	Adjustment of the care pathway so that PROMs are a seamless aspect of service delivery, allowing for service users and providers to perceive it as an important routine aspect of healthcare provision. This reduces burden upon provider and user (Kathleen Withers et al., 2021) (Anouk S. Huberts et al., 2024)
	Engage clinicians and patients in the design of development of the implementation pathway, thus providing them with ownership and motivation to engage with the process (Alexis Foster et al., 2018) (Mayara Silveira Bianchim et al., 2023) Digital integration and inter-operability with existing computer systems to allow for the easy flow of data and reducing time-requirement and fatigue when clinicians engage with the system (Alexis Foster et al., 2018) (Kathleen Withers et al., 2021) (Hanh Nguyen et al., 2021) (Anouk S. Huberts et al., 2024) Adequate resource provision, with good levels of staffing; hiring of additional staff to assist in collecting PROMs if necessary. Having responsible coordinators was noted to be useful, for the implementation process to help guide and offer advice to staff regarding PROMs and being points of contact for guidance in the organisation (Bárbara Antunes et al., 2014) (Jason Arora & Mona Haj, 2016) (Jason Arora & Rosanna Tavella, 2017) (Alexis Foster et al., 2018) (Marzyeh Amini et al., 2021)29/09/2024 20:21:00

Micro level enablers:

Table 6: Enablers for PROM implementation found in the literature across the micro level.

Micro level: Patient level enablers:	Ensure patients are educated about PROMs and how they fit into their care (Anouk S. Huberts et al., 2024) (Mayara Silveira Bianchim et al., 2023) Select the right PROM to ensure the target demographic can understand it and find relevancy in its questions; ensure they are supported if needed to complete the questions (Mayara Silveira Bianchim et al., 2023)29/09/2024 20:21:00
Micro level: Clinician level enablers:	Ensure teaching and guidance about PROMs is included in medical/nursing training and teaching. Pre-implementation training provided to the implementing department of when and how to use a PROM (Claire F. Snyder et al., 2013) (Bárbara Antunes et al., 2014) (Jason Arora & Rosanna Tavella, 2017) (Mayara Silveira Bianchim et al., 2023) (Anouk S. Huberts et al., 2024) Consider the needs of the clinicians and patients and select appropriate PROMs and design a collection process amenable to the needs of stakeholders (Alexis Foster et al., 2018) (Hanh Nguyen et al., 2021)29/09/2024 20:21:00

Summary

A number of barriers and facilitators have been identified in this section, particularly with research done across the world. It has been noted that there is a lack of research particularly on key stakeholder groups, such as clinicians and patients in Wales, which may provide useful information on how implementation is being managed in CAV.

The research question of this project was thus devised with this gap in mind, to be able to provide new information to service developers in CAV to aid in the proliferation of PROMs around the Health Board by understanding what barriers may need to be dealt with and what enablers can be amplified in the quest to a value based transformation of the services.

Research Methodology

This section will explore and defend the choice of research methodology in exploring the gap identified in the literature.

Literature review

The literature review was undertaken to understand the contemporary research landscape. This review demonstrated the gap that this research project will hope, to some extent, fill in.

The following tables will outline the key aspects which guided the process of searching the academic literature.

Table 7: Method used to search for literature to carry out the literature review.

Literature search - A number of key words and phrases were entered to gather relevant papers and articles Literature reviews, scoping reviews and research papers were included. Articles were limited to 2010 onwards.	Key words and phrases: - Patient Reported Outcome Measures, PROM/PROMs, barriers, enablers, facilitators, implementation, Wales, Cardiff, Cardiff and Vale, CAV, change management, implementation framework
Literature search engines utilised	Google Scholar and Pubmed - These search engines were utilise due to their user friendly interfaces and wide range of accessible literature

Research

A multi-method approach was utilised to evaluate the barriers and enablers to PROMs implementation in CAV, through current employees of the Health Board. This approach is when different methods of data collection are utilised by researchers (Allison Shorten & Joanna Smith, 2017). A survey and semi-structured interviews were used for data collection.

It was difficult to gain interview candidates due to a limited research period and lack of interviewee availability (scheduling difficulties/lack of network, restricting the pool of potential participants). To improve the number of respondents and thus get more complete and varied data, a survey was carried out in addition to the interviews. The surveys were carried out prior to the majority of the interviews. The interviews allowed me to expand upon and clarify insights that were emerging via the survey, providing a more comprehensive view of the research landscape and further validating my findings. Such an advantage to this approach is noted in the literature (Allison Shorten & Joanna Smith, 2017) (James Jiang et al., 2022).

Participant recruitment

Key characteristics required for participation:

1. Working within CAV Health Board
2. Worked with/currently working with PROMs in CAV
3. Participant could be managerial or clinical staff

Initial participants were gained following discussions with the VBHC team within CAV as I lacked a wide network of individuals working closely with PROMs. The VBHC team were able to suggest individuals from a wide range of departments and backgrounds (managerial and clinical). The VBHC team also generally distributed the survey/request for interview participants via hospital email, allowing people to self-recruit if they fit the criteria for participation. Further participants were gained via a ‘snowball’ method, where participants were able to recruit and share the information on research with colleagues. Snowballing is an acknowledged method of widening the sample size with the targeted characteristics for research projects (Mahin Naderifar et al., 2017). Survey and interview participants were recruited in a similar manner.

Survey and interview

A largely qualitative approach was taken for both the survey and interviews. The research question for this project is to understand and evaluate what impacts implementation of PROMs and utilising key stakeholder perspectives on the matter. A qualitative approach was thus taken because it allows for detailed exploration of various perspectives (Judith Green & Nicki Thorogood, 2018).

Table 8: Survey design and method of recruiting participants.

Survey	Survey design: The survey was designed and conducted on Microsoft Forms. Some brief demographic questions were set to confirm the participant met the key characteristics for data collection. A Likert scales was used to get a quantitative response to how participants felt about the overall implementation process in CAV, this was followed up with multiple qualitative questions to understand and explore the answer given via the Likert scale. Questions on particular barriers and enablers in their team and departments were posed and free text utilised to give participants an opportunity to detail their thoughts and experiences without restriction. Further themes were explored via open questions to understand the meso and macro level landscape, particularly on organisational and governmental issues for PROMs implementation. Participants and survey distribution: - It was shared via the CAV VBHC team who emailed the link to perspective participants and departments. There was further snowballing with the link shared onwards to others by the primary receivers (see above). In this way we met the key criteria of employees of CAV who had worked with PROMs.

Table 9: Interview process and participant recruitment.

Interview	Interview basis: A semi-structured interview was carried out for this section of data collection. This is when planned themed questions are set and further open questions can be posed to explore and understand your interviewees worldview and experiences (Melissa DeJonckheere & Lisa M Vaughn, 2019). Participants: Participants were sought as explained above. The survey also featured a section allowing those who wished to participate in an interview to provide contact details to arrange this. The researcher did not personally know the interviewees. Interview process: The interviews were conducted over a maximum of 40minutes over Microsoft Teams. This allowed for the recording of a transcript for later analysis. The interviews were conducted and recorded with prior consent from the interviewee. Major themes explored: Prior education and knowledge of PROMs Driving force for implementation Implementation process of PROMs, particular challenges with evaluation of why these occurred and how they may be overcome and assessment of facilitators

Analysis

A thematic analysis of the data captured in the surveys and interviews was utilised to identify patterns and to allow for detailed analysis of the qualitative aspects of the data. How this was done, will be explained in the following section.

Ethical approval

This was gained via the Swansea University School of Management Research Ethics Board. It was approved and deemed as a low-risk study with no further considerations needed.

Summary

This section focused on the research methodology utilised to conduct the study. A largely qualitative approach has been taken as it offers a richer perspective and answers for the research question. The construction methods of the survey and interview were discussed and methods of acquiring consenting participants was also outlined.

Results

Survey

Demographics of participants

The survey on Microsoft Forms received 16 replies. Basic demographic information of department and job role of the participant to help understand where our participants were coming from:

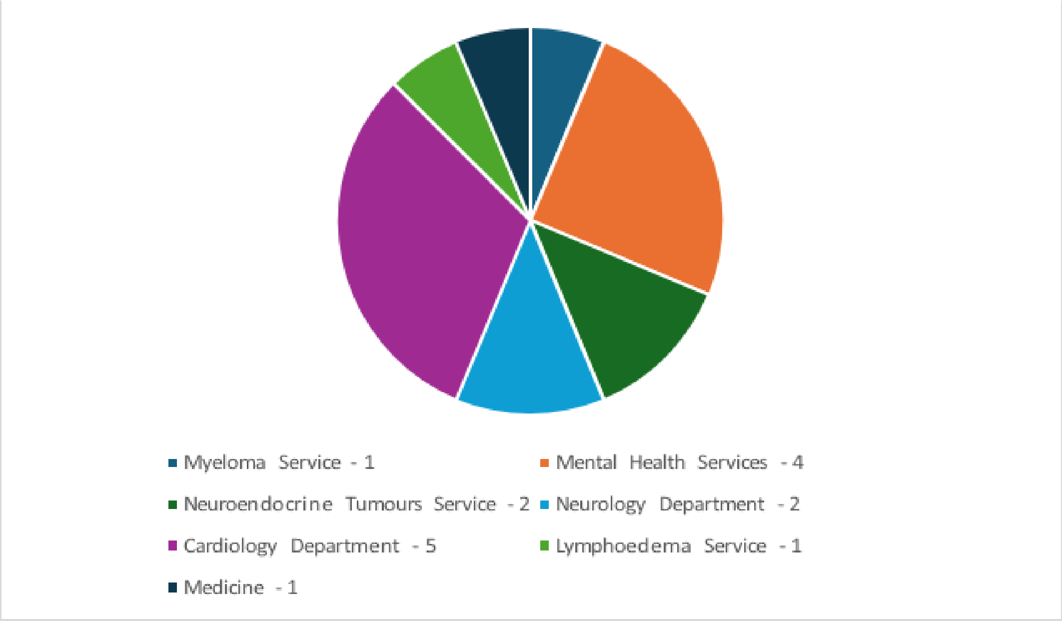


Figure 6: A breakdown of the departments and services who responded to the survey.

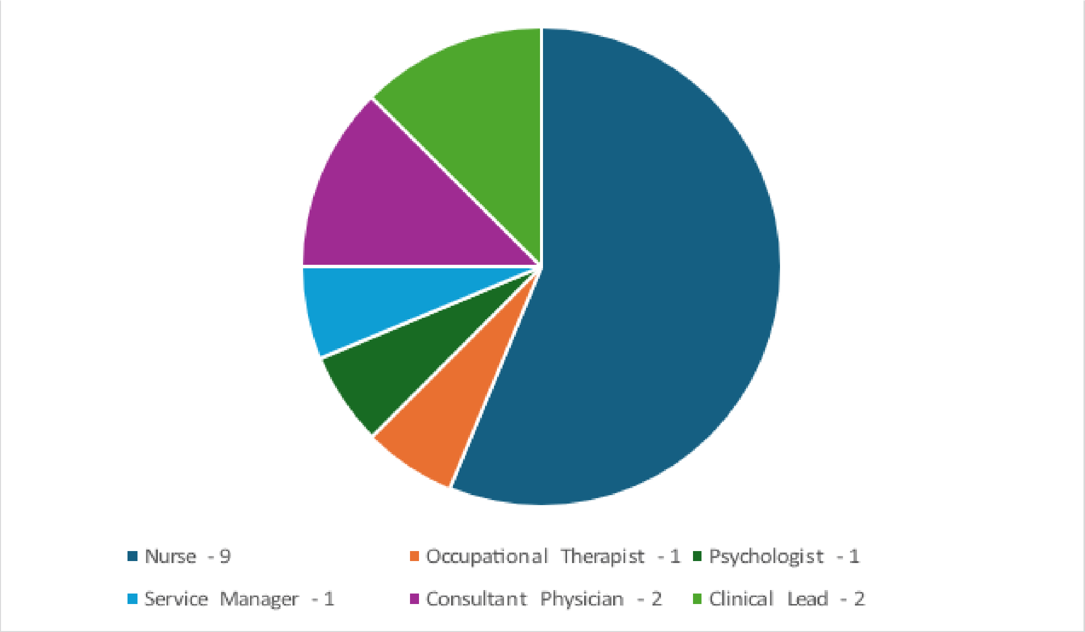


Figure 7: A breakdown of the job roles that responded to the survey.

Familiarity with PROMs:

A question was posed to gauge familiarity and maturity of the PROMs implementation process in CAV:

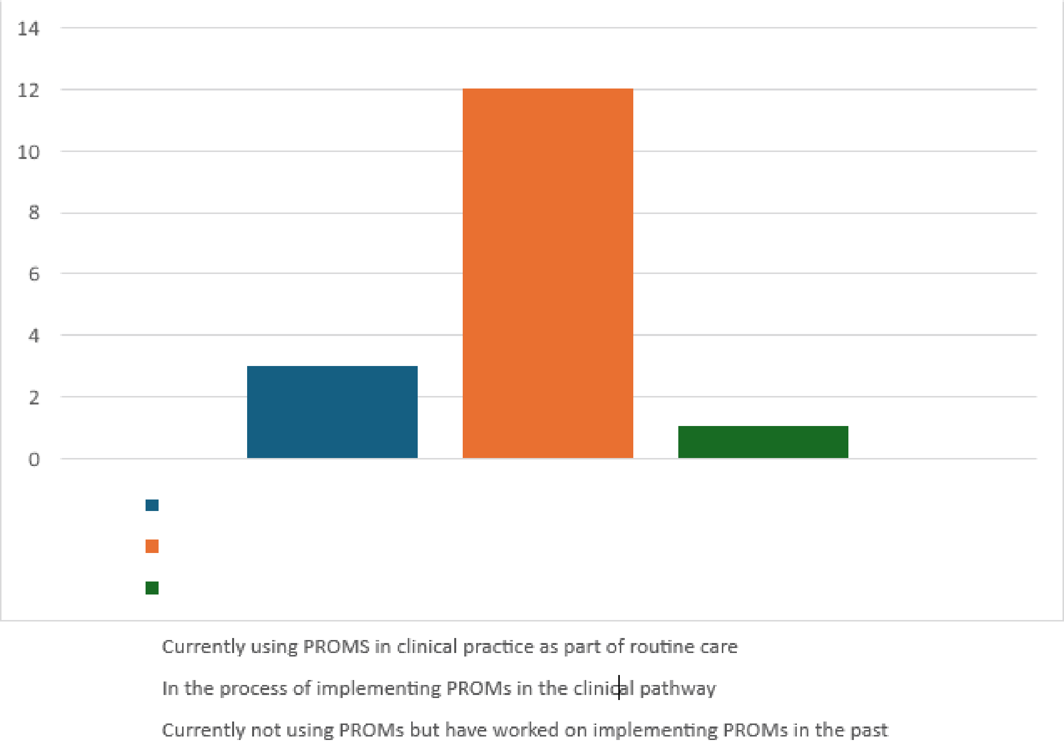


Figure 8: A chart displaying familiarity and maturity of implementation process amongst respondents.

This question confirms the familiarity of the participants with the implementation process within CAV, as they are experiencing or have experienced the process.

Overall participant experience of PROMs implementation

A Likert scale was utilised to gather overall feeling towards the experience of the PROMs implementation process in CAV. A score of:

- 1 = an overall negative and frustrating experience
- 2 = a mixed experience
- 3 = an overall positive and easy experience

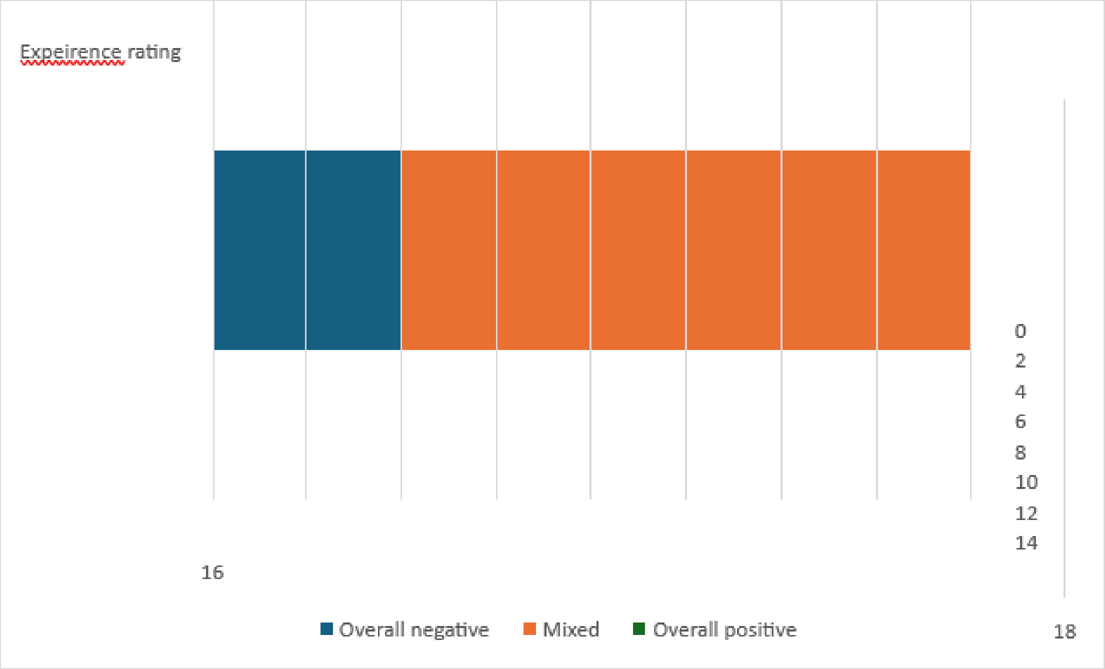


Figure 9: A chart representing how the respondents ranked their overall experience of the implementation process.

The majority of respondents reported a mixed experience. No respondents indicated an overall positive experience. The next aim was to understand the answers given in this question and to understand the facilitators and barriers facing the respondents in utilising PROMs.

Participant reported barriers experienced during PROMs implementation

A thematic analysis was carried out, which provided a methodical and structured approach to analysing the data. The initial steps in the process were coding the responses. Themes were then developed based off patterns in the data.

To understand the barriers to implementation, the survey asked if there "were there any particular barriers that challenged you/your team in using PROMs?"

A number of themes in the answers emerged on analysis:

Table 10: The key barriers noted following thematic analysis of the survey data; table showing the barrier, description of the barrier alongside quotes from participants.

Theme – Barriers	Comments	Quotations
Resistance from staff	Two participants reported that they felt their team members experienced unacceptable levels of disruption by having to utilise PROMs, with some suggestion of poor integration with existing clinical routines being one of the causes driving this	"Some resistance from more experienced staff" "Some CNS did not use it often as it was very separate to their workflow"

Interoperability issues between digital PROMs collection platform and clinical systems	Half (8/16) of the users experienced some level of poor synchronisation and integration between existing electronic systems such as WCP and PARIS. PARIS is CAV's mental health clinical record system and database (Cardiff and Vale University Health Board, 2024). This caused poor user experience, with some users reporting reduced accessibility to PROMs data as a result of poor optimisation with existing electronic record systems	"Initial difficulty with our electronic notes system… onerous task for IT staff to embed on PARIS system" "An extra program to log in to on top of portals etc" "User experience was not integrated into the workflow requiring staff to log into another system to view" "Lack of integration into clinical systems" "Results not integrated in WCP, unable to see all answers" "Needs to be more accessible for clinicians and integrated to WCP" "No time in clinic to download the patient results on top of other clinical outcomes"
Lack of support staff	A few respondents mentioned the poor availability of support staff, who could assist patients in completing PROMs as being a barrier to their completion	"Not all measures used are easily accessible by patients (e.g. because of learning/cognitive capacity) and therefore without support to make sense of the questions they are not answered honestly" "No admin support or HCSW staff to help patients complete them (PROMs) if they are unable to do so independently"
Digital illiteracy amongst target patients	A quarter of respondents reported that a poor understanding of digital systems acts a barrier to patients interacting with PROMs which are predominantly recorded on an electronic system. This barrier was particularly reported amongst certain departments which featured a higher proportion of elderly patients, suggesting certain patient demographics are more likely to be excluded by the digital shift	"High cohort of elderly patients… (some are) unable independently" "Elderly population who don't have access to QR codes or simply don't understand or able to go online to complete PROMS" "Very elderly ones struggle a bit due to technical barriers"
Poor patient experience with PROMs collection platform (MCO)	Three participants reported patients experiencing problems utilising the MCO platform, with some facing particular issues signing up to the platform and being unable to complete the relevant PROM due to this	"Some patients struggled to register" "The set up of new patients could have been better" "The current platform is not very user friendly from our point of view"

Physical infrastructural issues	Only one respondent reported regular issues with their allocated outpatient and clinic facilities, with internet and IT issues causing disruption and inability to completing PROMs	"IT/Internet issues in outpatients/clinic prevented patients from completing PROMS on the day"
Lack of support from senior leadership/wider organisation	Two respondents felt there was poor direction from leadership on how to implement PROMs	"Lack of top down support in many areas to support use of PROMS" "It was difficult to get the appropriate guidance"
The data is not intelligently presented to clinicians on the PROMs collection	Clinicians felt there was trouble with MCO as a platform, particularly on how data was presented and how it could be interpreted	"To be able to accumulate data and analyse it would be much more useful"
software, causing poor insights		"Viewing PROM scores was not intelligent (on the platform)"
Clinicians feel data from PROMs is not always useful for clinical care	Two respondents felt that PROMs themselves were not a useful tool for impacting patient care. This is less of a CAV specific barrier and more of an issue with PROMs themselves	"Doesn't always alter care provided" "Looks at a specific point in time… doesn't always capture a client's full therapeutic experience"
Difficult to send digital PROMs links due to no requirement/difficulty accessing patient information such as emails	One respondent mentioned poor access to patient data such as emails	"Poor access to patient emails"

Participant reported enablers during PROMs implementation

A further qualitative question was asked to understand if there "were there any enablers or supportive aspects during your adoption process which assisted your team in using PROMs?"

A number of key facilitators emerged on carrying out a thematic analysis of the data:

Table 11: The key enablers noted following thematic analysis of the survey data; table showing the barrier, description of the barrier alongside quotes from participants.

Themes – Enablers	Comments	Quotes
Available and supportive CAV VBHC team	The presence of the VBHC team was a commonly reported enabler, with six respondents offering positive sentiments regarding the team	"Good support and guidance from the VBHC team" "We were well supported" "Good CAV PROMs team" "During implementation the team were available and very helpful"
Good choice and accessible PROMs	The ease of access to certain PROMs was noted as a positive aspect of PROMs implementation in CAV	"We were able to request the PROMs we needed"

Enthusiastic, knowledgeable and motivated staff and colleagues	Five respondents mentioned that their team members recognised PROMs as important to adopt and use, having experienced and knowledgeable staff was noted as beneficial for implementation efforts	“My team were very enthusiastic about value based care and getting patients involved. Had particularly driven colleague who spoke to us about it and educated us on the potential application of the PROMs in other health boards” “Majority of staff recognised it was important to adopt” “Supportive team” “Previous experience and dept expertise with disease specific PROMS”
Supportive senior leadership	Two respondents mentioned having the support of senior staff as being useful for guidance and obtaining funding to be able to implement PROMs	“Senior staff also recognised and so obtaining funds and training was relatively easy” “Regular meetings arranged both at Health Board level and with National Lymphoedema Team”
Availability of support staff	Five respondents noted a key enabler was the availability support staff to assist with patients with PROMs completion, and the wider multidisciplinary team recognising and appreciating the importance of PROMs in clinical practice	“When we have had administrative support to enter in the answers for the PROMs” “Outpatient staff when able would show patients how to complete form and access them” “Outpatient department staff helping patients complete PROMS” “Support from the outpatients team”
Good IT support available	One respondent mentioned they had good IT support	“IT support in setting up service”

The above data helps to understand a number of macro, micro and meso level aspects of the implementation process in CAV. Further questions were aimed at accessing further specific detail at the meso and macro levels, to further flesh out perspectives.

View of participants on Health Board level support for implementation

The participants were asked if they knew whether the “Health Board provide(d) support and encouragement for adopting Value-Based practices such as using PROMs?”

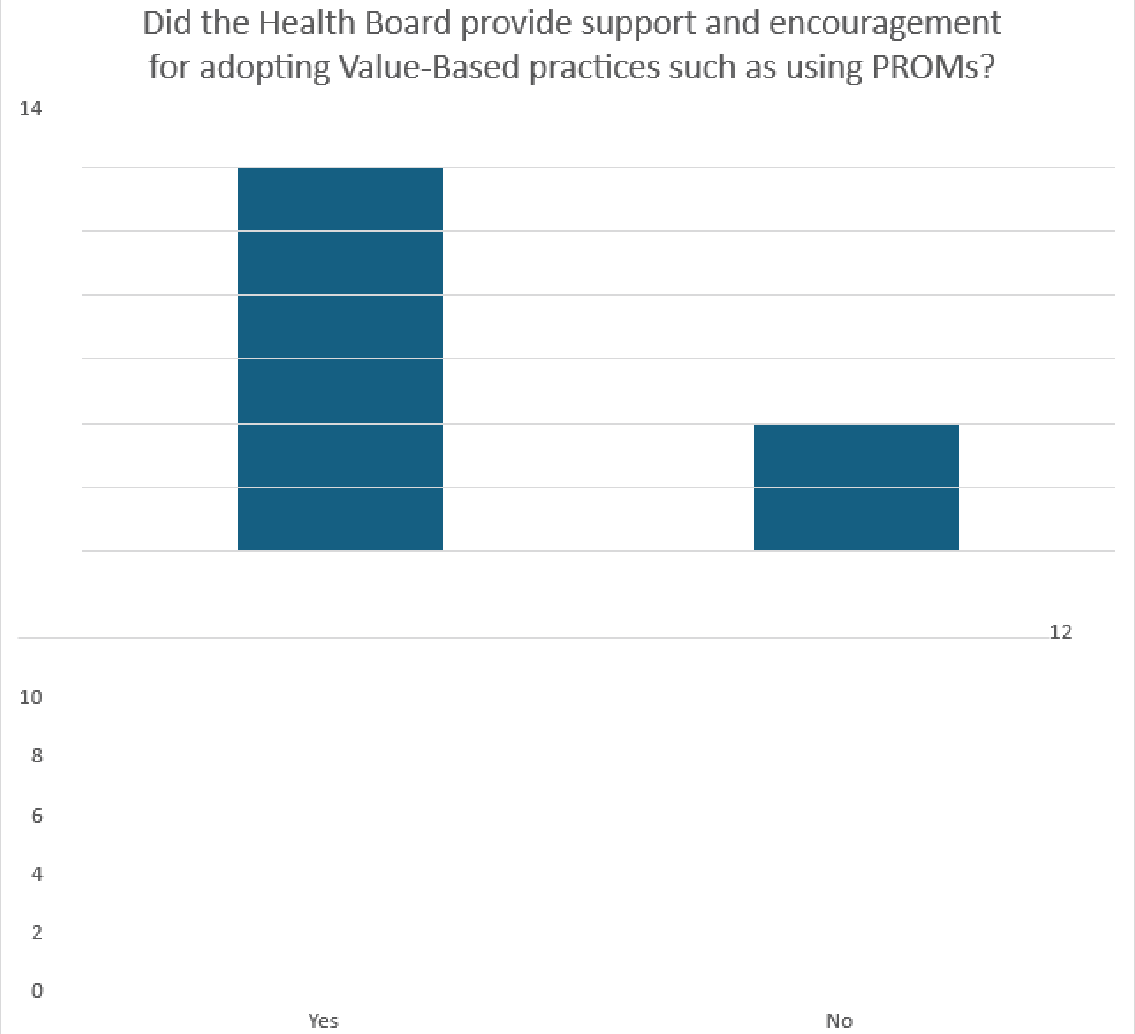


Figure 10: A chart representing how well supported the survey respondents felt by the Health Board.

The majority of respondents felt the Health Board was enabling the implementation of PROMs. When asked to explain their answer in this question, the following themes emerged:

- The commonest answer was having support available from the VBHC team.
- 2 respondents mentioned regular meetings and check-ins with local and national leads to check progress and offer guidance.
- Another person mentioned having a short teaching session on PROMs delivered to their team.
- One respondent mentioned that although the team did eventually get digital support, this had to be specifically requested. They mention that they felt there was very little guidance about recommendations on the right PROM for their needs and there was little interest from the organisation about the results of implementation.
- 25% of respondents felt there was no specific guidance from the organisation.

Participant experience of specific macro level challenges to implementation in CAV

The next section focused on the wider context, asking if any government action/rules/legislation had affected the use of PROMs in CAV. Eleven of the respondents were not aware of any issues. The remainder mentioned the following:

- 1 respondent mentioned that "licensing of PROMs may be difficult".
- 1 person alluded to the possible change of providers of the collection tool which may ultimately make it easier to collect PROMs data
- 1 response was "probably" but no further clarification was provided
- 2 alluded to help being provided for setting up PROMs collection in the Health Board

Participant experience of the patient response to PROMs implementation

Finally, a question was posed to understand the patient reaction, to ascertain if this has been affecting implementation. The majority of the replies (10 responses) indicated a poor uptake by patients with low completion rates. Reasons suggested for this:

Table 12: Participant explanations to explain factors causing poor patient uptake of PROMs.

Patient response	Reasons provided
Poor patient uptake	Patients feel PROMs questionnaires are repetitive, thus reducing engagement in collection Feel there is no tangible or meaningful results from completing the questions Do not understand the purpose of PROMs Digital illiteracy meaning they find it hard to engage My Clinical Outcomes was reported to be "clunky" and unfriendly to users, reducing engagement Patients do not feel PROMs are an embedded and important part of their care pathway, therefore, they do not appreciate its importance

Good patient engagement was mentioned by the remaining 6 participants.

Table 13: Participant explanations to explain factors which encourage good patient uptake of PROMs.

Patient response	Reasons provided
Good patient uptake	Younger patient demographic, therefore, more likely to have the skills to be able to engage in digital aspects of their care Good uptake prompted by patients understanding that the PROMs score is helpful to understand their own healthcare journey Patients habituated to completing PROMs, as it is a core part of the of the care pathway provided to them

Interviews

Participant demographics

Semi-structured interviews were conducted with 4 participants. A set of 7 questions alongside further probing questions (as required) were utilised.

The initial data collected was the basic background of participants to confirm their characteristics for involvement. All are employees of CAV; 2 were in

organisational/managerial level roles, whilst 2 were at the micro level, implementing PROMs in their own departments.

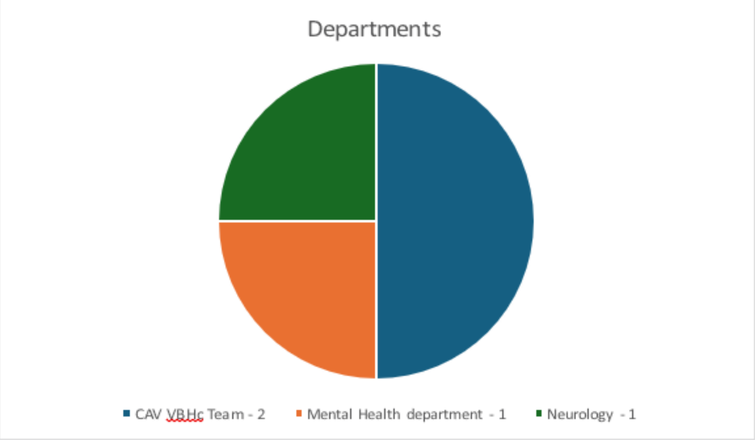


Figure 10: A chart with basic demographic information for interview participants.

Establishing the participant background experience with PROMs

The interviewees were initially asked "what was the level of experience with PROMs before you started using them?"

Table 14: Indicated experience level with PROMs prior to undertaking implementation efforts by interview participants.

Departmental level interviewees:	One of the participants had utilised PROMs as part of research in the speciality, so had a good awareness of PROMs and their user cases: The other departmental participant had mentioned that some of her colleagues using PROMs prior, but it was not a standardised approach: "Different measures, different clinicians, different services"
VBHC Team members	No particular experience using PROMs prior to working on the team, team has now been live for 2 years

Participant experience of PROMs implementation within CAV

The next question was focused on understanding the experience of the implementation process so far: how would you describe your experience of PROMs implementation in your department?

This question was not particularly relevant for the VBHC team members as they are not members of a clinical department. However, they have been involved with PROMs implementation and have described a number of cases of where PROMs had been implemented smoothly, with the support of the VBHC team:

- "We assist in onboarding people who are interested in using PROMs and we help register projects… finding the correct validated PROM saves time and effort for people".
- "We have had some cases where we have had to look for alternatives if a PROM is not licensed" – they described a case where one PROM questionnaire would cost £1000 for 500 questionnaires, 2 licensed scores were found as alternatives which would be free to use for the department and covered 90% of the content of the more costly desired tool.

They also described positive experiences and with good outcomes for teams they had worked with:

- One team has "been using PROMs to help standardise care based on the disease the patient has. Symptom monitoring via PROMs helps to catch a patient when they start becoming symptomatic so that they can receive treatment in time".

For the other respondents they had described a mixed experience with implementation, this was explored further when we discussed the barriers and enablers which had either impeded or assisted them in their respective journeys, thus causing a more mixed perspective to form.

Participant perspective of enablers of PROMs implementation

The interviews then moved on to discuss specific enablers which had helped to embed PROMs within the department and how these enablers had helped. A thematic analysis of the interviews was carried out, allowing for key themes to be identified:

Table 15: Key enablers for PROMs implementation discovered following a thematic analysis of the interview data.

Themes – Enablers	Comments	Quotations
Having motivated and understanding staff wanting to use PROMs	All interviewees noted this as an important aspect for the roll out of PROMs in a clinical area	"The current adoptees are people who have approached us for help and are motivated to use PROMs" "I think the majority think that it is beneficial and see the benefit of using it. Particularly, to shape the consultation, sort of, around what the patient most wants to talk about" "Clinicians recognise that they are important, and most of them are really good at signing them out and getting, or at least encouraging the patients to fill them out as much as possible"
Presence of the CAV VBHC team	The VBHC team agreed that they had eased the implementation process for many departments and had assisted in numerous ways. One of the other interviewees highlighted this as a key aspect of her team being able to start using PROMs in their service and being a focal point in the system for various aspects to work together and guiding them with legal and technical issues	"Definitely having somebody within the health board that could liaise between us and My Clinical Outcomes and have that point of contact" "Yeah, it's definitely been helpful… CAV Team… helped with getting permissions"
National licensing of PROMs	VBHC team and one of the participants appeared very grateful for this as it had allowed for her teams to select various PROMs to suit a wide variety of needs	"The available PROMs… are licensed by the national team and can be free for Health Boards to use" "We have a library of validated PROMs, measures that we're allowed to use as a Health Board. We're just pulling measures that are appropriate from that library that we have. The copyright isn't an issue."
Availability of funding to access tools to access PROMs	One of the interviewees was extremely pleased by the available funding, that the CAV team helped to access to get iPads and tablets in order for the team to use PROMs in their clinic areas	"We wanted iPads or tablets to get people to complete the PROMs actually in clinic and they were able to help with that and there was the money available to secure them"

The VBHC team were very enthusiastic and positive about the MCO platform and pointed out many benefits to me regarding the usefulness of its features in maximising the use of PROMs:

Table 16: VBHC team perspectives on usefulness of the MCO digital PROMs collection platform.

Useful IT software for PROMs collection and reviewing	Particular points of interest for the VBHC team were score automation and automatic scheduling of PROMs to patients.	"MCO automates PROM scoring, it can even alert clinicians if there is a sudden change in the scores… It cuts the admin burden by automatically collecting scheduled PROMs and sending out reminders on its own"

The same enthusiasm was not present in the interviews of the other participants – this will be explored in the next section.

Participant perspectives of barriers to PROMs implementation

Table 17: Key barriers to PROMs implementation discovered following a thematic analysis of the interview data.

Themes – Barriers	Comments	Quotations
Time consuming	All interviewees agreed PROMs could be time consuming for patients to carry out which can reduce engagement It is also time consuming for clinicians, especially if patients have to be supported in filling out forms, or if they have not already completed the PROM prior to attending the clinic If the form is done on paper, there is an added administrative time and duplication of work due to uploading from paper to digital and actually reducing value of clinician time	"It can take time, especially with paper based… it can take extra time in clinic to complete PROMs with patients who haven't completed them before" "Before the patient goes to see the clinician for them to actually complete it, because our PROMs probably take about 10 minutes to complete and somebody will arrive for their appointment, and the doctor will already be waiting to see them. So we don't want to kind of delay that. And the clinic's quite a busy clinic"
Digital illiteracy	The VBHC noted a lot of patients lack email addresses, therefore digital access to PROMS is made hard The older population struggles to cope with PROMs	"Some specialties have struggled to get patients to complete PROMs due to some patients lacking the required skills to engage digitally. It's really a big issue amongst older patients who are at more risk of digital exclusion" "Fifty percent of patients have an email on the system"
Copyright and licensing issues	Certain PROMs frame questions in a certain way or use terms, which may not be applicable to another population of patients, this can make the questionnaire feel less approachable and can sometimes cause misinterpretations to occur. The wording cannot be changed as it infringes on copyright and can affect the validity of the PROM.	"Certain vocabulary might be used in one PROM, which may not be understood or used by our patients and we can't change the wording to make it more accessible as it will affect the validity of the PROM"

IT infrastructural issues in CAV	Specifically mentioned was the medical record structure. Waiting lists are often pooled for a specialty meaning that targeted pre clinic PROMs are difficult to send to patients who are coming to the speciality for a certain condition, hampering preclinic PROM utilisation. Another interviewee mentioned poor collection of emails on the system – further clarification revealed a 50.6% completion rate for patients with an email address and 34.5% for those without (postal link for PROMs mailed to patients) showing the importance of accessible emails on the patient record	"The ENT *(ears, nose and throat)* waiting lists are pooled, so it is hard to send patients referred in for, say, sinusitis, a PROM for sinusitis before they attend clinic… accessing the right patients because of infrastructure issues like this can be tough" "Fifty percent of patients have an email on the system"

One of the interviewees mentioned that outpatient staff do not appreciate that PROMs are part of the clinical pathway and do not engage in its collection. If all key stakeholders are not bought along on the journey this can impact implementation efforts: "The clinic coordinators aren't quite on board with everything else that they've got to do. They're not quite on board with saying, oh, have you completed PROMs? If not, can I give you this iPad or tablet or whatever to complete it in the waiting room? So, we haven't quite got that set up yet."

On further probing, another barrier was revealed. The department had not taken the time to educate and involve these other staff members. Therefore, the staff had not fully been prepared for change, generating further barriers in the process: that's partly a communication thing and setting expectations… for us, well, we wanted to see it's a bit of a pilot at the moment seeing how the PROMs help… if we decide that actually it is useful then we will put more of an effort communicating and educating the wider team to help implement that within the clinic room."

The interviews with the other participants revealed a conflicting perspective. When one of the interviewees was asked about barriers, they mentioned conflict caused by poor communication and poor visibility of senior organisational leadership when it came to making decisions on PROMs, unlike other participants who felt more supported:

Table 18: Frustrations of one of the participants following a discussion on how well supported and guided they felt when attempting to implement PROMs, they also indicated poor communication between different levels of the organisation.

Quotations showing frustration with organisational systems and a perceived disinterest from the organisation in understanding the ground level issues	"And a lot of them will have like sub teams that are working on like the PROMs issue. There's a lack of communication between those teams. And they don't really talk to the people that are on the ground doing the collection and the data analysis. So, they might not really understand the practicalities and the nuances of working with our patients" "In the background, making all of these decisions and no one really knows that those teams exist and they're not talking to each other and they're not talking to the people who are actually implementing the things on the ground" "And there hasn't really been a reaching out. So, a lot of people don't even know that these teams exist. I didn't and I've been working on PROMs since I joined. I've been here almost a year and I just found out that there was a team within the Health Board that is purely just PROMs focused and they're having all of these conversations about procurement of new software. I didn't even know that they existed. It would be really useful to have a conversation with them and say actually this is what we need from the software."

These quotations lead to another barrier being realised, which is poor advertisement and visibility of services to aid implementation of PROMs.

The other interviewee (who was otherwise very positive about the presence of the VBHC team and organisational support) alludes to this fact when asked, if without their prior knowledge and work with PROMs, would they have thought about using PROMs or approached the VBHC team in CAV for implementation advice:

- “Yeah, I'm not sure that they would know about PROMs or the team. I'm not sure we would have done if we haven't had done this sort of research element before trying to utilise it in a clinical setting”.

Indeed, the VBHC team corroborates this when talking about how people come to know of their services:

- “We don’t advertise, we operate on word-of-mouth basis currently… people who are looking for digital methods to collect PROMs”.

Another point of contention was on the barriers caused by the MCO platform. Unlike the general positivity of the VBHC team, a number of barriers linked to this platform surfaced during the interviews with both of the other interviewees:

Table 19: This table demonstrates the key barriers that surfaced in relation to the use of the MCO platform for PROMs collection.

Barriers related to MCO platform	Comment	Quotation
Poor interoperability causing clinician fatigue and frustration	Both of the departmental interviewees agreed on numerous issues related to issues created by MCO not being linked with the wider electronic record system	“Resistance comes around the fact that it's an extra thing to look at, you know, and I think because the MCO platform isn't integrated with Cardiff and Vale IT systems, it's another thing that they have to log on to look at.” “I think the main barriers for us in terms of longer term implementation are the integration of the PROMs platform within the wider sort of health care system and electronic records as well, because if it could be all pulled into Welsh Clinical Portal that would be amazing and it would all be on one thing”
MCO platform user issues	Both agreed that there were access issues with difficulty logging in to the platform.	“We've had a few people who haven't been able to log into the platform.”
	Incorrect PROMs being filled out by patients	
Difficult to assign PROMs to individual patients	Both of the interviewees commented on the phenomenon of patients completing the incorrect PROMs, often completely inappropriate ones.	“We have been finding people who had completed our PROMs that aren't our patients” “You'd have like you'd have, like depressed patients answering like cardiac PROMs measures, for example, just because there was no way of them knowing which ones do you want them to fill in.”

Further participant perspectives on issues related to the patient experience

A further question was asked to understand the patient perspective in more depth. One of the participants was positive about the patient experience. “They like the fact that they can see their results on the screen as well after they've completed their PROMs”, despite this positivity, they still bemoaned a low completion rate of around 4/10 patients. These low rates indicated some barriers at the patient level. Similar barriers were noted to the survey on detracting factors from a patient perspective, including technology illiteracy, issues with the MCO platform, poor patient education of PROMs and their role in healthcare. The VBHC team noted engagement appears to drop off with time from patients, they speculated: “patients may think, ‘I’ve already answered this’… they may not understand the purpose of the PROM”. They felt this may be caused by clinical teams, who are responsible for educating patients, not doing this comprehensively enough.

Participant experience of specific macro level challenges to implementation in CAV

Three participants noted the Welsh language requirement to be an issue when implementing PROMs. It has been difficult to get focus groups together to translate the PROMs accurately. The Health Board does not track Welsh speakers, hampering focus group formation.

Table 20: This table demonstrates the barriers in relation to the legislative requirement for Welsh translations of PROMs before offering the service to patients.

Quotations in relation to legislative requirement to make all PROMs available and validated in Welsh	“Some of them we've struggled to get the Welsh for.” “Yeah, it is a bit tricky. Obviously, there's like that legislative aspect of it that actually the number of patients that want to fill it in the form in Welsh, it's really low.
	So OK, you go in to all of this effort to meet with this legislative criteria, but that's delaying.”

One of the interviewees expressed puzzlement at the amount of effort to fulfil the needs, of what they felt, was a very small part of the populace. This puzzlement gave rise to another possible barrier with PROMs and their implementation in Wales. One participant noted the multi-ethnic make up of CAV, with many languages being spoken. “There is no legal requirement to have translations in other languages… translations in other languages may not be available, translating them with Google Translate or something might cause issues with accuracy”. Another participant confirmed they were aware of “strict guidelines” for translations of PROMs that needed to be followed. This lack of translations could pose a barrier for some groups.

Positive macro level enablers were noted in the form of there being a national mandate to collect PROMs, with moves such as PSOM helping to standardise the requirements and data standards for PROMs platforms.

Summary

This section has uncovered much in the form of various barriers and enablers via thematic analysis of the survey and interview data. A number of macro, meso and micro level barriers have been raised alongside factors which mitigate them and have assisted in PROMs proliferating across the system. Conflicting perspectives have been noted, highlighting the varied background of the respondents. A detailed discussion of the key themes will be carried on in the following section.

Discussion

This study evaluated the implementation and use of PROMs in CAV, speaking to a number of colleagues across departments and from various roles. To make interpretation of the data easier in this section, I will revisit the framework I utilised in the literature review to contextualise the barriers and enablers that surfaced, in terms of the various levels of our complex healthcare system. Breaking it up in such a way will help form a useful guide to better understand the implementation landscape in CAV, especially, as I found in the literature review, there is a dearth of material on the micro and meso aspects of the Welsh healthcare system when it comes to understanding the barriers and facilitators for PROMs implementation. This will thus allow for a set of key recommendations to be made for further research and development of the themes found in this pioneering study.

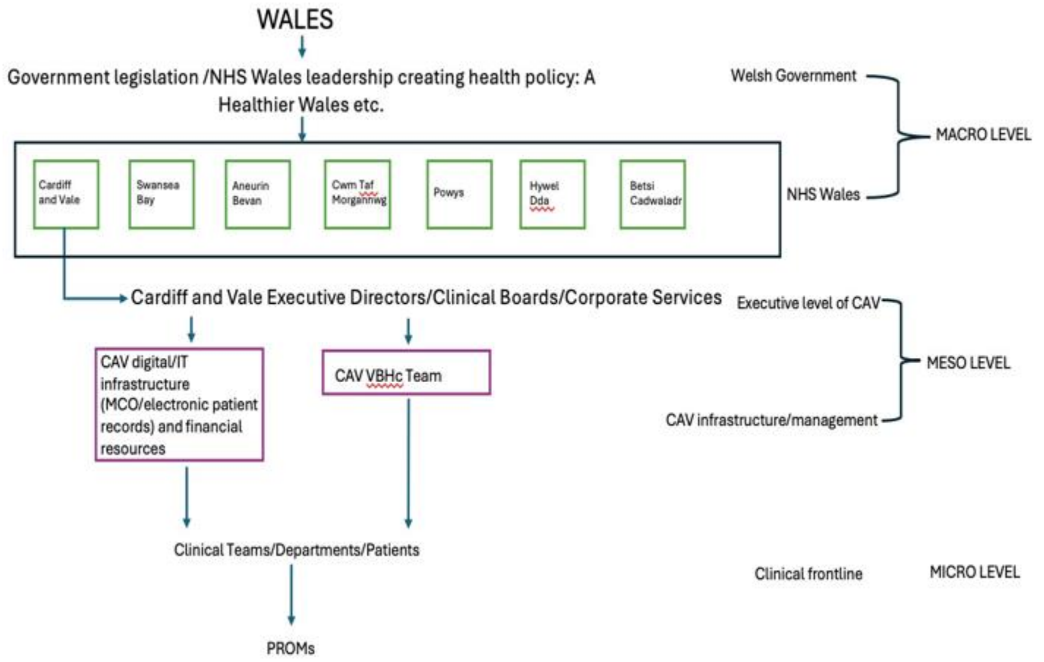


Figure 11: A diagram depicting the various sections and levels of the healthcare system in Wales, with a focus on the levels of the CAV Health Board in relation to PROMs use by frontline staff.

All of the survey participants indicated an overall mixed or negative experience of the implementation process in CAV, indicating the existence of a number of barriers and enablers.

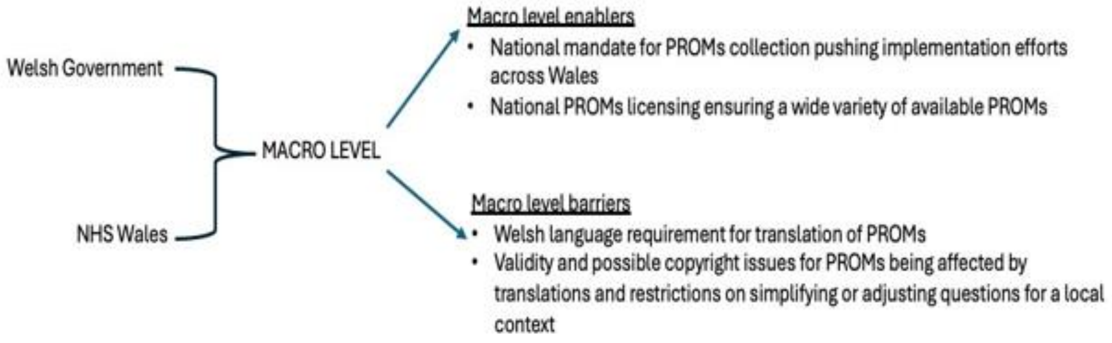
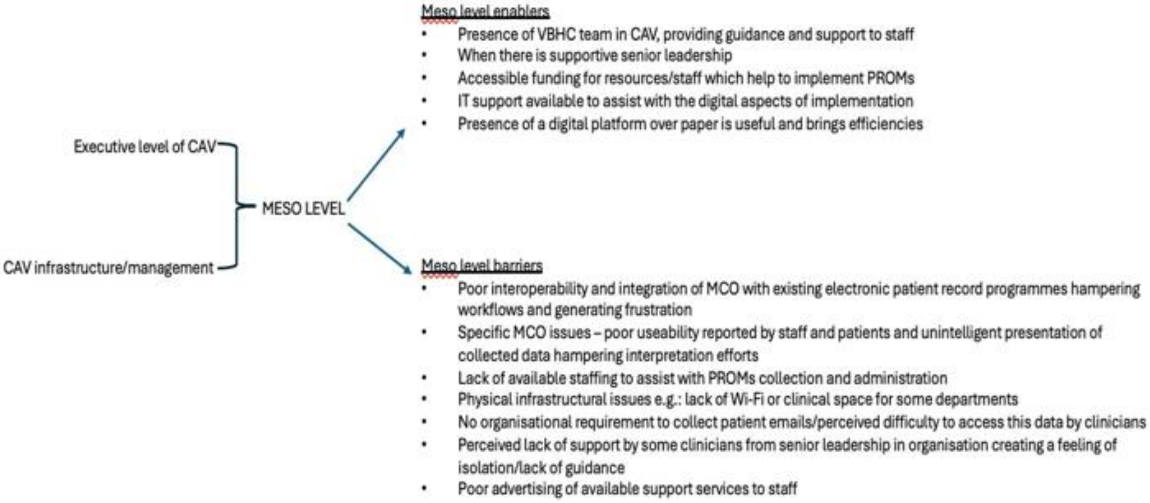


Figure 12: A diagram summarising the key enablers and barriers which are generated by macro level issues that surfaced in the research.



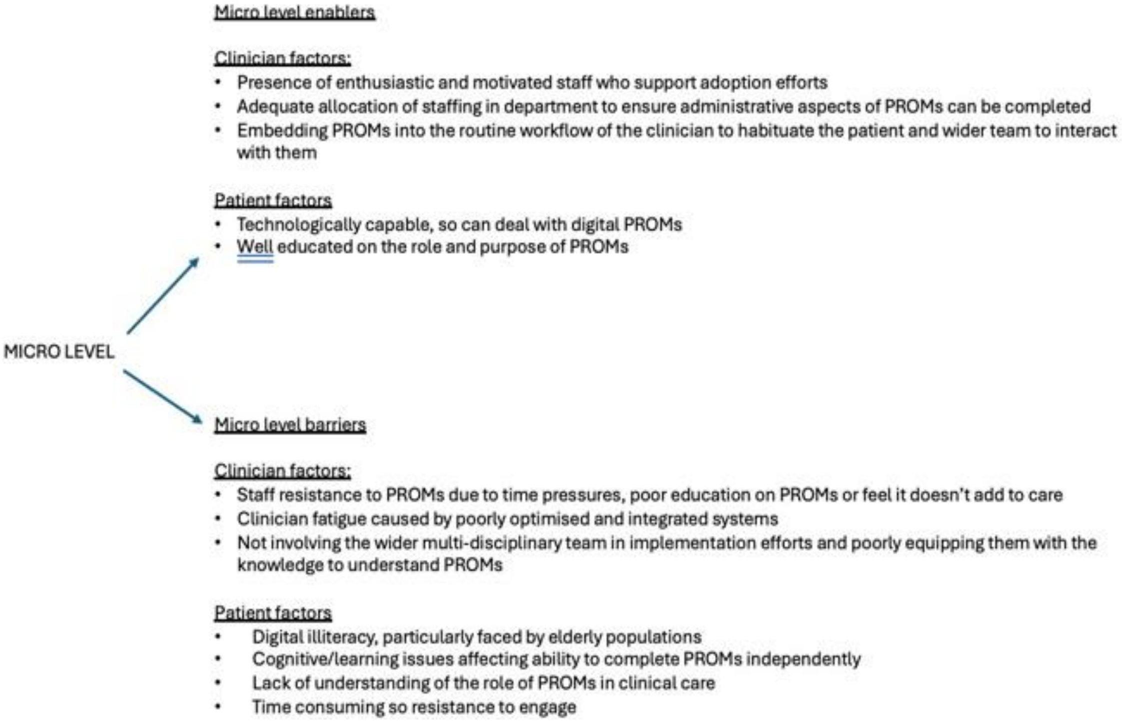
Meso level enablers

- Presence of VBHC team in CAV, providing guidance and support to staff
- When there is supportive senior leadership
- Accessible funding for resources/staff which help to implement PROMs
- IT support available to assist with the digital aspects of implementation
- Presence of a digital platform over paper is useful and brings efficiencies

Meso level barriers

- Poor interoperability and integration of MCO with existing electronic patient record programmes hampering workflows and generating frustration
- Specific MCO issues – poor useability reported by staff and patients and unintelligent presentation of collected data hampering interpretation efforts
- Lack of available staffing to assist with PROMs collection and administration
- Physical infrastructural issues e.g.: lack of Wi-Fi or clinical space for some departments
- No organisational requirement to collect patient emails/perceived difficulty to access this data by clinicians
- Perceived lack of support by some clinicians from senior leadership in organisation creating a feeling of isolation/lack of guidance
- Poor advertising of available support services to staff

Figure 13: A diagram summarising the key enablers and barriers which are generated by meso level issue that surfaced in the research.



Micro level enablers

Clinician factors:

- Presence of enthusiastic and motivated staff who support adoption efforts
- Adequate allocation of staffing in department to ensure administrative aspects of PROMs can be completed
- Embedding PROMs into the routine workflow of the clinician to habituate the patient and wider team to interact with them

Patient factors

- Technologically capable, so can deal with digital PROMs
- Well educated on the role and purpose of PROMs

Micro level barriers

Clinician factors:

- Staff resistance to PROMs due to time pressures, poor education on PROMs or feel it doesn't add to care
- Clinician fatigue caused by poorly optimised and integrated systems
- Not involving the wider multi-disciplinary team in implementation efforts and poorly equipping them with the knowledge to understand PROMs

Patient factors

- Digital illiteracy, particularly faced by elderly populations
- Cognitive/learning issues affecting ability to complete PROMs independently
- Lack of understanding of the role of PROMs in clinical care
- Time consuming so resistance to engage

Figure 14: A diagram summarising the key enablers and barriers which are generated by micro level issues that surfaced in the research.

At the macro level

At the macro level, the research identifies a new barrier due to Welsh language translations, which has official status in Wales (Welsh Government, 2024). Therefore, the use of the language is encouraged across all public services (Kathleen Withers et al., 2021). Welsh PROMs literature claims adequate translation has been provided (Kathleen Withers et al., 2021). The finding of the research, however, demonstrates that some participants have encountered issues with accessing Welsh PROMs, bringing delays to the process. This suggests a deficiency exists in the system generating a macro level barrier.

One of the participants did mention difficulty interpreting questions of PROMs. Simplifying or adjusting questions to the local context could be done, but this is avoided, as it can affect the validity of the PROM in question (Joanne Greenhalgh et al., 2018). This is not a specific issue generated by the implementation process in CAV. Rather, it is an inherent issue with PROMs, making this a macro level, wider system issue, possibly affecting many different health systems. CAV could work to mitigate the effect of this issue by carefully selecting PROMs according to the needs of the local populace or assisting those patients who may struggle with completing the forms.

The research has otherwise confirmed the importance of the enablers such as having a national directive and attests to the usefulness of having a national licensing programme to diminish barriers which could make clinician access to PROMS difficult.

At the meso level

The literature acknowledges a resource in the form of a coordinator, who guides and supports implementation, as an enabler. A novel finding for CAV and one of the most common themes of the research is that the VBHC team is undoubtedly an asset to the organisation. Many participants appeared to be grateful to have a dedicated team, who acted on behalf of the clinical teams and supported activities such as selecting PROMs, to accessing funding to bolster implementation efforts. A less commonly reported enabler was the presence of a wider supportive network of senior leaders and management, who had regular check-ins with staff and supported the allocation of resources to clinical teams using PROMs.

However, the research also revealed a minority of participants (25% of the survey respondents) who felt unsupported and even isolated from the wider organisation and the teams created to support implementation endeavours. Discontent was particularly palpable during the interviews, where there was frustration with a perceived lack of interest to understand the ground realities by management and poor signposting of available services to staff wishing to undertake the use of PROMs in their service. Discontent can breed resentment and threaten resistance to change. It would be helpful to explore this theme further and understand the causative factors behind it, particularly if there are cultural issues at play that may need to be rectified. Poor advertising of available services amplifies this barrier and creates additional blocks when navigating the implementation landscape. It is positive to create teams to lead and guide change, but agents of change must be visible to the entire organisation. Working on a ‘word of mouth’ basis will surely hamper uptake. This is important learning that must be heeded to ensure staff can exploit all available avenues to adopt change.

The above issue also draws attention to ensuring clear communication between all levels of an organisation when enacting change. The PROMs literature, as well as the change management literature that was briefly explored earlier attests to its importance. A shared vision between all stakeholders and involving them in designing change helps to facilitate a new status quo.

It is already known that taking advantage of technology helps to enable PROM by creating efficiencies and allowing easier interpretation of results. However, the literature also delves into barriers that can be caused by deficient digital systems. No existing literature was noted that critiqued MCO specifically as a platform, nor was there any literature assessing the digital tools being used by CAV for PROMs collection. This research project brings new insights regarding this topic. The VBHC team was largely enthusiastic about the benefits of MCO, this was in contrast to the majority, who associated drawbacks with it. Barriers such as poor interoperability with existing hospital computer systems and poor usability of the platform were reported. Further issues were reported with how this software interfaced at the patient and clinician level, with reports of patients completing incorrect PROMs or not even being able to sign in. There was some unhappiness with the way data is presented to the clinicians. This underscores the theme of how a weak digital solution can have major impacts on the operational end of an organisation.

The fact that the VBHC team were more positive about the platform than staff may point to a possible disconnect that exists between the managerial aspects of the organisation and frontline staff, as alluded to by one participant who said “it would be really useful to have a conversation with them and say actually this is what we need from the software”. It seems likely that communication and feedback mechanisms are not robust in CAV and work needs to be done to maintain relationships between different aspects of the organisation to have more effective change management.

Another technological barrier is the poor collection of demographic data from the organisation, with no requirement for the collection of patient emails. One department noted increased engagement via sharing links to the PROMs platform via email. Collection of data may help to engage more patients.

A lack of physical resources such as poor Wi-Fi and inadequate staffing was also noted to be an issue with a few departments. This confirms findings seen in other studies on the topic and confirms an element of this issue is seen in CAV. This is not a problem across the whole organisation, with some departments being set up better than others. This suggests uneven standards in play. CAV is a complex system with multiple stakeholders who interact in numerous ways, so there will be many possible interactions which may explains this. Unfortunately, the data was not able to uncover any significant insights as to why such inequalities were in play. The effect of them, however, has interfered with implementation efforts for some colleagues.

At the micro level

The literature pointed out the following three issues which will influence the success of a new innovation for frontline stakeholders (Per Nilsen et al., 2020):

4. Opportunities to influence change
5. Preparedness for change
6. Valuing the change

Many of the findings in my research highlight the importance of these factors. Poor education and poor involvement of assistant staff may be hampering workflows in some departments, whilst other departments are suffering at the micro level from issues at the meso level (such as poorly designed digital/infrastructure issues and perceived lack of control and involvement with guiding the formation of infrastructure) which are causing increased fatigue amongst clinicians when engaging with PROMs.

A low patient uptake level was recorded in this research. One of the most frequent findings in the survey and interviews pointed to many patient level issues, confirming many factors noted in prior PROMs literature, such as digital illiteracy and difficulty understanding the purpose of PROMs. A CAV specific issue is linked to MCO, with useability issues reported, such as difficulty navigating the platform and signing up. Much of the patient related factors could stem from poor education on where PROMs fit in their healthcare journey. PROMs literature confirms that good education and explanations on the purpose of PROMs can enable compliance from patients. Further patient specific research would be beneficial to understand the patient perspective in CAV, to help identity targeted improvements to the way services are delivered for patients.

Findings of previous literature was confirmed findings such as adequate teaching on the purpose of PROMs for patients, clinicians and all other members of the MDT, alongside the presence of motivated colleagues appears being a recipe for successful adoption. These enablers help to prepare stakeholders for the change and will increase how much people value the incoming innovation. The change management literature pointed these factors to be crucial in order for micro level stakeholders to adopt a change.

Summary

This section has considered the findings of the research and discussed where new knowledge has been added to the literature. It has considered perspectives which are new and unique to the CAV paradigm and will allow me to make some recommendations, which will allow barriers to be mitigated and enablers to be amplified. Scope for further research has also been identified.

Key recommendations

Based off the findings of this research, the following points are recommended:

Table 21: Key recommendations derived after a study of the key discussion points based off the enablers and barriers discovered during the research.

Greater support to translate PROMs into Welsh, collection of Welsh language speaker status to help form focus groups easier to reduce delays in translation, in order to fulfil legal duties of services
To continue supporting the CAV VBHC team, in order to extend its reach, provide more funding and staffing to allow the team to be able to support more implementation efforts

Encourage communication, regular follow up and feedback with clinical staff to ensure an organisation understanding develops surrounding common issues relation to implantation and staff receive the level of support they need
Staff and patient focus groups to understand their needs for a digital platform and to work with software developers such as MCO to deliver platforms suited to local needs
Encourage teaching on PROMs as part of the implementation process in departments to ensure all stakeholders, including auxiliary staff and patients understand the purpose of PROMs and help to embed it as part of routine practice

Further research would be useful, especially to understand barriers and enablers and the implementation approaches taken in other Health Boards across Wales to expand learning and to allow for comparisons between approaches to take place. This may go some way to provide a standardised framework for implementation across a national level.

Conclusion

There is a national drive to utilise PROMs across the various clinical areas of Wales, including the CAV Health Board. The aim of this study was to understand frontline implementation efforts and to ascertain the key barriers and enablers that are affecting clinical teams.

A number of objectives were highlighted in the introductory section of the report, laying out the aims of the research. These have been fulfilled, with the research highlighting to the organisation why understanding barriers and enablers can help in more effectively managing the change process. It has also highlighted key barriers and enablers and suggested ways of mitigating barriers, whilst amplifying enablers to improve the effectiveness with which PROMs can be adopted.

A number of key themes have surfaced. Key enablers such as a supportive VBHC team helping to deliver PROMs alongside enthusiastic staff were seen to be key drivers of implementation. However, some participants did perceive a lack of organisational support, with issues such as poor advertising of available services amplifying barriers. Not all teams are affected to the same extent by these issues and further study would be useful to understand the disparity and the factors driving it. Research from previous studies was confirmed, that a digital platform is useful to have. However, a multitude of issues with the digital platform chosen to deliver PROMs were noted. The main concerns focused on poor useability, poor integration with existing record systems causing issues for teams attempting to utilise the PROMs technology. Communication with and involvement of key stakeholders was highlighted to be a key enabler and must be cultivated by the organisation to improve experiences at all levels of the organisation.

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Appendix A: survey questions:

Thank you for taking the time to answer this survey.

My name is Gurdit Dosanjh. I am a Junior Doctor, working in CAV. I am a student on the MSc degree in Advanced Health and Care Management (Value Based Healthcare) at Swansea University.

Value Based Healthcare is a new way of approaching how we care for our patients. Patient Reported Outcome Measures (PROMs) are a part of this change, to ensure we listen to our patients and maximise the value in our services.

As a part of my MSc research project, I hope to gather information on how PROMs are being implemented in the Cardiff and Vale Health Board. I hope to generate useful insights which will help us in supporting the utilisation of key technologies such as PROMs, in the pursuit of better patient care.

I will be collecting the data and can be contacted on gurdit.dosanjh2@wales.nhs.uk for further information. Data will be collected anonymously. By completing this form, you consent to being included in the study.

What service/department do you work in?

What is your role within the department?

What is your experience with PROMs?

- Currently rolling out PROMs/Attempted to use in the past but have stopped/Currently successfully using PROMs in clinical practice/Worked with PROMs in a previous department/Other, please write

On the scale below, please mark what your overall experience has been with the implementation process with PROMs:

- Positive/Mixed/Negative

Please explain your choice above.

Were there any particular barriers that challenged you/your team in using PROMs?

Were there any enablers or supportive aspects during your adoption process which enabled your use of PROMs?

Did the Health Board provide any encouragement/support to your department for adopting VBHC practices such as utilising PROMs?
In your opinion, how have patients reacted to PROMs?

Have any Government/Trust rules/legislation affected your use of PROMs?

- Yes/No

If yes, please explain

Appendix B: Interview questions:

Semi-structured interview

Name:

What is your role within the Health Board?

What was the level of experience/education/training about PROMs before you started using them?

How would you describe its implementation in your department?

What factors helped and enabled the embedding of PROMs within the department(s) – how did they help?

Did any factors cause issues and pose a barrier to implementation, if so, how?

How have your patients responded to the use of PROMs?

Have there been any regulation/laws which have hampered or enabled efforts to use PROMs?

Appendix C: Swansea University Ethical Approval

Swansea University
Prifysgol Abertawe

Approval Date: 06/06/2024

Research Ethics Approval Number: 1 2024 9922 8975

Thank you for completing a research ethics application for ethical approval and submitting the required documentation via the online platform.

Project Title	What are the barriers and enablers to the implementation of Patient Reported Outcome Measures (PROMs) within the Cardiff and Vale University Health Board?
Applicant name	DR GURDIT DOSANJH
Submitted by	DR GURDIT DOSANJH /
Full application form link	https://swansea.forms.ethicalreviewmanager.com/Project/Index/11993

The Humanities and Social Sciences ethics committee has approved the ethics application, subject to the conditions outlined below:

Approval conditions

1. The approval is based on the information given within the application and the work will be conducted in line with this. It is the responsibility of the applicant to ensure all relevant external and internal regulations, policies, and legislations are met.
2. This project may be subject to periodic review by the committee. The approval may be suspended or revoked at any time if there has been a breach of conditions.
3. Any substantial amendments to the approved proposal will be submitted to the ethics committee prior to implementing any such changes.

Specific conditions in respect of this application:

The application has been classified as Low Risk to the University.

No additional conditions.

Statement of compliance

The Committee is constituted in accordance with the Governance Arrangements for Research Ethics Committees. It complies with the guidelines of UKRI and the concordat to support Research Integrity.

Humanities and Social Sciences Research and Ethics Chair

Swansea University.

If you have any queries regarding this notification, then please contact your research ethics administrator for the faculty.

- For Science and Engineering contact FSE-Ethics@swansea.ac.uk
- For Medicine, Health and Life Science contact FMHLS-Ethics@swansea.ac.uk
- For Humanities and Social Sciences contact FHSS-Ethics@swansea.ac.uk

Dyddiad Cymeradwyo: 06/06/2024

Rhif Cymeradwyo Moeseg Ymchwil:

Diolch am gwblhau cais moeseg ymchwil am gymeradwyaeth foesegol ac am gyflwyno'r ddogfennaeth ofynnol drwy'r platfform ar-lein.

Teitl y Prosiect	What are the barriers and enablers to the implementation of Patient Reported Outcome Measures (PROMs) within the Cardiff and Vale University Health Board?
Enw'r Ymgeisydd	DR GURDIT DOSANJH

Appendix D: Biography

My name is Gurdit Singh Dosanjh. I am a junior doctor working in South Wales in Internal Medicine Training. I completed this MSc to get a better understanding of management issues in healthcare, as I am interested in improving the service for my patients. Engaging in leadership positions and understanding how to affect change and how to adjust processes in a complex system will help me in making a larger impact on the service we can provide for patients. This project gave me a taste in how we could understand the process of change adoption and how important it is to understand the landscape for implementation to make better attempts at change.

Evaluation of the impact of an eLearning module on the collection and use of patient reported outcome measures (PROMs) in an NHS Health Board

Kerith Jones
Interim Head of Value Based Healthcare
Swansea Bay University Health Board, UK

Abstract:

This Research Report will evaluate how effective, useful and engaging an eLearning module 'The Module' is for healthcare professionals and whether it helped, hindered or was inconsequential in their decision to embark on collecting and using Patient Reported Outcome Measures (PROMs). (Swansea Bay University Health Board. VBHC Academy Swansea University. and Sprink, 2022)

A literature review was undertaken to understand what the evidence says makes an effective online learning resource, also using data from a bespoke online questionnaire, sent to 224 people who had registered to use 'The Module', and 9 interviews from a sub-set of people who had completed the questionnaire to understand effectiveness for learners.

Evaluation from 43 people (21% completion), who had taken 'The Module', provide reassurance that the overall content is fit for purpose and is not only being consistently used by learners, but those learners are signposting and referencing this learning to colleagues and in documentation across multiple health boards and trusts in the United Kingdom.

Keywords: PROM, eLearning, Patient Outcomes, NHS, VBHC.

Table of Contents

Acronyms, Tables, and Figures

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Introduction

In November 2022, the Value Based Healthcare (VBHC) team at Swansea Bay University Health Board (SBUHB) launched an eLearning training resource titled 'Implementing VBHC in Swansea Bay UHB' (The Module) in partnership with the VBHC Academy at Swansea University. 'The Module' was created to raise awareness and understanding of VBHC methodology; explaining the process involved for services to digitally collect and use PROMs also referred to as Digital Health Assessments (DHAs). As well as providing a consistent message it also released time for the VBHC team. Interested staff, who contact the team, are now asked to take 'The Module', and if committed to undertaking this change project, they complete a feasibility document, where the VBHC team review and score their proposal to prioritise. Since the launch of 'The Module' over 20 feasibility documents have been processed in this way.

'The Module' includes four sections:

7. Key ingredients for success
8. PROM tools uses and triggers
9. Benefit measures – development and realisation
10. Useful contacts and further information

The first three sections have a ten-minute video tutorial, two three-minute video case studies from services who provide examples of what they did, and supplementary templates and reference material that supports the topic being discussed. 'The Module' is self-paced and self-directed, is available on Canvas, Swansea University's learning platform, and can be accessed by anyone, anywhere (Swansea Bay University Health Board. VBHC Academy Swansea University. and Sprink,, 2022). Analysis and findings from a literature review, an online questionnaire and interviews will be used to make recommendations to enhance ''The Module''.

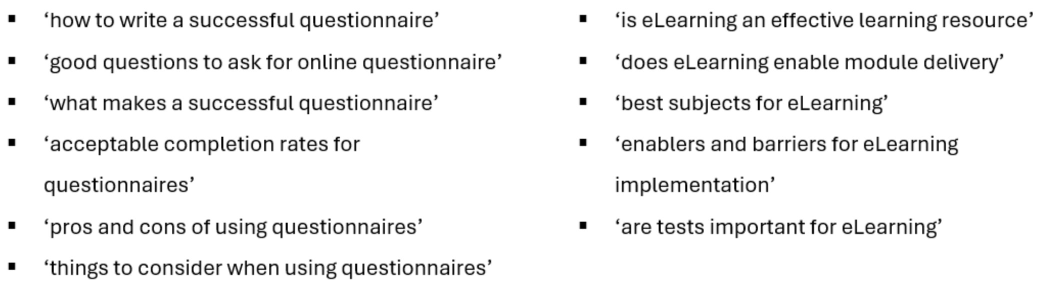
Research Methodology and Design

Primary research (questionnaire and interviews) was conducted, getting a baseline from existing data from Swansea University Learning Platform, Canvas, where 'The Module' is hosted. Secondary research was undertaken by conducting two literature reviews on questionnaire design and eLearning effectiveness.

Literature Review Methods

The first literature review was to understand how to construct an effective questionnaire that would promote a high response rate to enable meaningful insights that answer the research questions and the second review to understand what the evidence is saying about the general effectiveness of learning online, what subjects lend themselves best to eLearning and are tests important to include? This research was used to understand if the primary research gathered from a bespoke online questionnaire and interviews agreed or disagreed with the current evidence.

Grey and peer review literature was used by accessing commercial search engines and google scholar database, using the following search terms:



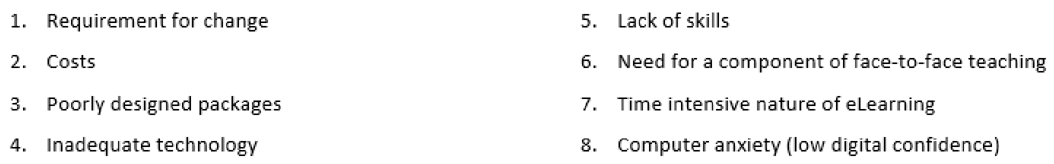
- 'how to write a successful questionnaire'
- 'good questions to ask for online questionnaire'
- 'what makes a successful questionnaire'
- 'acceptable completion rates for questionnaires'
- 'pros and cons of using questionnaires'
- 'things to consider when using questionnaires'
- 'is eLearning an effective learning resource'
- 'does eLearning enable module delivery'
- 'best subjects for eLearning'
- 'enablers and barriers for eLearning implementation'
- 'are tests important for eLearning'

Figure 1: Literature Review search terms.

eLearning Literature Review

The literature review for eLearning suggests online learning in the last decade has both improved and grown, particularly with the accelerated adoption of digital learning platforms post Covid-19 and has fast become integral to learning (Krishna Regmi and Linda Jones, 2020). CPD (continuous professional development) lends itself to innovative practices that involve practitioners fostering continuous improvement and adaption, with digital tools playing an integral part of the learning process (The CPD Standards Office, 2023).

Whilst research indicates online learning is here to stay, it does come with challenges. Main barriers cited in Childs et al systematic review that researched ‘Effective eLearning for health professionals and students’ are:



1. Requirement for change
2. Costs
3. Poorly designed packages
4. Inadequate technology
5. Lack of skills
6. Need for a component of face-to-face teaching
7. Time intensive nature of eLearning
8. Computer anxiety (low digital confidence)

(Childs S. Blenkinsopp E. Hall A. & Walton G., 2005)

There is some good literature around the effectiveness of online education, including how it increases satisfaction and engagement (Webber K.L. Krylow R.B. & Zhang Q., 2013). In a literature review entitled: A systematic review of the factors - enablers and barriers - affecting eLearning in health sciences education, 71% of studies reported eLearning as one of the successful approaches and tools to facilitate the process of learning amongst healthcare professionals in practice. Citing the importance of appropriate interaction between and amongst learners and facilitators. 25% of papers highlighted developing learners’ motivation, satisfaction, expectation, training and support needs were the key reported factors for improving working practice (Childs S. Blenkinsopp E. Hall A. & Walton G., 2005).

Vaona et al. (2018) describes eLearning programmes may be a better choice when the aim is to reach many health professionals at a limited cost. This was one of the main reasons why ‘The Module’ was developed to transfer knowledge and provide a consistent message to over 14,000 colleagues who work for SBUHB. (Vaona A. Banzi R. Kwag K.H. Rigon G. Cereda D. Pecoraro V. Tramacere I. & Moja L., 2018) (Swansea Bay University Health Board, 2024). Primary research reinforced this understanding as a common theme in the interviews cited ‘good quality content’ as a key requirement to engage with online learning.

Online learning failure can be attributed to the inability to capture the interest and attention of the learner due to uninteresting content. Research undertaken by ‘The 1st International Conference on Software Engineering and Information Technology’ (ICoSEIT) looked at the critical success factors for eLearning, identifying three course features which are essential and must be considered to increase student interest in eLearning, these course features have three factors:

11. Content Quality – quality of writing, videos and images
12. Benefits – what’s in it for the learner and facilitator and has it met those expectations?
13. Learning materials – need to be up to date and accessible anywhere and anytime.

(The 1st International Conference on Software Engineering and Information Technology (ICoSEIT), 2022)

Key Insights

Below outlines key insights from the eLearning literature review to understand what the evidence is saying about the learning experience for eLearning:

14. Digital learning is the norm and has become integral to learning, despite this, research on this topic is limited (The CPD Standards Office, 2023)
15. There is growing popularity of online learning and self-education, the number of those who complete online courses successfully is between 5-15% (elearning industry.com, 2023)
16. To maximise the effectiveness of digital learning the ‘content quality’ has to be engaging, both the learner and facilitator need to get something out of it and all learning materials need to be up to date and accessible anywhere and anytime. (The 1st International Conference on Software Engineering and Information Technology (ICoSEIT), 2022)
17. eLearning can and is being used for a wide range of subjects with no one topic being cited as the most suitable, with a caveat that it lends itself to subjects that don’t depend on hands on experience, such as lab work. (Learn.org, 2024)

18. The literature review doesn't provide any meaningful evidence to understand if learners find tests at the end of online learning useful. However, most training bodies and organisations state having a test of assessment at the end of eLearning is crucial for many reasons, namely, to evaluate learner understanding, act as a measurement of knowledge retention and to identify gaps in knowledge as well as encouraging learners to actively engage with online material.

With this research in mind, 'The Module' identified specific evaluation objectives that covered all three of ICOSEIT's course features using a questionnaire and interview.

Primary Research Methods

Questionnaire Methods

An online questionnaire was sent to 224 people who registered to access 'The Module' and whose email was still valid, to understand the specific evaluation objectives cited in 3.5. Since its launch, 234 people have registered to take 'The Module' as of May 2024.

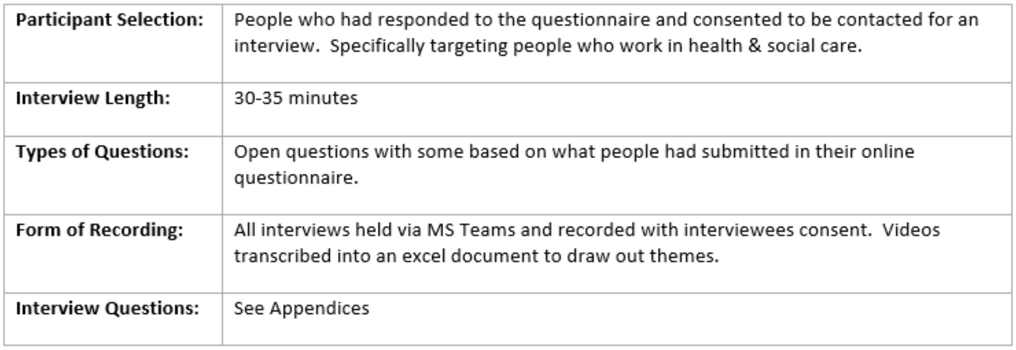
Table 1: Methods for Online Questionnaire.

Participant Selection:	224 people who had registered to access 'The Module' and whose email address was valid.
Questionnaire Distribution:	MS Forms link was emailed to all 224 people who had registered onto 'The Module'. 2 reminder emails were sent over a 3-week period.
Questionnaire Design:	The questionnaire had 22 questions, 7 covering consent and demographic information. Most questions used a 5-point Likert scale, with 2 free text questions to gain insights that wasn't captured in the structured closed questions.
Questionnaire Questions:	See Appendices

Interview Methods

A small sample of Interviews (9) was also undertaken from a subset of users who completed the questionnaire and consented to being contacted, to provide a broader understanding of the questions posed in the online questionnaire.

Table 2: Methods for Semi-Structured Interviews.



Participant Selection:	People who had responded to the questionnaire and consented to be contacted for an interview. Specifically targeting people who work in health & social care.
Interview Length:	30-35 minutes
Types of Questions:	Open questions with some based on what people had submitted in their online questionnaire.
Form of Recording:	All interviews held via MS Teams and recorded with interviewees consent. Videos transcribed into an excel document to draw out themes.
Interview Questions:	See Appendices

This is a mixed methods study using both qualitative and quantitative research methods. Primary evidence will be obtained from a questionnaire and semi structured interviews and will use Kirkpatrick four level evaluation model as a framework to measure success levels against this report's research data. (Kirkpatrick DL and Kirkpatrick JD, 2016).

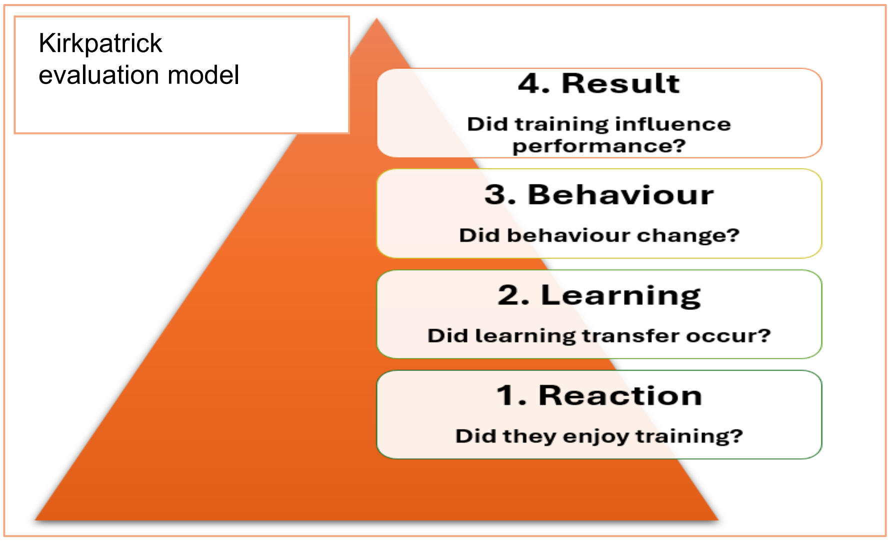


Figure 2: Kirkpatrick evaluation model to evaluate effectiveness of training and learning programmes.

Data Analysis Methods and Bias

Table 3: Data Analysis Methods and Bias.

Questionnaire Analysis:	Likert scale questions were analysed using Microsoft Form evaluation output in graphical visualisations, along with Excel charts.
Interview Analysis:	Thematic analysis was conducted with quotes provided to supplement the questionnaire analysis.
Generalisation:	The ability to generalise the insights and findings is restricted to NHS Wales and Trusts within the UK.
Bias:	It is worth noting that the report author co-produced 'The Module' with the VBHC team at Swansea Bay and VBHC Academy at Swansea University and has a vested interest in it. To prevent bias, the questionnaire was completed anonymously, but the respondents knew it was being sent out from the report author. Bias could have also played a part in the interview responses as very little negative feedback was received from the interviewees of which the research author knew three of them (33%).

Background and need for 'The Module'

At SBUHB digital and resource infrastructure is in place to support the implementation of the recently published VBHC 5-year strategy 2024-2029 – 'Value in all we do'. (VBHC Team Swansea Bay University Health Board, 2024) This includes a recently procured long term DHA solution which can digitise paper forms and automatically send them to patients to complete remotely. A DHA is fundamentally a set of questions, which can be answered by patients remotely on a device of their choosing. These questions can be scored to understand if a patient has improved or deteriorated and then visualised in either traffic light options, graphs, charts or scores to support clinical decision making.

PROMs are a type of DHA which typically monitors changes in symptoms and quality of life. Figure 3 shows other ways DHAs are being used in SBUHB.

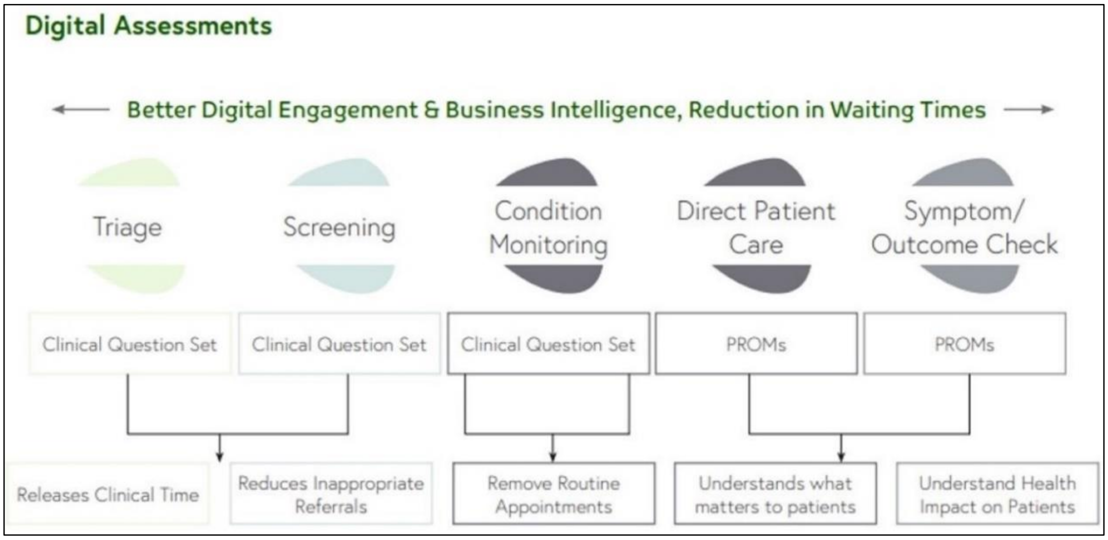


Figure 3: Use cases for Digital Health Assessments (DHAs) including PROMs in Swansea Bay UHB. (VBHC Team Swansea Bay University Health Board,, 2024).

A project team of 14 is in place to work with services to support 'onboarding' DHAs across the Health Board. Swansea Bay's VBHC 5-year strategy outlines what will be worked on to improve SBUHB's VBHC maturity, shifting emphasis from measuring volume-based activity (i.e. waiting list times, length of stay, number of procedures) to including insights from value-based activity (patient outcomes) such as speed of recovery, weight loss, activation and individuals becoming an equal partner in their care and recovery. (Welsh Government, 2018).

Digital assessments and data intelligence are two objectives identified in Swansea Bay's 5-year VBHC Strategy 24-29. To enable many more services, collect and use DHAs 'The Module' needs to be an effective training resource that supports the 'transfer knowledge' phase to enable spread and scale opportunities.

Figure 4: VBHC objectives cited in Swansea Bay's VBHC 5 Year Strategy 2024-2029. (VBHC Team Swansea Bay University Health Board,, 2024).

Objectives of the Research Report

19. To evaluate whether 'The Module' has raised awareness and understanding of VBHC methodology.
20. To evaluate whether 'The Module' provides a practical guide for healthcare professionals who want to digitally collect and use outcome measures with their patients.
21. To understand why 88% of registered users for 'The Module' have not fully completed it.
22. To understand where 'The Module' can be improved.

Ethical Considerations

Research ethical approval for this study was gained through Swansea University, Faculty of Humanities and Social Science Research Ethics Board in May 2024 (see Appendices). Both the questionnaire and interviews were conducted in compliance with the guidelines provided by the Research Ethics Board.

Analysis and Findings

Literature Review Findings

Looking at the main barriers cited in Childs et al systematic review that researched 'Effective eLearning for health professionals' and listed in section 3.1 provides possible reasons why ''The Module'' was developed on-time and within budget and since its launch 18 months ago has on average 13 people a month registering to access it, as it had solutions to most of the main barriers cited in this review. The Chair of VBHC Steering Group and Director of Finance commissioned 'The Module' and there was the budget to pay for it. To check how useful and interesting this module was it went through user acceptance testing during the 'soft' launch in November 2022, where all 'not so good' feedback was used to amend the content to relaunch 'The Module' in February 2023. 'The Module' is also part of a suite of other VBHC modules (developed by Swansea University) that complement this learning resource, enabling a wider audience to access it as it can be taken by anyone, anywhere and is actively publicised by both Swansea University and SBUHB.

Evaluating this module is both beneficial for the report author's MSc research report and as part of their work within the health board. Technology was not a concern as 'The Module' is hosted on Swansea University's established learning platform Canvas and the health boards graphic design and multimedia team produced the videos and case studies, coupled with several members of the project team having previous experience of developing eLearning modules. The subject matter lends itself to online learning with a real need to educate and raise awareness of VBHC methodology within the health board. Feedback from the evaluation interviews found that 88% said it was very easy to register online, being mindful that there are always going to be people who have low digital confidence.

Questionnaire Findings

Forty-eight (48) responses were received over a 3-week period from 18th June to 13th July 2024, equating to 21% completion rate. Five (5) responders out of the 48 hadn't accessed or viewed 'The Module' and weren't asked to complete any further questions, leaving 43 responses included in the analysis. Seventeen (17) respondents agreed to an interview, 10 people were contacted and 9 interviews were conducted.

Questionnaire data showed out of the 43 responses, 85% work for the NHS with 53% working for Swansea Bay University Health Board (SBUHB). Out of the NHS workers 30% of respondents are project managers, 28% work in a clinical setting either as a clinician or operational, with the remainder 42% working in other areas within healthcare such as digital, finance or other.

'The Module' Baseline

Figure 5 shows data provided by Canvas, Swansea University's learning platform that hosts 'The Module'. Stats are from launch in November 2022.

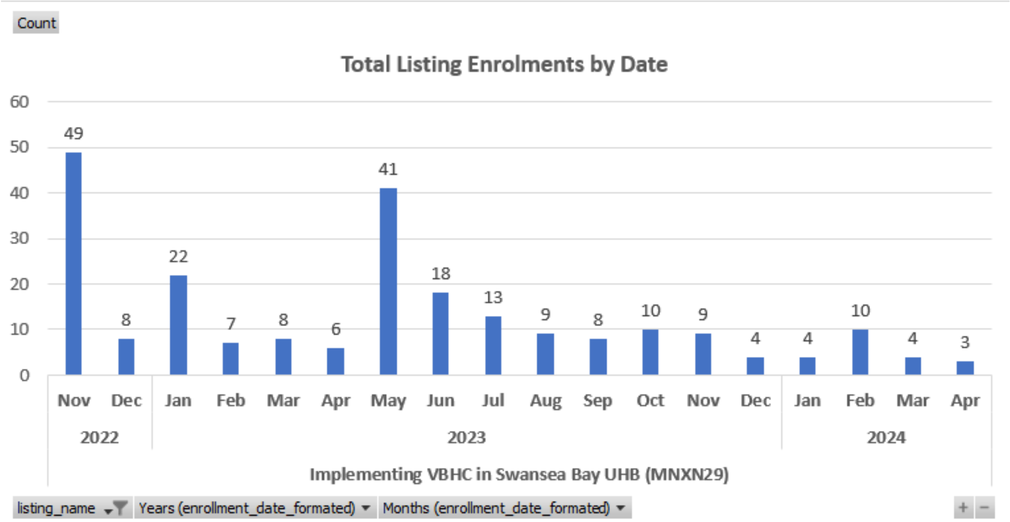


Figure 5: Monthly eLearning enrolments from Nov 2022 to Apr 2024.

November 2022 shows 49 people registered to take ‘The Module’ due to a launch event asking people to take the eLearning as well as test it. Based on feedback received ‘The Module’ was updated with a refreshed version in February 2023. The second highest monthly registrations in May 2023, saw 41 people register and its unknown what may have caused this spike to occur, possibly due to other VBHC events being held at that time?

13 people on average have registered to take ‘The Module’ each month, since its launch.

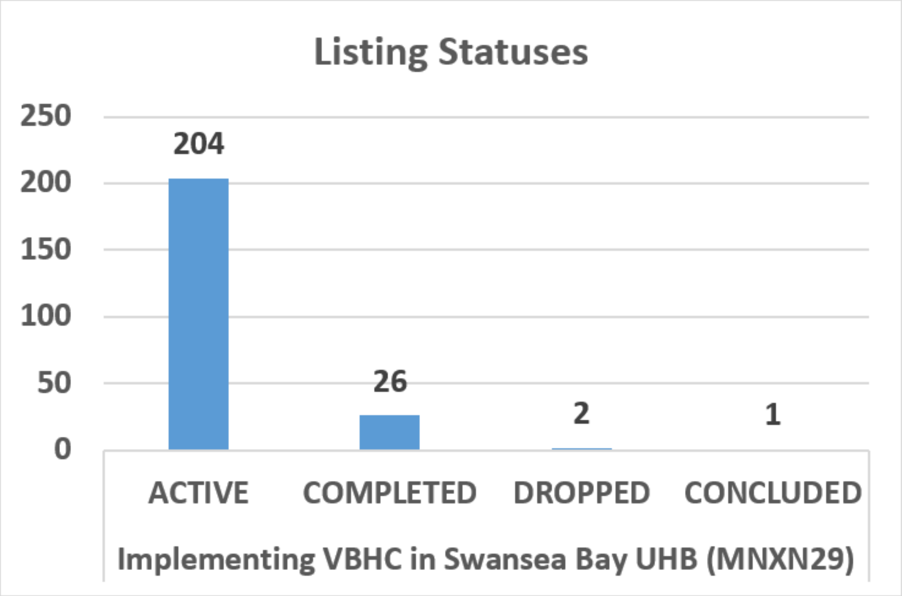


Figure 6: Status of registered users for ‘The Module’.

Key:

23. Active means users haven't completed the test and received their certificate. This equates to 88% of the total people registered.
24. Completed means users have taken the test and received their certificate, this equates to 11%.
25. Dropped and concluded both mean the person has withdrawn or cancelled their registration, which equates to 1%.

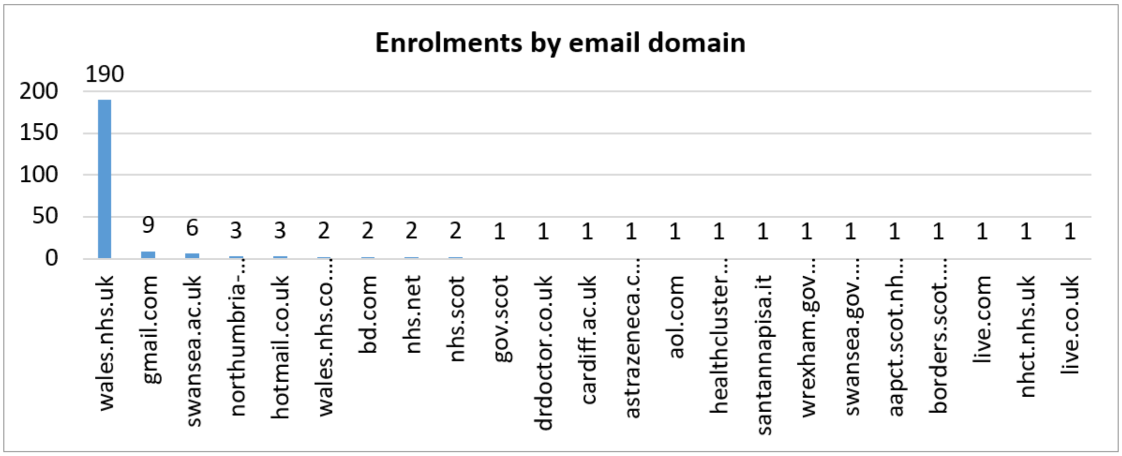


Figure 7: eLearning enrolments by EMAIL Domain.

Figure 7 indicates that 81% of registered people work in NHS Wales, with a similar percentage seen in the online questionnaire responses, which showed 85% of people saying they worked for NHS (England, Ireland, Scotland, Wales).

Usage Questions

Figure 8 shows 63% of questionnaire respondents accessed ‘The Module’ more than 6 months ago. Figure 9 shows 40% accessed it once, 40% accessed it between 2-3 times with 9% (4 people) accessing it more than five times. Interestingly the 4 responders who had accessed it more than five times had ‘Clinical Research’ in their job title, indicating that they found it useful for research purposes (see Figure 23: Questionnaire responses - insight between responders who accessed ‘The Module’ multiple times with their job title). Three out of the nine people interviewed also cited using ‘The Module’ for either research or knowledge reinforcement to cascade this information to either their teams and/or in a report.

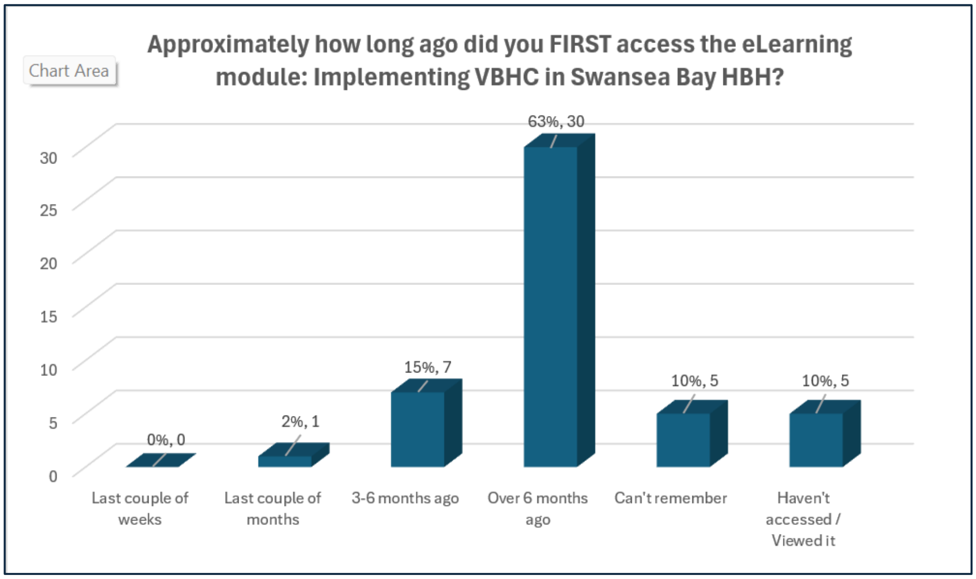


Figure 8: Questionnaire responses - How long ago did respondents first access ‘The Module’?

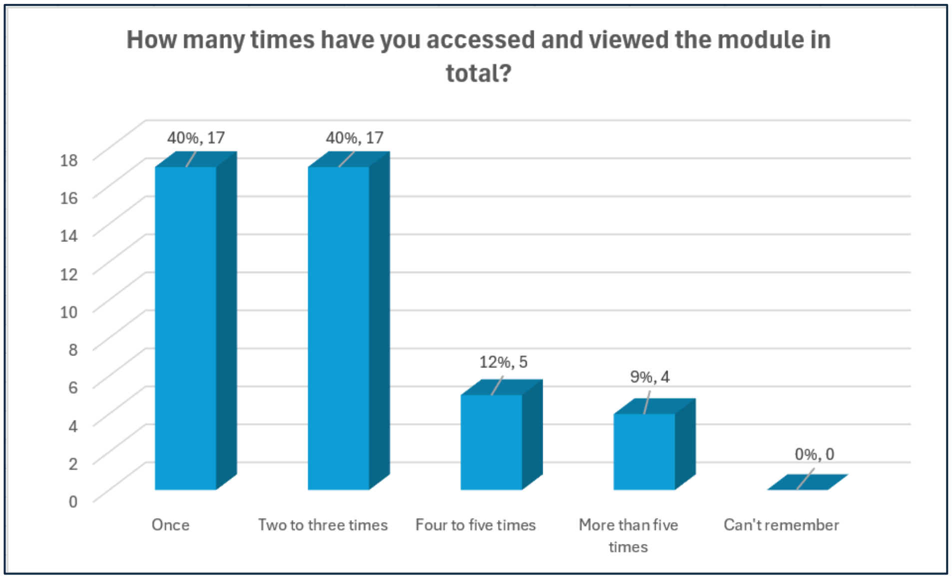


Figure 9: Questionnaire responses – How many times have respondents accessed ‘The Module’?

Figure 10 shows 83% of questionnaire responders stated they had fully completed ‘The Module’, with 9% saying they hadn’t fully completed it and another 9% not sure. However, data from Canvas, the learning platform, shows 88% have not completed it. See Figs. 6-7. Due to the low questionnaire completion rate (21%) it’s difficult to derive any accurate picture why this is. This contradiction was also replicated in the 9 people who were interviewed, most of them had thought they had completed it, but due to the length of time that had passed since they had taken ‘The Module’ some weren’t certain. Figure 11 shows that out of the respondents who said they either ‘hadn’t completed’ it or ‘weren’t sure’ (15%), 71% said they were intending to complete it with 14% (1 person) saying they weren’t intending on fully completing it, reasons provided were “aware of all its content” and “taken the VBHC module in MSc”.

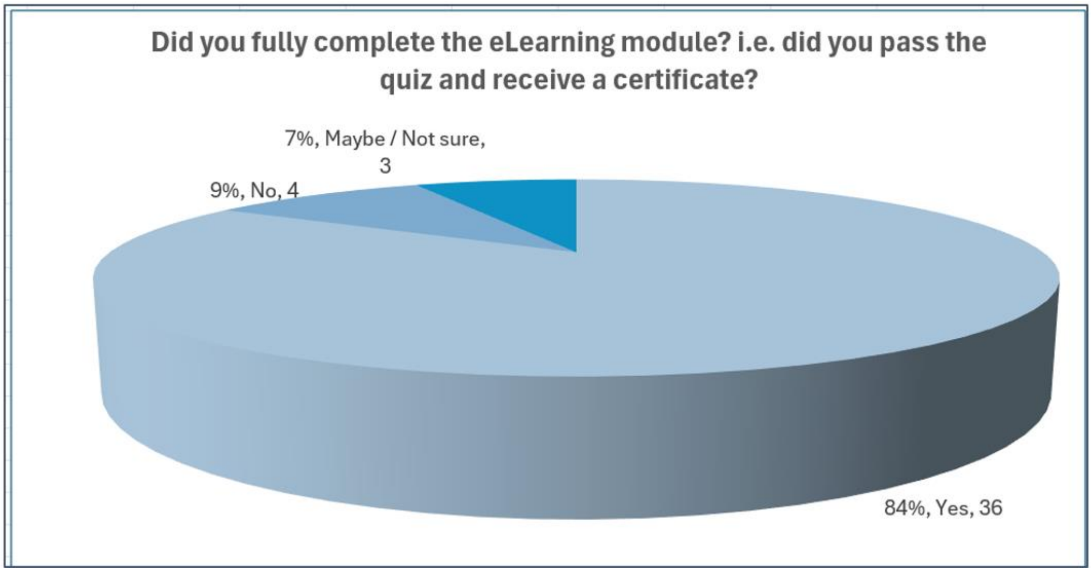
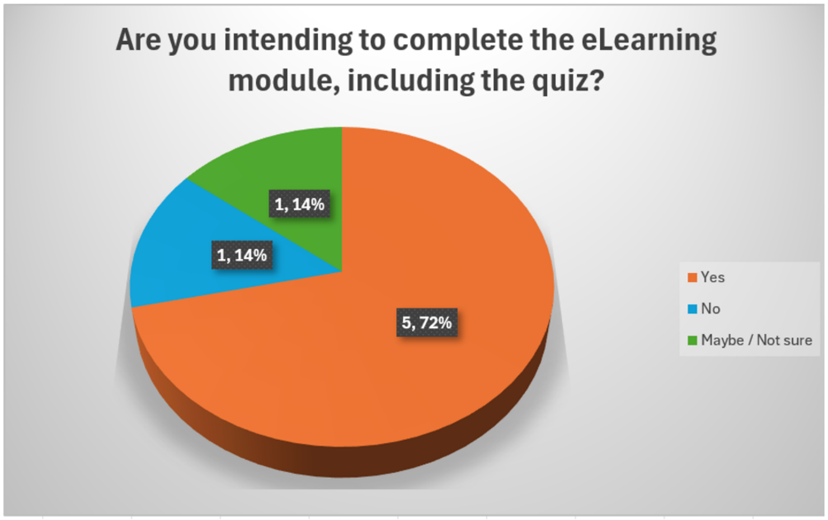
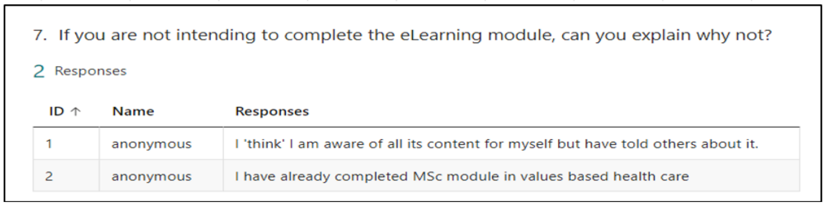


Figure 10: Questionnaire responses – Did respondents complete ‘The Module’?




7. If you are not intending to complete the eLearning module, can you explain why not?

2 Responses

ID ↑	Name	Responses
1	anonymous	I 'think' I am aware of all its content for myself but have told others about it.
2	anonymous	I have already completed MSc module in values based health care

Figure 11: Questionnaire responses – Did respondents intend to complete ‘The Module’?

Effectiveness Questions

Figure 12 shows 83% of questionnaire responses stated they either ‘strongly agreed’ or ‘slightly agreed’ that ‘The Module’ had improved their understanding of VBHC methodology, with nobody disagreeing with this statement. The remaining 17% stating they had no opinion, indicating it was inconsequential. 93% stated they either ‘strongly agreed’ or ‘slightly agreed’ that ‘The Module’ provides a practical guide on how to collect and use PROMs, with 2% slightly disagreeing and 5% having no opinion either way. These responses indicate that ‘The Module’ does support understanding of VBHC methodology along with providing a practical guide on ‘how to’ digitally collect and use PROMs to most learners. This was further evidenced by the responses received from the interviews, with one interviewee stating that they would like this module to be re-purposed for All Wales, suggesting including video case studies from different health boards in ‘The Module’. 55% of interview responders stated they had asked their team to also take ‘The Module’ and used it for reference when writing documentation such as a business case or report. Quotes from interviewees when asked if their behaviour had changed and whether they had done anything different since taking ‘The Module’ include:

- “Solidified knowledge already had”
- “Would like to take the SBUHB case study examples and replace with ABUHB examples”
- “Gave me more confidence to speak about VBHC as not an expert”.
- “Used as revision and to contextualise the learning that I’m doing at the moment”.
- “I summarised the content for National Education for Scotland colleagues to develop own modules”
- “Developing a toolkit on PROMs on what Wales has done”.
- “Used to share with my team and signpost to VBHC as part of a development session”.
- “Helped to support the team in their contribution to using PROMs and supporting project aims.”
- “Looked at all the templates and reference material”.
- “Made use of process mapping tools”.

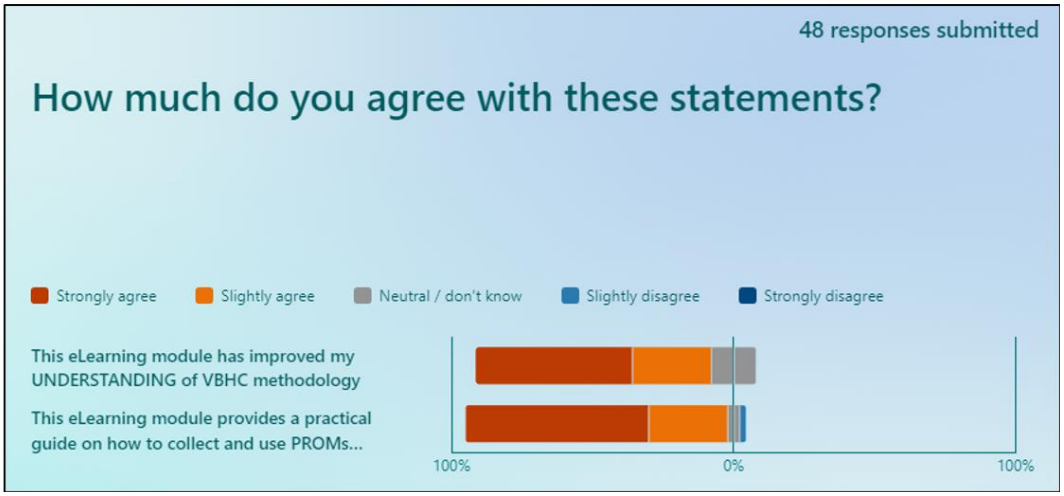


Figure 12: Questionnaire responses - Has ‘The Module’ Improved VBHC understanding, and provides a practical guide?

Figure 13 shows 81% of questionnaire responses considered ‘The Module’ about the right length overall, 7% saying it was too long, 2% too short and 9% not having an opinion. Healthcare professionals are busy people, and their time needs to be used wisely, on average it takes a learner about 60-70 minutes to fully complete ‘The Module’ but can be taken in bite size chunks and spread over time. 6 out of 9 people who were interviewed stated that they had dipped in and out of the learning and not taken it in one sitting.

Figure 16, further evidence that the majority also think that the video tutorials (80%) and video case studies (81%) are about the right length. With nobody disagreeing for the 2–3-minute video case studies and 5% disagreeing for the 10-minute video tutorials. The questionnaire and interview responses as well as ad hoc feedback since its launch in November 2022 strongly indicates that learners found the 2-3 video case studies the most useful with 84% of questionnaire responses finding it either ‘extremely useful’ or ‘slightly useful’ and the rest not having an opinion - see Figure 15.

6 out of 9 people interviewed cited video case studies as the most useful part of ‘The Module’, with one interviewee asking if they can create some video case studies pertinent to their own health board and add into the online module to increase interest and relevance for their colleagues. Other useful elements of ‘The Module’ that was cited by the interviewees were:

- ‘Recommend for senior management team and Health care trainees coming into the healthcare profession to take ‘The Module’”.
- “Could understand using resources in best way”.
- “Really liked the case studies”.
- “Case studies really useful – makes it real can connect and understand a bit more”.
- “Liked the practical component on ‘how to do things’ – in how to practically implement VBHC”.
- “Case studies and contact details were useful”
- “Short video case studies were really useful”.
- “Most useful was signposting resources into SharePoint, broken down into elements”.
- “Project plan was good”.

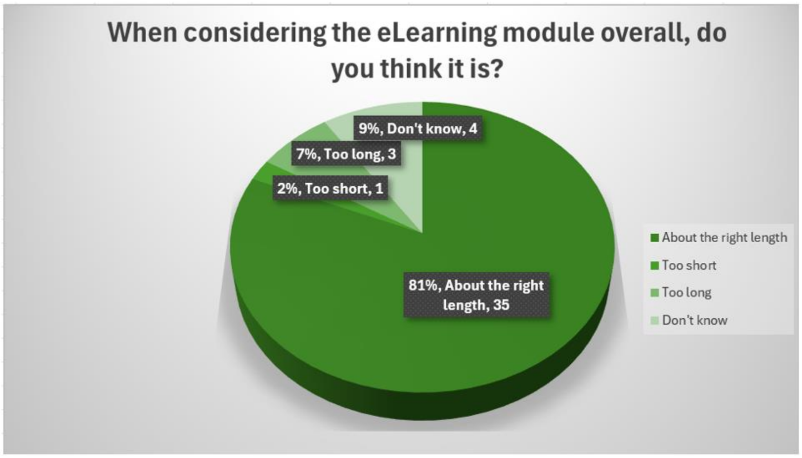


Figure 13: Questionnaire responses – what respondents thought of ‘The Module’s’ length of time?

Figure 14 shows 81% of questionnaire responses thought the level of knowledge was ‘pitched about right for someone like me’, with 6% (3 people) stating it was too basic and 3% (1 person) stating it was too advanced. Suggesting that the vast majority thought it was pitched at the right level. These responses indicate ‘The Module’ is being understood by most learners. A couple of interviewees also stated they thought ‘The Module’ was pitched at the right level of knowledge, stating:

- “Not too taxing, right pace and level for what it was”.
- “didn’t get bored, pace decent”
- “Used as a prompt and reminder to say right things and signpost”.

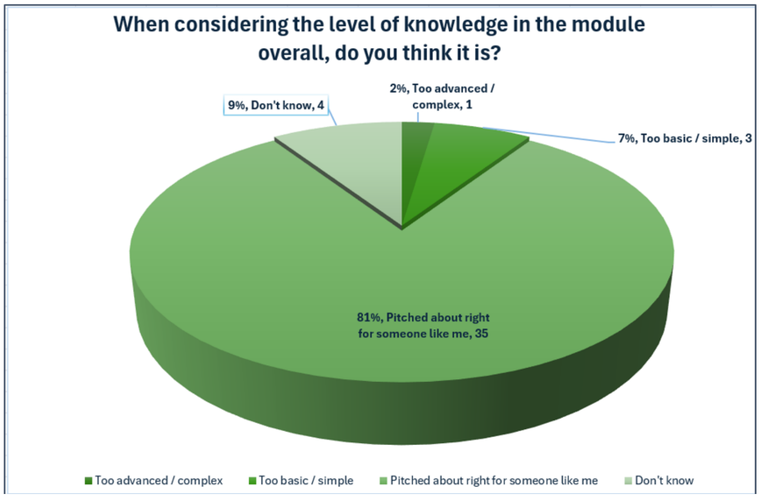
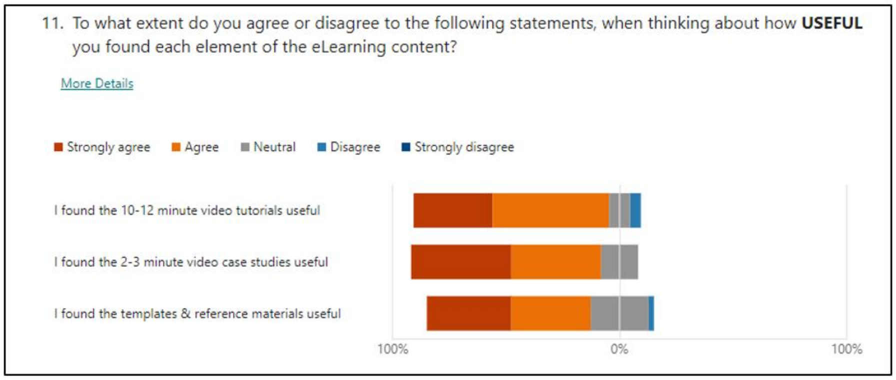


Figure 14: Questionnaire responses - what respondents thought about the level of knowledge in ‘The Module’?

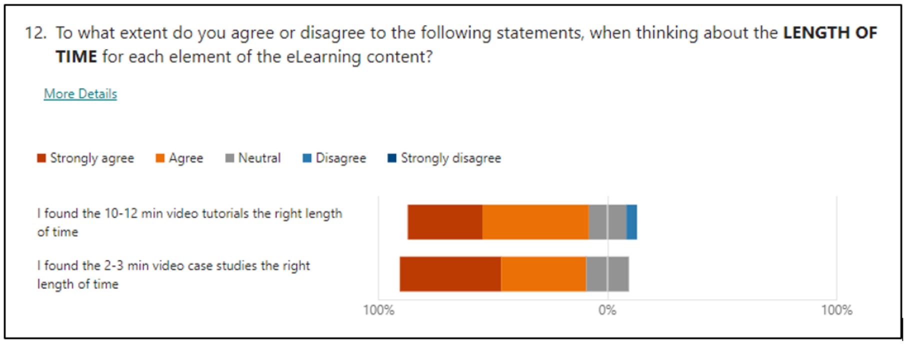
Figure 15 shows that 2–3-minute video case studies have the highest percentage of responses for ‘Strongly agree’ for content usefulness, with nobody disagreeing. However, when looking at both positive responses (‘strongly agree’ and ‘Agree’), the 10-minute video tutorials had the highest percentage at 85% with 5% disagreeing that it was useful, and 84% found the 2–3-minute video Case Studies useful and no one disagreeing that they weren’t useful. Indicating that both the video tutorials and case studies are of similar usefulness for most learners. Templates and reference materials had the lowest percentage for both positive responses for usefulness at 72%, with 2% disagreeing, but still a high percentage indicating that these resources were of help. 2 out of the 8 people interviewed also stated the resources being useful with one person making 5 of the comments below:

- “It was good, liked lots of resources pointed outside of eLearning”
- “Linked back to templates, overall helpful”.
- “Could understand using resources in best way”.
- “Most useful was signposting resources into SharePoint, breaking down into elements”.
- “Project plan good”
- “Made use of process mapping tools”.



11. To what extent do you agree or disagree to the following statements, when thinking about how **USEFUL** you found each element of the eLearning content?

Figure 15: Questionnaire responses - How useful was each element of ‘The Module’?



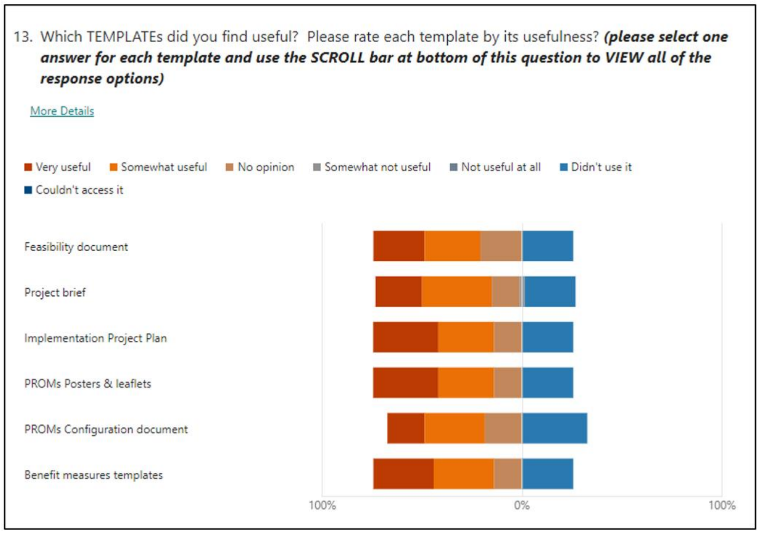
12. To what extent do you agree or disagree to the following statements, when thinking about the **LENGTH OF TIME** for each element of the eLearning content?

Figure 16: Questionnaire responses - is each element of ‘The Module’ the right length of time?

Figure 17 and 18 shows a list of the templates and reference material (which is currently only accessible to people who work in NHS Wales) and how useful learners found each one. The Implementation Project Plan and Posters & Leaflets being cited as the ‘most useful’ templates, with 33% of respondents stating they were both ‘Very useful’. The PROMs Configuration document is the least useful template; 18% stated it was ‘Very useful’ with 15% difference between the highest and lowest score. Templates and reference material also had the highest percentage for no usage at 33%.

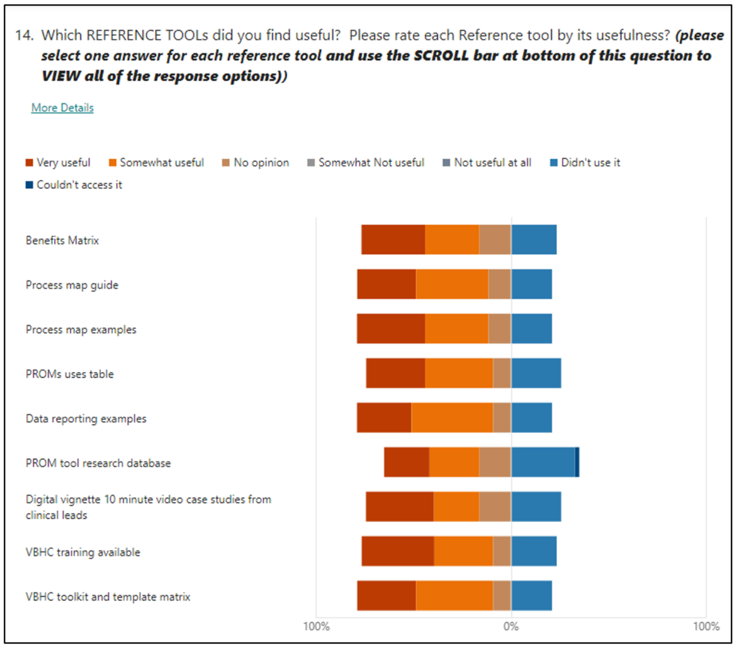
Figure 18 shows the VBHC training available was cited as the most useful reference resource with 37% of respondents stating, ‘very useful’. The PROM tool research database received the lowest percentage of people who stated ‘very useful’ at 23% and the highest percentage of people who stated they hadn’t used it at 33%.

Overall, no one template or reference material stands out as not being useful at all, with the majority in the favour of the positive responses. No one template or reference material was not needed at all with most learners thinking all of them were useful and relevant.



13. Which TEMPLATEs did you find useful? Please rate each template by its usefulness? ***(please select one answer for each template and use the SCROLL bar at bottom of this question to VIEW all of the response options)***

Figure 17: Questionnaire responses - which template is most useful?



14. Which REFERENCE TOOLs did you find useful? Please rate each Reference tool by its usefulness? ***(please select one answer for each reference tool and use the SCROLL bar at bottom of this question to VIEW all of the response options))***

Figure 18: Questionnaire responses - which reference tool is most useful?

Figure 19 shows the responses to the ‘So What’ question, asking if after taking ‘The Module’ did learners embark on a project to digitally collect and use PROMs in their service? Had they put what they’d learnt into practice? Findings showed that 28% of responders stated they had embarked on a project to collect outcome measures as a result of taking ‘The Module’, 4% said they would have liked to but their service didn’t have the resources to support, 32% said they hadn’t started a project and 35% cited other reasons (shown in Figure 21) as to why they hadn’t embarked on a project, which many of these responses suggest that they are considering collecting PROMs but are either in the planning stage or already working with a VBHC team. These responses indicate that ‘The Module’ does help learners put into practice what ‘The

Module' is teaching, and that it is a useful resource to explain to colleagues what's involved when wanting to collect and use outcome measures in a health care service. This was further corroborated with comments from four of the interviewees:

- "Why re-create when it is really good and fit for purpose".
- "Message was clear around benefits and successful implementation of PROMs and benefits to patients".
- "Good for healthcare students before entering the profession… should understand VBHC, understand using resources in best way".
- "haven't received any feedback from my team but know members of the team have contacted VBHC"
- "Provided reassurance I was doing the right thing".

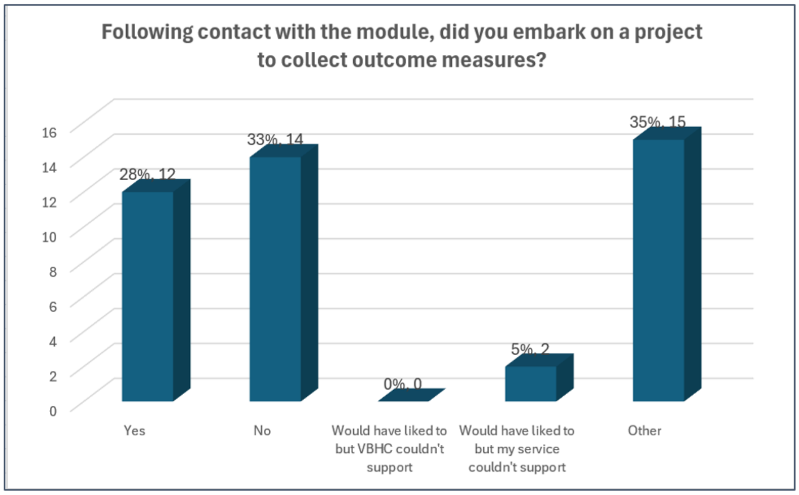
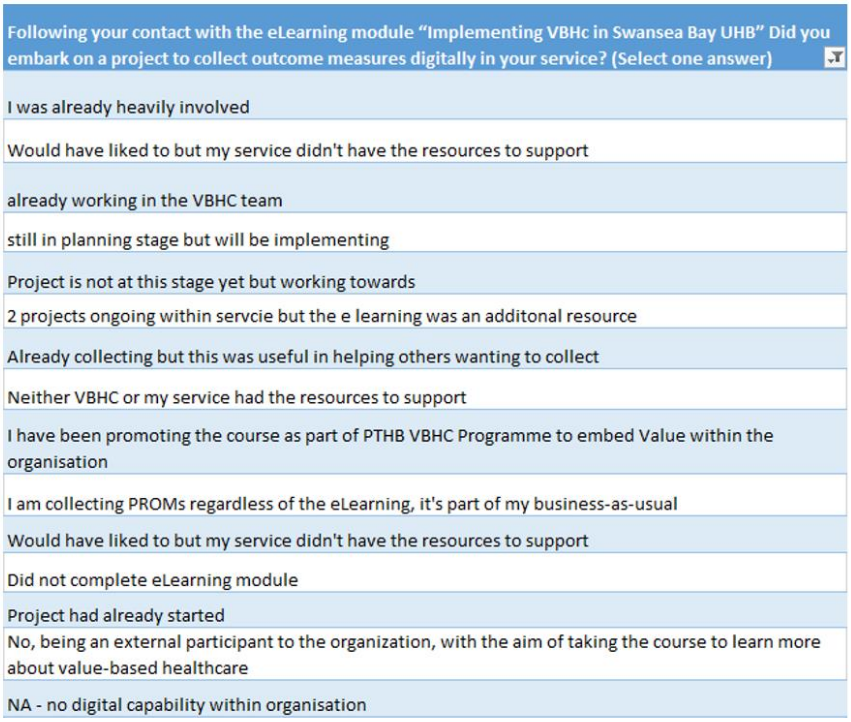


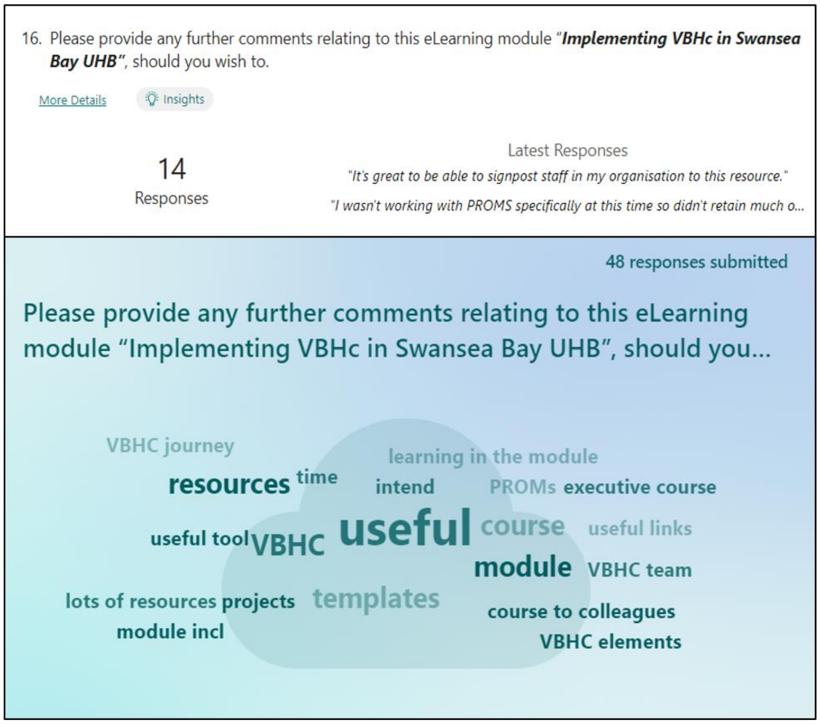
Figure 19: Questionnaire responses - did respondents embark on a VBHC project after taking 'The Module'?



Following your contact with the eLearning module "Implementing VBHc in Swansea Bay UHB" Did you embark on a project to collect outcome measures digitally in your service? (Select one answer)
I was already heavily involved
Would have liked to but my service didn't have the resources to support
already working in the VBHC team
still in planning stage but will be implementing
Project is not at this stage yet but working towards
2 projects ongoing within servcie but the e learning was an additonal resource
Already collecting but this was useful in helping others wanting to collect
Neither VBHC or my service had the resources to support
I have been promoting the course as part of PTHB VBHC Programme to embed Value within the organisation
I am collecting PROMs regardless of the eLearning, it's part of my business-as-usual
Would have liked to but my service didn't have the resources to support
Did not complete eLearning module
Project had already started
No, being an external participant to the organization, with the aim of taking the course to learn more about value-based healthcare
NA - no digital capability within organisation

Figure 20: Questionnaire responses - free text responses; why respondents didn't embark on a PROM project.

Figures 20 and 21 show the responses from the ‘any further comments’ free text question. 14 responses were received (1 put n/a) with most responses being very positive, not just about ‘The Module’ content but more about what that individual intended on doing having taken ‘The Module’, providing strong evidence that learners not only found ‘The Module’ useful but they have or are putting the ‘so what’ into practice either by undertaking a project themselves and/or signposting this learning resource to their teams. See Figure 20 for word cloud analysis on these free text responses, with ‘Useful’ being the most prominent word and figure 21 for a breakdown of each of the free text responses.



16. Please provide any further comments relating to this eLearning module “***Implementing VBHc in Swansea Bay UHB***”, should you wish to.

14 Responses

Latest Responses

"It's great to be able to signpost staff in my organisation to this resource."

"I wasn't working with PROMS specifically at this time so didn't retain much o...

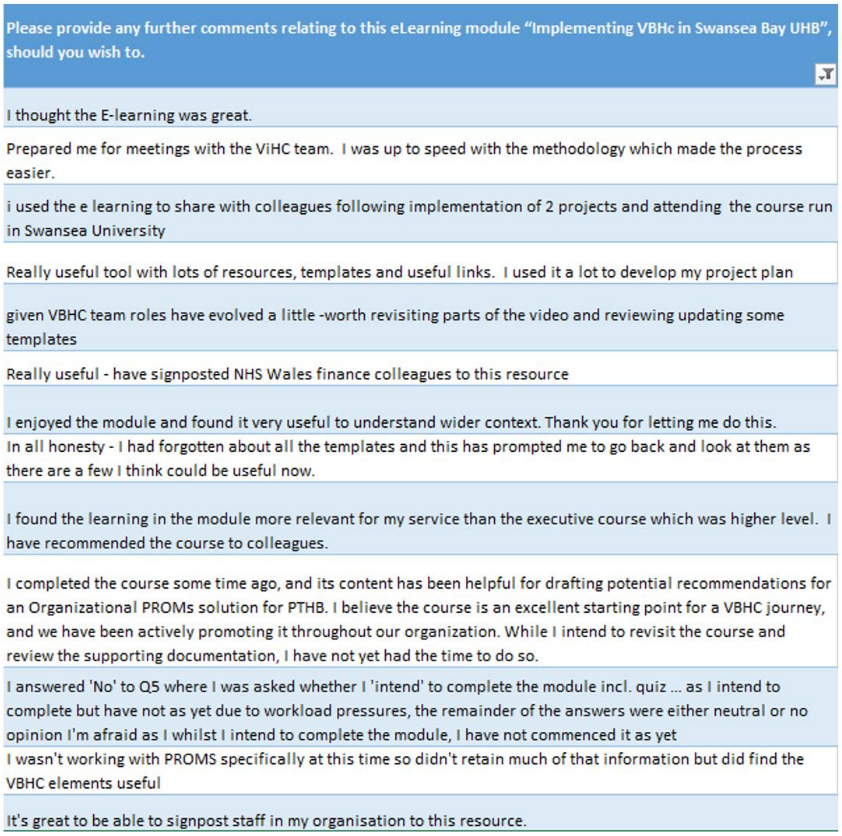
48 responses submitted

Please provide any further comments relating to this eLearning module “Implementing VBHc in Swansea Bay UHB”, should you...

Figure 21: questionnaire responses - word cloud of further free text comments.

Interestingly positive feedback on the ‘So What’ was also corroborated by the interviewees stating the following:

- “Used as revision and to contextualise the learning that I’m doing at the moment”.
- “Provided reassurance I was doing the right thing”.
- “Shared resource with wider team”
- “I summarised the content for National Education for Scotland colleagues to develop own modules”
- “Developing a toolkit on PROMs on what Wales has done”.
- “Used to share with my team and signpost to VBHC as part of development session”.
- “Came up with questions that we wanted to know”.



Please provide any further comments relating to this eLearning module "Implementing VBHc in Swansea Bay UHB", should you wish to.
I thought the E-learning was great.
Prepared me for meetings with the ViHC team. I was up to speed with the methodology which made the process easier.
i used the e learning to share with colleagues following implementation of 2 projects and attending the course run in Swansea University
Really useful tool with lots of resources, templates and useful links. I used it a lot to develop my project plan
given VBHC team roles have evolved a little -worth revisiting parts of the video and reviewing updating some templates
Really useful - have signposted NHS Wales finance colleagues to this resource
I enjoyed the module and found it very useful to understand wider context. Thank you for letting me do this.
In all honesty - I had forgotten about all the templates and this has prompted me to go back and look at them as there are a few I think could be useful now.
I found the learning in the module more relevant for my service than the executive course which was higher level. I have recommended the course to colleagues.
I completed the course some time ago, and its content has been helpful for drafting potential recommendations for an Organizational PROMs solution for PTHB. I believe the course is an excellent starting point for a VBHC journey, and we have been actively promoting it throughout our organization. While I intend to revisit the course and review the supporting documentation, I have not yet had the time to do so.
I answered 'No' to Q5 where I was asked whether I 'intend' to complete the module incl. quiz ... as I intend to complete but have not as yet due to workload pressures, the remainder of the answers were either neutral or no opinion I'm afraid as I whilst I intend to complete the module, I have not commenced it as yet
I wasn't working with PROMS specifically at this time so didn't retain much of that information but did find the VBHC elements useful
It's great to be able to signpost staff in my organisation to this resource.

Figure 22: Questionnaire Responses - free text 'Any other comments about 'The Module''? 13 responses.

Demographic Question

3% of people answered **Clinical Research Specialist Nurse** for this question, and the majority answered "**More than five times**" for Question 4.

● 3% people answered "Clinical Research Specialist Nurse" for question 21

● 100% of them answered "More than five times" for question 4

Figure 23: Questionnaire responses - insight between responders who accessed 'The Module' multiple times with their job title.

KEY:

- Question 4: How many times did you access 'The Module'?
- Question 21: What is your role within the NHS?

Figure 24: Questionnaire responses - what sector in NHS respondents work in.

Interestingly, figure 24 shows that 41% of respondents who had stated they worked in the NHS, work in Secondary care, 37% in corporate functions, 6% in Primary care and 2% in community services, which correlates to the spread of VBHC projects the VBHC team are working on with clinical teams in Swansea Bay UHB.

Interview Themes

Table 4: Interview Question Themes.

INTERVIEW QUESTION:	THEMES FROM RESPONSES:
In general how do you find learning online?	8 out of 9 interviewees accepted learning online, 2 of which preferred this method instead of face to face. Citing time benefits to learning online, ability to go back over and use as reference and being able to complete at a time and place convenient to them. 2 interviewees cited online learning was not their preferred method of learning, “don’t engage if think it’s a tick box” and “easily distracted, some eLearning hard, some good” but acknowledged that it has its place as is a convenient way to learn if just used to reinforce information, preferring a mix of face to face and online learning. “Learn better in face-to-face workshops with other people”
Overall impression of ‘The Module’?	All interviewees gave positive feedback about this question, with no negative feedback received. This could be a bit of interview bias with an eagerness of the respondents to please the interviewer and equally a tendency of the researcher to seek the answers which support their preconceived notions.
Did you complete ‘The Module’?	4 out of 9 couldn’t remember if they had taken the test and received a certificate but all 4 thought they had. All 4 had taken ‘The Module’ over 6 months ago, some over a year. One interviewee stated they hadn’t completed it as they had got what they needed from the learning and wasn’t interested in getting a certificate. 5 people stated they had completed it and received the certificate.
Is it a good idea for a test?	All but one person stated having a test at the end was important to offer, as it tests learning, enables learners to understand what they have not understood and allows the creators to understand where learners most struggle. The person who stated they don’t like tests at the end would prefer to have summary questions at the end of each section to consolidate learning so learners can sense check rather than being tested.
Is it helpful to know the questions you didn’t get right?	All interviewees stated this would be helpful and to also provide the right answers and explanation. Many people citing that ‘often people remember the things they got wrong”.
What did you do with the knowledge learnt?	All interviewees cited things they had done with their knowledge with most saying they used it either as reference and reassurance they were doing the

INTERVIEW QUESTION:	THEMES FROM RESPONSES:
	right thing and to also pass on to their colleagues and teams to raise awareness and understanding of VBHC. 3 people cited pieces of VBHC work they had undertaken because of taking 'The Module', i.e., collecting PROMs, redesigning their service and developing Scottish VBHC Toolkit similar to Wales.
How easy was it to register to take 'The Module'?	7 out of 9 people stated registering onto Canvas to access 'The Module' was easy, with two people stating they had a lot of difficulty registering. One person stating it might have been because they had created two accounts on canvas and the other needed IT support from both Swansea University and their own NHS Trust to resolve the issue.
Are there any other aspects of VBHC that you'd find helpful to have as online learning?	Below lists what interviewees cited that they'd like to see developed: Worked through case-based discussions with practical examples. Go through a project and break down each step – with examples Make 'The Module' more NHS Wales than SBUHB Have a library of case studies from other health boards – wanting to learn about other health boards which is equally as important to me Include as part of induction for VBHc new starters – one person who worked in VBHC arena stated, 'it would have been great to have viewed this when initially in post instead of 3-4 months into the role." More on wider outcomes, breaking down on how to improve outcomes for individuals. Understanding different outcomes for people and the system. Risk associated with adopting a VBHC approach with clinical practice, people are risk adverse. VBHC approach sometimes goes against clinical guidance – shared decision making. More on PREMs More on Patient Centred Approach to VBHc Waste in the system and harm with waste. What people are doing to cause harm. E.g. harm with repeat prescriptions. Risk is biggest struggle Finance in VBHC – aligning finance world to VBHC approach. Unwarranted variation – people struggle with that concept Getting support for what's next bit Link VBHC with HEIW QI Module VBHC Academy in Wales is excellent, aiming to do this in Scotland Refresher face to face course or online to be able to ask questions and/or make 'The Module' mandatory to take every 2/3 years.
Anything particularly useful in 'The Module'?	55% (5 out of 9) cited short video case studies as really useful. 55% (5 out of 9) also stated they had recommended this learning resource to colleagues to support understanding of VBHC Practical element showing 'how to practically implement VBHC' (3 out of 9) Contact and signposting details (5 out of 9) Templates – Project Plan and formularising pathway (4 out of 9)
Anything particularly NOT useful in 'The Module'?	88% (8 out of 9) interviewees stated that there wasn't anything they thought was not useful, quoting "Nothing stood out" / "Nothing I didn't find not useful". With one person saying, "there wasn't much explanation on the reference material".

Analysis of 'The Module' against established and recognised Tools

Table 5 uses Kirkpatrick's evaluation model and the analysis from the nine interviews to provide some understanding of how effective 'The Module' is, along with Table 5 showing the analysis from both the Questionnaire and Interview responses to evaluate 'The Module's' alignment to ICoSEIT essential course features.

Table 5: Assessing Effectiveness of 'The Module' using Kirkpatrick's 4-step evaluation model.

KIRKPATRICK'S EVALUATION STEP:	INTERVIEW ANALYSIS	MET KIRKPATRICKS STEP?	FREQUENCY
STEP 1: REACTION (ENJOYMENT OF TRAINING)	Analysis from the interviews by most responses was positive, citing video case studies and the templates and reference material as particularly useful.	YES	8/9

KIRKPATRICK'S EVALUATION STEP:	INTERVIEW ANALYSIS	MET KIRKPATRICKS STEP?	FREQUENCY
	55% of people interviewed stated they preferred a mixture of face-to-face training with online learning but appreciated that eLearning has its place and is a convenient way to learn something that isn't too complex and / or in need of critical thinking and discussions with peers and tutors. Two people said they preferred online learning to face to face. Everyone apart from two people found the registration process straight forward and easy to set up. Two people identified something that wasn't useful in 'The Module', and both related to the templates, one person didn't find the templates useful as their health board had similar ones, but felt reassured that the documentation was similar, and the other person felt there were too many templates and reference material and felt it would have been good to highlight the key ones better.		5/9 7/9 2/9
STEP 2: LEARNING (DID LEARNING TRANSFER OCCUR?)	67% of the people interviewed stated they had signposted it to their team(s) and colleagues and referenced it (sometimes frequently) when writing pertinent documentation such as business case, reports and VBHC toolkits.	PARTIALLY	6/9
STEP 3: BEHAVIIOUR (DID BEHAVIOUR CHANGE?)	55% said it had consolidated their knowledge. 55% also stated they had used some of the templates and reference materials.	PARTIALLY	5/9 5/9
STEP 4: RESULT (DID THE TRAINING INFLUENCE PERFORMANCE?)	One person redesigned their service using VBHC methodology, using what had been learnt from 'The Module'. Two people regularly revisited 'The Module' to use as reference material for a business case and reports. Another person in NHS Scotland is designing their own VBHC toolkit based on what Wales are doing. 6 people actively re-shared and signposted 'The Module' to their teams. 5 people stated they had actively used some of the templates and research materials.	PARTIALLY	1/9 2/9 1/9 6/9 5/9

Table 6: eLearning alignment to ICOSEIT essential course features.

ICOSEIT ESSENTIAL COURSE FEATURE:	SBUHB'S ELEARNING MODULE:
CONTENT QUALITY: QUALITY OF WRITING, VIDEOS AND IMAGES	Majority of free text feedback received from questionnaires and interviews was positive, with two people citing aspects of the templates that weren't useful in the eLearning content. Overall impression of module from interviews was 100% positive 83% of questionnaire responses stated they either 'strongly agreed' or 'slightly agreed' that 'The Module' had improved their *understanding* of VBHC methodology.

ICOSEIT ESSENTIAL COURSE FEATURE:	**SBUHB'S ELEARNING MODULE:**
BENEFITS: WHAT'S IN IT FOR THE LEARNER & FACILITATOR? **BENEFITS:** WHAT'S IN IT FOR THE LEARNER & FACILITATOR?	Module is under the umbrella of VBHC Academy at Swansea University – providing credibility to the learning resource that would not have been there if SBUHB had created it on their own as well as enabling anybody to access it from anywhere. Swansea University have accredited this module so learners can gain CPD points and certificate. There are many NHS organisations promoting 'The Module' which include: 'The Module' is part of National Financial Planning VBHC Vault VBHC Academy Executive Education training SBUHB intranet and VBHC team Majority of interview responses from learners stated they took this module because they wanted to learn more about VBHC methodology and how a health board is practically implementing it, finding this a useful tool to signpost the learning to their teams and colleagues and/or refer to it for their own reference purposes.
LEARNING MATERIALS: NEED TO BE UP-TO-DATE, ACCESSIBLE ANYWHERE ANYTIME	'The Module' includes a suite of templates and reference material which links are cited at relevant points within 'The Module' for NHS Wales learners to access anywhere, anytime. These resources are currently only available to staff who work in NHS Wales – a recommendation would be to provide Swansea University access to all these materials that they can enable non-NHS Wales colleagues to view them.

Conclusion

Primary research strongly indicates that 'The Module' meets ICoSEIT critical success factors to increase student interest in eLearning. Findings from this research showed that learners thought the 'Content Quality' was good, and that it is both useful and engaging, receiving very little negative feedback. There are many things in it for both learners and facilitators, with a suite of different 'learning material' available to anyone, anywhere. See Table 6: eLearning alignment to ICoSEIT essential course features. (The 1st International Conference on Software Engineering and Information Technology (ICoSEIT), 2022)

Did research answer the research objectives?

The only research question the primary data didn't clarify one way or another was 'To understand why 88% of registered learners for 'The Module' had not fully completed it?' Logical reasons were given by the 9% (4 people) that answered the questionnaire, but this is such a small sample of the total number (204) showing on Canvas as 'not completed'.

Responses from the primary research strongly indicate that 'The Module' raised awareness and understanding of VBHC methodology, and that it provides a practical guide for healthcare professionals who want to collect and use outcome measures with their patients. However, more time is needed to understand how effective 'The Module' has been to enable services to incorporate patient outcomes into their decision-making process to change service delivery and understand the impact treatment and care is having on patients. (Prudent Healthcare Wales, 2024)

Recommendations

Purpose of 'The Module'

The value that is anticipated for SBUHB is 'The Module' plays its part to support the health boards vision to become a 'high-quality' organisation by enabling services to place much greater emphasis on measuring the health outcomes of their patients. (Swansea Bay University Health Board, 2023) (VBHC Team Swansea Bay University Health Board,, 2024). Our thinking is that if we get patients treatment right first time, they are going to be less likely to suffer complications, be readmitted and experience an inappropriate referral, all wasting time and finite resources that could be better utilised. (Welsh Government, 2018).

Key Recommendations and Next Steps

There were several things that the primary and secondary evidence highlighted where improvements can be made and are described below:

Table 7: Recommendations and Next Steps.

RECOMMENDATION:	NEXT STEPS:
TEMPLATES & REFERENCE MATERIAL MADE AVAILABLE TO ALL REGISTERED USERS NO MATTER WHAT THEIR EMAIL ADDRESS	Review, refresh & reduce where applicable the templates and reference material Provide Swansea University access to all templates and reference material
ALL WALES REFRESH – MAKE MODULE MORE FOCUSED ON NHS WALES THAN SPECIFIC TO SBUHB	Change ‘The Module’ title to something like “implementing digital outcome collection in a Health Board”? Include additional 2–3-minute video case studies from other health boards within ‘The Module’.
USE ELEARNING TOOL IN MORE WAYS TO IMPROVE VBHC KNOWLEDGE WITHIN OWN HEALTH BOARD	Seek advice from learning & development team to include ‘The Module’ on induction programmes for clinical, operational and corporate staff. Develop marketing campaign with Communication colleagues to transfer knowledge, raise awareness and understanding of VBHC methodology.
ADD ‘CHECK BACK’ QUESTIONS AT THE END OF EACH SECTION WITHIN ‘THE MODULE’ TO ENGAGE LEARNERS PREFERRING THAT WAY OF ASSESSMENT	Understand if Canvas has functionality to be able to do this? Understand if Swansea University or Sprink have capacity to configure them?
DEVELOP MORE ELEARNING MODULES SUGGESTED IN THE INTERVIEWS	Understand if Swansea University would like any support with this?
UNDERTAKE REGULAR EVALUATION REVIEWS OF ‘THE MODULE’	Repeat Questionnaire and Interview evaluation in 12 months’ time: September 2025.

Using the analysis and findings of this research report the VBHC team at SBUHB will work with the VBHC Academy at Swansea University to understand what recommendations can be taken forward and in what timeframe.

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Appendices

Ethics Approval Letter

Refer to: Research Ethics Approval Number: 1 2024 9852 8887

Online Questionnaire Question Set

Contact author

Interview Question Set

Contact author

Bibliography

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Publisher:	Swansea University, School of Management

Impact of Digital Health Technologies on Patient Engagement and Outcomes

Indana S V Manvitha
Clinical Pharmacist
Continental Hospitals, India
Email: isvmanvitha@gmail.com

Abstract:

Background

This research aims to explore the impact of technology adoption in the NHS on patient outcomes and engagement. It examines the challenges and opportunities posed by digital tools, including health apps, telemedicine, and Electronic Health Records (EHRs). The study looks at how age, gender, and place of residence influence participants' perceived benefits, challenges, usage, and awareness. Understanding these factors is crucial for identifying how different demographics experience and engage with digital health technologies.

Methodology

The study used a quantitative descriptive analysis to assess gender distribution, which showed higher participation among females, with a smaller, yet informative, non-binary group. Residence distribution was highest in suburban areas, followed by urban and rural regions. An ANOVA analysis was applied to investigate how age impacts familiarity with health technologies. A convenience sampling method was adopted for selecting respondents, and descriptive statistics (ANOVA) were used to evaluate demographic impacts. A Post-Hoc Bonferroni Analysis revealed the 31-45 age group experienced more perceived difficulties compared to younger participants.

Conclusion

The study identifies limited interoperability between EHR systems, data protection concerns, and resistance to adoption as key barriers leading to fragmented patient care. Although telemedicine and remote monitoring improve engagement, technological barriers hinder access. It concludes that while healthcare technologies offer personalization and better outcomes, integration challenges, digital inequality, and data security concerns prevent widespread adoption. Key recommendations include optimizing data interoperability and security, expanding telemedicine in underserved areas, and increasing access among rural and elderly populations to enhance operational efficiency.

Keywords: Electronic Health Records (EHRs), Remote Monitoring, Patient Care, Telemedicine, Data Privacy, Interoperability, Healthcare Disparities, Patient Engagement.

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Introduction

During the COVID-19 pandemic, digital health technologies, especially telehealth, expanded rapidly to enable remote consultations, but access disparities due to poor infrastructure and digital literacy in marginalized communities require targeted solutions for equitable healthcare (Phuong et al., 2023) The rapid development of digital technologies has transformed the healthcare sector evidently. (Stoumpos et al., 2023b) This report aims to understand the issues of adopting digital technologies in healthcare (Mas et al., 2023) and its impact on the sector, with a special focus on how the technologies' implementation affects patient engagement and related outcomes. (Mumtaz et al., 2023) The purpose of this report is to provide a comprehensive understanding of the issues faced by healthcare providers when digital technology is implemented into their systems and to analyse the potential impact of these technologies on patient engagement as well as patient care outcomes. (Mas et al., 2023) The scope and implementation in this respect surround the services provided by NHS Digital.

The project revolves around digital technology integration into the healthcare sector, including wearable services, electronic health records (EHRs), telemedicine etc. (Hodapp & Hanelt, 2022) The integration of these technologies is expected to enhance patient care outcomes and improve the quality and efficacy of care provided. (Shah & Khan, 2020) However, adapting these technologies also comes with its own set of challenges.

The report includes details about the nature of the project. The current state of digital technology adoption in healthcare is highlighted along with the identification of the barriers. Further exploration of the topic includes a detailed analysis of the challenges encountered and their impact on care quality. Key points are summarised in the conclusion section and recommendations for further innovation and improvement in digital health initiatives are provided in the recommendations section.

Identification of Project Requirements

Nature of the Project

The project focuses on the impact of digital health technologies on patient outcomes and engagement with specific context to NHS Digital. NHS Digital is responsible for collecting, processing and publishing data across all UK healthcare facilities to enable integrated information-sharing and effective decision-making in the healthcare context (Honeyman, Dunn & McKenna, 2016). This report analyses the impact of digital appointment systems, NHS Digital health app, the telemedicine platform and Electronic Health Records (EHRs) utilization on patient engagement and outcomes at its core.

Digital health technologies have revolutionized the way healthcare is delivered by caregivers and received by care receivers by allowing for more efficient, personalized and easily accessible services, even irrespective of location and time in some cases. NHS Digital has launched an app to access a range of NHS services on a laptop or smartphone, making it more accessible and remote (NHS England, 2024).

The Technology Enabled Care Services (TECS) Resource for Commissioners has been developed by NHS commissioners to integrate technology-enabled care services supporting patients, families, health and social care professionals, commissioners and overall, all stakeholders associated with the industry (NHS England, 2024)2. This service has enabled the integration of telecare, telecoaching, telehealth, telemedicine and the availability of self-care apps with easy and broad access (Wright, 2020).

The impact of these technologies on healthcare outcomes and patient engagement is assessed in this report with a clear focus on the adaptation issues in implementing the same.

Specific Task to be Examined

The specific task to be examined in this report is the impact of NHS Digital adoption on patient outcomes and engagement. This involves a detailed analysis of several key areas:

Digital Health Records and Data Management:

NHS England has invested £1.9 billion to support hospital trusts to achieve the target of December 2023 set by the government in the Plan for Digital Health and Social Care (NHS England, 2023). This report has examined how the implementation of Electronic Health Records (EHRs) allows for better management of patient outcomes. However, the focus is on the issues faced while adapting digital tools like Electronic Health Records (EHRs) (cost, resource allocation, data security concerns etc.) in the UK healthcare sector as it can contribute to improved clinical outcomes by enabling healthcare providers to access accurate and updated patient information is analyzed in this report (Shah & Khan, 2020). The issues surrounding EHR implementation can affect patient outcomes, making this a critical area of study.

Telemedicine and Remote Monitoring:

NHS Digital has focused on adopting telemedicine platforms, especially to overcome difficulties during pandemics (inspired by measurements taken in healthcare during the COVID-19 pandemic). The way telemedicine has facilitated remote access to patients troubled by distance to healthcare facilities, remote residence locations, the cost of travelling and the inconvenience of the same is commendable (Shah & Khan, 2020). However, the issues with the adaptation of the NHS Digital Technology Enabled Care Services (TECS) Resource for Commissioners have been analyzed in this report. This has allowed the researcher to analyze the impact of tech adoption in NHS on patient outcomes and engagement as identifying benefits and limitations both are necessary in this respect.

Patient Portals and Health Apps:

NHS Digital hosts the Bureau Service Portal which allows the collection and processing of NHS data in a centralized way (Chidambaram et al., 2020). NHS-approved apps like NHS Food Scanner, HANDi Paediatric, The NHS App, GetUBetter etc. allow care receivers to be involved in self-management regarding identifying the sugar content in food, illness-specific home assessment guidelines for children, accessing health information independently and finding solutions for common musculoskeletal injuries and conditions (like shoulder, knee, neck, back and leg pain) (Chidambaram et al., 2020). The report assesses the adaptation issues faced by healthcare professionals in this context regarding enhancing patient care outcomes and engagement. Investigating how these technologies enhance patient outcomes by focusing on adaptation issues can help with measuring the effectiveness of NHS Digital’s efforts in patient engagement.

Relevance and Value to the Organization

The relevance and value of the report to the NHS are significant as it will facilitate the NHS to drive digital transformation across the NHS more efficiently and effectively. (Mas et al., 2023) The implementation of Electronic Health Records (EHRs) enables coordination among healthcare providers, improves data accessibility, and reduces duplication of efforts as well as medical efforts as stated by Adeniyi et al. (2024) and Carter et al. (2022). As interoperability and data security issues pose significant threats to the effectiveness of EHRs implementation, measuring the issues would help provide practical value to the NHS.

Enhancing Patient-Centered care

This project identifies the key requirements for the successful adaptation of digital technologies that will help NHS design and implement solutions for improving patient outcomes. The successful adaptation of digital technologies and the implementation of the same will help NHS meet patient requirements (including physical mental and emotional needs), thereby enhancing patient outcomes and engagement (Morris et al., 2023).

Improving Operational Efficiency

The findings of this report will help the NHS understand the challenges faced with digital technology implementation and adaptation. As per Vuksanović, Kuc, Mijušković & Herceg, 2020), digital technology implementation success and adaptation are often faced with challenges like increased cost, poor resource allocation etc. The findings from this research will enable NHS to identify the bottlenecks in digital technology implementation in the UK which will help them increase operational efficiency by reducing the burden on physical facilities and processes (Sawesi et al., 2016).

Supporting Policy and Decision-Making

The evidence-based insights gained from this project will allow the NHS to develop policy and make according to decisions for a better adaptation of NHS Digital in the broader NHS context. Acknowledging the impact of digital transformation on health outcomes and patient engagement and identifying the bottlenecks in implementing the same will help NHS reform policies and decision-making regarding reducing health disparities and improving the overall quality of facilities (Wai et al., 2023).

Addressing Interoperability and Data Security Challenges

As per Hodapp & Hanelt (2022), interoperability and data security are critical challenges in digital transformation in the healthcare industry as using different digital systems and platforms leads to communication issues, fragmentation of data and duplication of efforts. Moreover, the risk of data breaches and unauthorized access is increased with the integration of digital tools implementation (Hauer, 2015). Findings on these issues will help NHS create coordinated and efficient care systems without losing public trust and legal penalties.

Focusing on the above-mentioned aspects will help NHS remove the bottlenecks for the adaptation of digital tools implementation, thereby allowing improved patient-centred care and patient engagement.

The simplified cycle is easier to understand and still highlights the main stages of how digital health technologies are adopted, used, and improved over time. The Digital Health Technology Cycle starts with raising awareness and providing education on health technologies to patients and providers. This is followed by adoption and engagement, where the technology is used to improve patient outcomes. Finally, evaluation and feedback lead to optimization, restarting the cycle for continuous improvement.

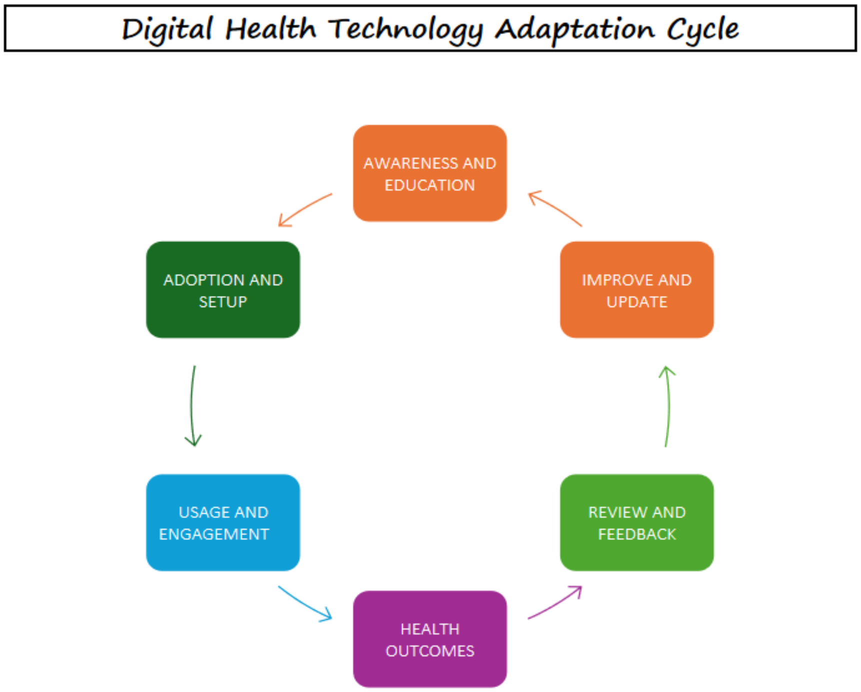


Figure 1 Digital Health Technology Adaption Cycle (Author- self).

Main Analysis

Methodology

A mixed-method approach has been applied to investigate the impact of digital health technologies (e.g., Electronic Health Records, Telemedicine, Patient Portals) on patient engagement and outcomes. A pilot survey was conducted to gather preliminary data from 53 participants that has allowed the identification of key demographic variables and potential challenges faced by respondents while adopting digital health care technologies. Quantitative data has been captured using mostly closed-ended and Likert-scale questions. A convenience sampling method has been adopted for choosing respondents and descriptive statistics (ANOVA) is used to analyze the impact of demographic factors (age, gender, and residence) on awareness, perceived benefits, challenges and usage regarding the topic. Post-Hoc Bonferroni Analysis is applied to further investigate the differences in perception as aligned with age groups. A thematic analysis has been used to analyze qualitative data.

Survey Pilot Study Analysis

A pilot survey was conducted to understand the utilization as well as the impact of digital health technologies on patient engagement and other related outcomes. For this purpose, it was initially decided that a sample of 50 would be targeted. However, the sample survey questionnaire was failed by 53 individuals and each of the responses has been evaluated and analyzed in this section.

Demographics of the Participants

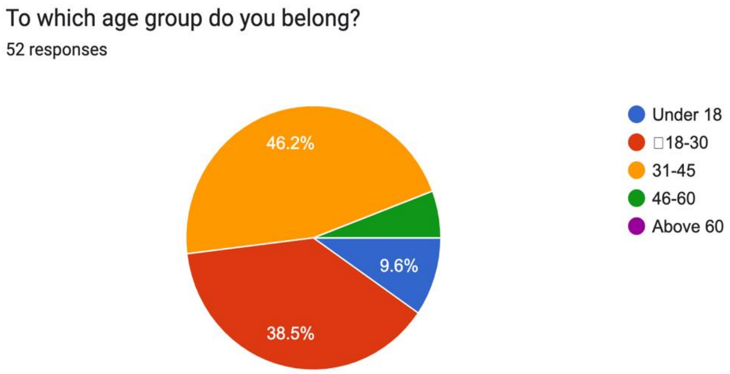


Figure 2 - Age of the participants.

The disposition of the participants in terms of age gives interesting information on the sample population's focus demographic characteristics. The major portion of the respondents are aged between 31 and 45 years representing the largest demographic variation of the entire population sample size. Such concentration may point to the fact that people in this age range are either keener on the topic under study or are more responsive to polls. A considerable part of it is also composed of 18-30-year-olds, which makes up one-third of the sample, proving the presence of young adults. However, it is to be noted that people within the age bracket of 46-60 and those below 18 years are poorly represented in the social network thus suggesting a slow participation rate from this group of people. The overall age distribution provides insight into the age-related features within the sample and may be used to inform the findings depending on how age factors may affect perception or behavior under analysis.

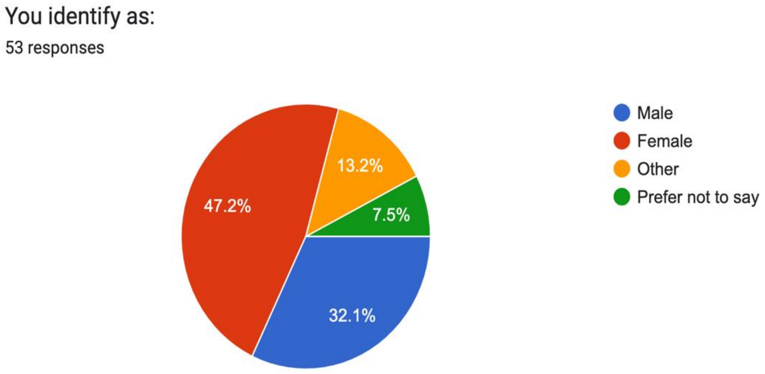


Figure 3- Gender of the participants.

This sample distribution in terms of gender has implications for assessing the researched studies' findings. 47% of the respondents are females while only 32.1% are males; thus, there is slightly more female dominance in the study, which may affect the results' interpretation, especially if the research topic hinges on gender differences. The presence of the male is, however, quite evident and is slightly less than the representation of the female in a third of the sample. Also, persons of other gender if any indicate that gender is diverse and should not be classified into male and female alone. While the sample size of this group was smaller as compared to the previous ones, the responses given could be much more informative of different gender views. Lastly, a few of the participants chose the preferred not to say option. The role of gender impact on either the perception or the experience in the research context should be taken into consideration, especially with the inclusion of the non-binary participants and those who preferred to remain anonymous.

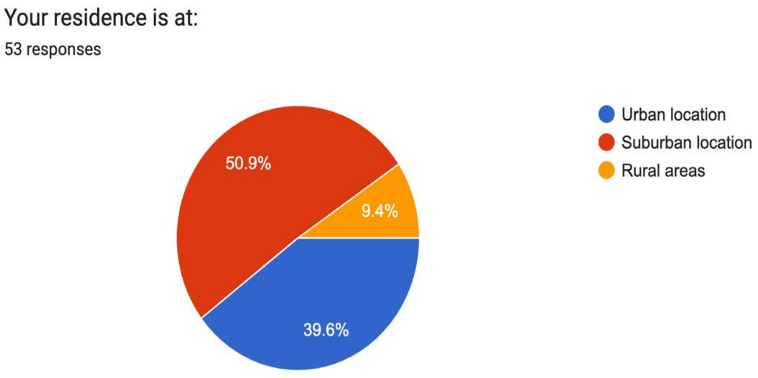


Figure 4- Residence of the Participants.

Out of the total sample, half of the participants are from the suburbs, which shows that suburban people make up the largest population in this research. Again, over 40% of the sample is urban residents; these are individuals who have better access to enhanced healthcare systems and may be inclined towards engaging in health technology applications such as telehealth or health applications. In contrast, only 9.4% of the respondents only live in rural areas where it is quite likely that adoption of such technologies may almost be out of the question. The distribution of the sample may pose potential regional differences that could affect the generalizability of the study and thereby the contenders' ability to enhance their knowledge of how digital health technologies are perceived and utilized across geographical domains and patient populations about patient involvement and healthcare service delivery system.

Impact of Residence: Demographics of the participants (ANOVA Findings)

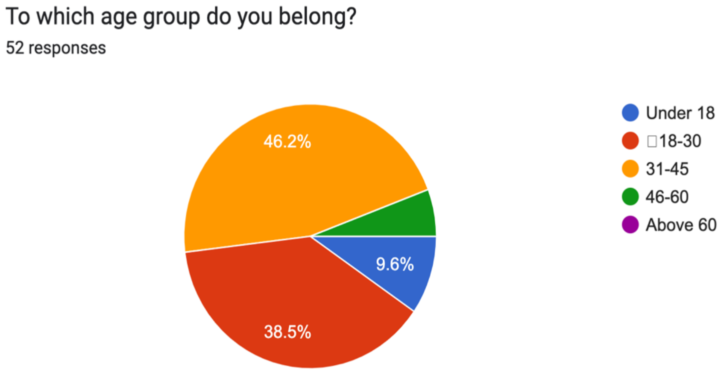


Figure 5- Age of the participants.

The disposition of the participants in terms of age gives interesting information on the focus demographic characteristics of the sample population. The major portion of the respondents are aged between 31 and 45 years representing the largest demographic variation of the entire population sample size. Such concentration may point to the fact that people in this age range are either keener on the topic under study or are more responsive to polls. A considerable part of it is also composed of 18-30-year-olds, which makes up one-third of the sample, proving the presence of young adults. However, it is to be noted that people within the age bracket of 46-60 and those below 18 years are poorly represented in the social network thus suggesting a slow participation rate from this group of people. The overall age distribution provides insight into the age-related features within the sample and may be used to inform the findings depending on how age factors may affect perception or behavior under analysis.

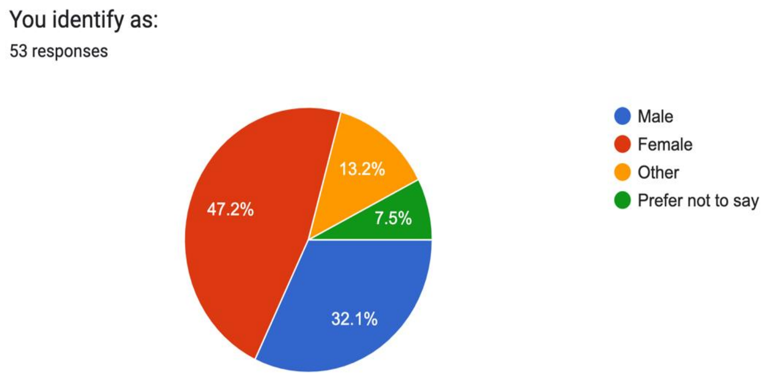


Figure 6 - Gender of the participants.

This sample distribution in terms of gender has implications for the assessment of the findings of the researched studies. 47% of the respondents are females while only 32.1% are males; thus, there is slightly more female dominance in the study, which may affect the results' interpretation, especially if the research topic hinges on gender differences. The presence of the male is, however, quite evident and is slightly less than the representation of the female in a third of the sample. Also, persons of other gender if any indicate that gender is diverse and should not be classified into male and female alone. While the sample size of this group was smaller as compared to the previous ones, the responses given could be much more informative of different gender views. Lastly, a few of the participants chose the prefer not to say option. The role of gender impact on either the perception or the experience in the research context should be taken into consideration, especially with the inclusion of the non-binary participants and those who preferred to remain anonymous.

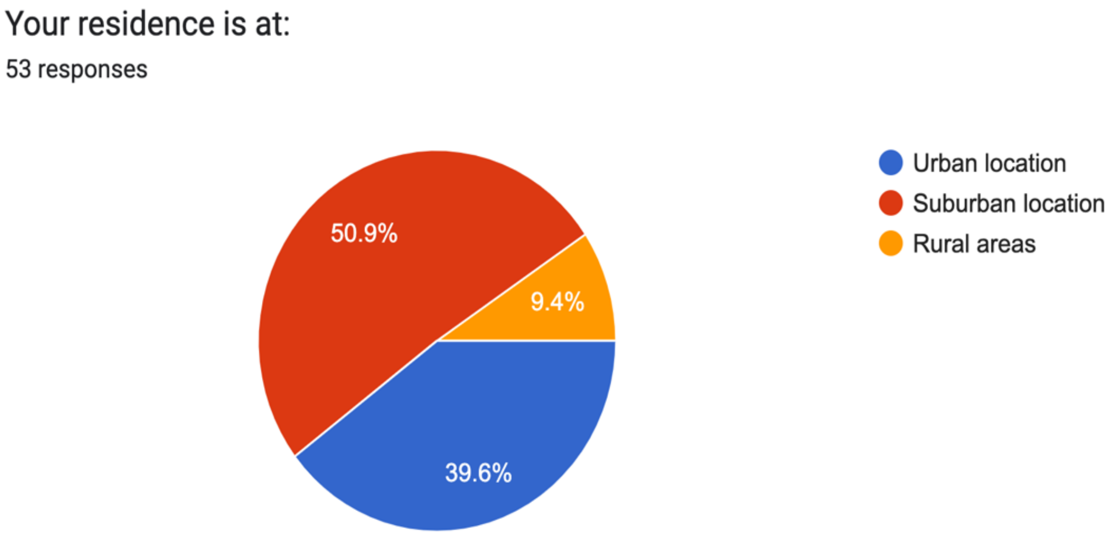
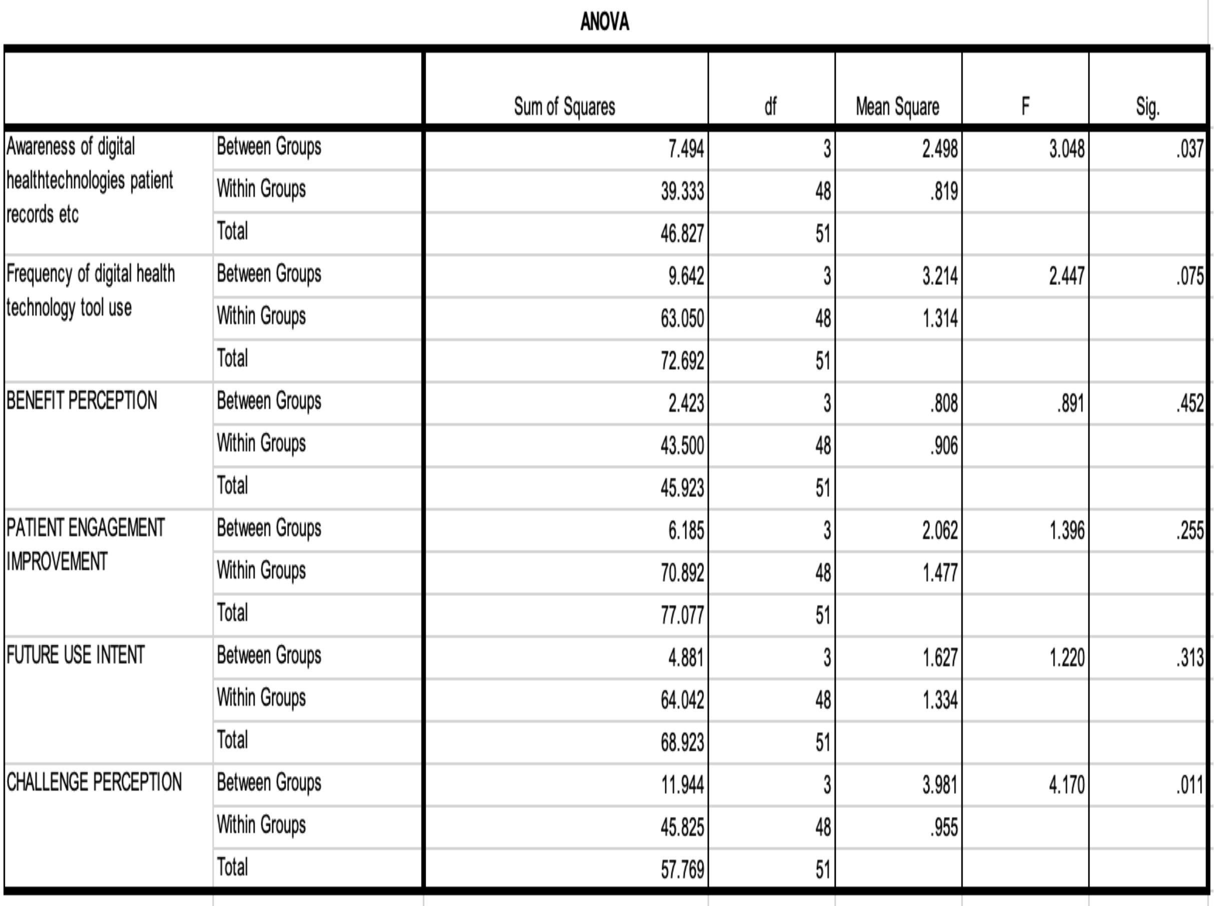


Figure 7- Residence of the Participants.

Out of the total sample, half of the participants are from the suburbs, which shows that suburban people make up the largest population in this research. Again, over 40% of the sample is urban residents; these are individuals who have better access to enhanced healthcare systems and may be inclined towards engaging in health technology applications such as telehealth or health applications. In contrast, only 9.4% of the respondents only live in rural areas where it is quite likely that adoption of such technologies may be out of the question. The distribution of the sample may pose potential regional differences that could affect the generalizability of the study and thereby the contenders' ability to enhance their knowledge of how digital health technologies are perceived and utilized across geographical domains and patient populations about patient involvement and healthcare service delivery system.

Impact of Age (ANOVA)

One-way ANOVA was performed to check whether key variables related to digital health technology mean-variance differs about the category of respondents of different age groups. This approach assesses whether age affects the level of awareness, usage frequency, perceived usefulness, enhanced patient engagement, future use intention and altered perceptions of the use of digital health tools. ANOVA assists in determining the existence of various age differences in these aspects and determines how different age groups use and perceive digital health technologies. The Bonferroni correction ensures that variables are under control to make the results statistically meaningful for the understanding of age differences in Digital Health Technologies.

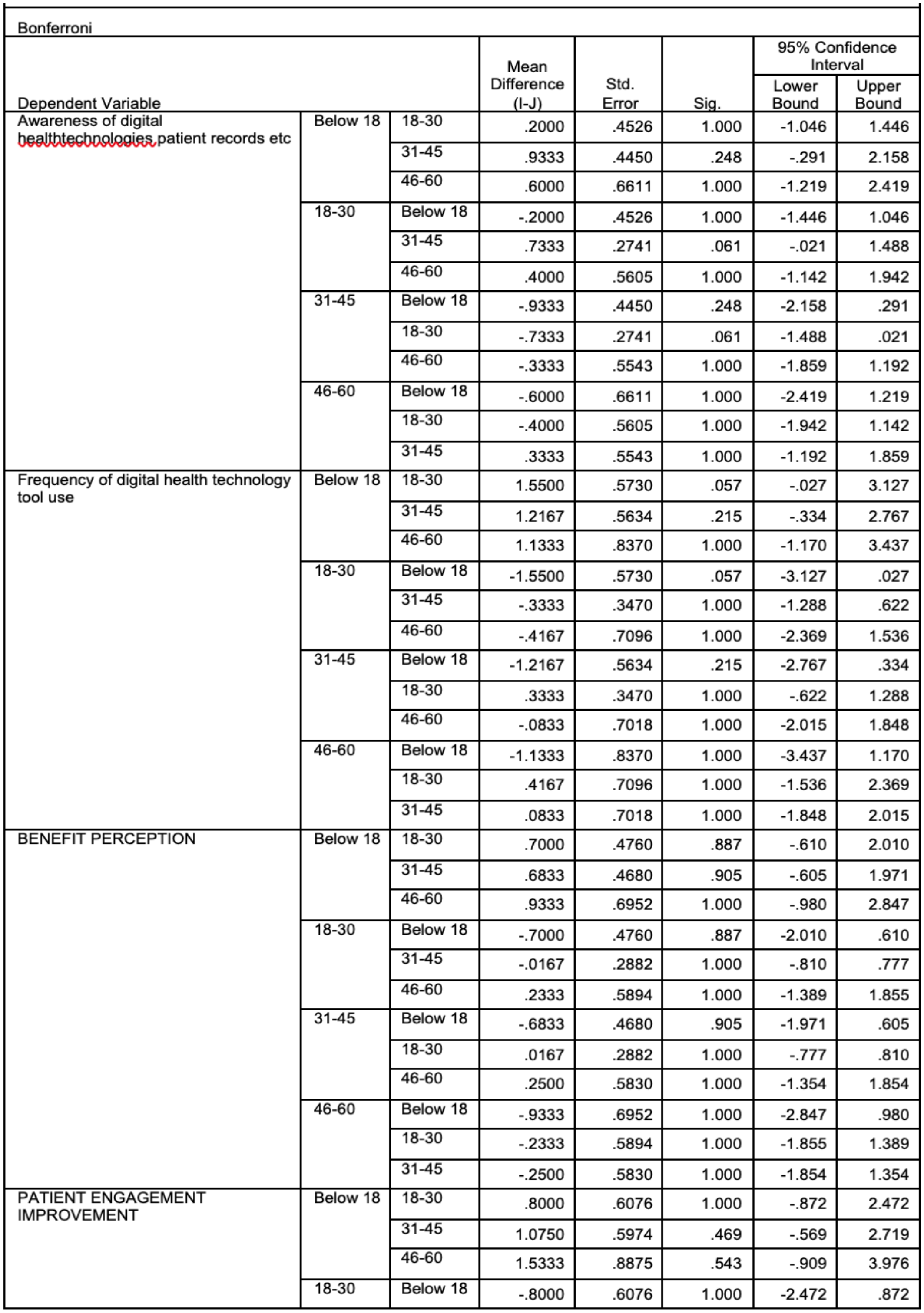


ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
Awareness of digital healthtechnologies patient records etc	Between Groups	7.494	3	2.498	3.048	.037
	Within Groups	39.333	48	.819		
	Total	46.827	51			
Frequency of digital health technology tool use	Between Groups	9.642	3	3.214	2.447	.075
	Within Groups	63.050	48	1.314		
	Total	72.692	51			
BENEFIT PERCEPTION	Between Groups	2.423	3	.808	.891	.452
	Within Groups	43.500	48	.906		
	Total	45.923	51			
PATIENT ENGAGEMENT IMPROVEMENT	Between Groups	6.185	3	2.062	1.396	.255
	Within Groups	70.892	48	1.477		
	Total	77.077	51			
FUTURE USE INTENT	Between Groups	4.881	3	1.627	1.220	.313
	Within Groups	64.042	48	1.334		
	Total	68.923	51			
CHALLENGE PERCEPTION	Between Groups	11.944	3	3.981	4.170	.011
	Within Groups	45.825	48	.955		
	Total	57.769	51			

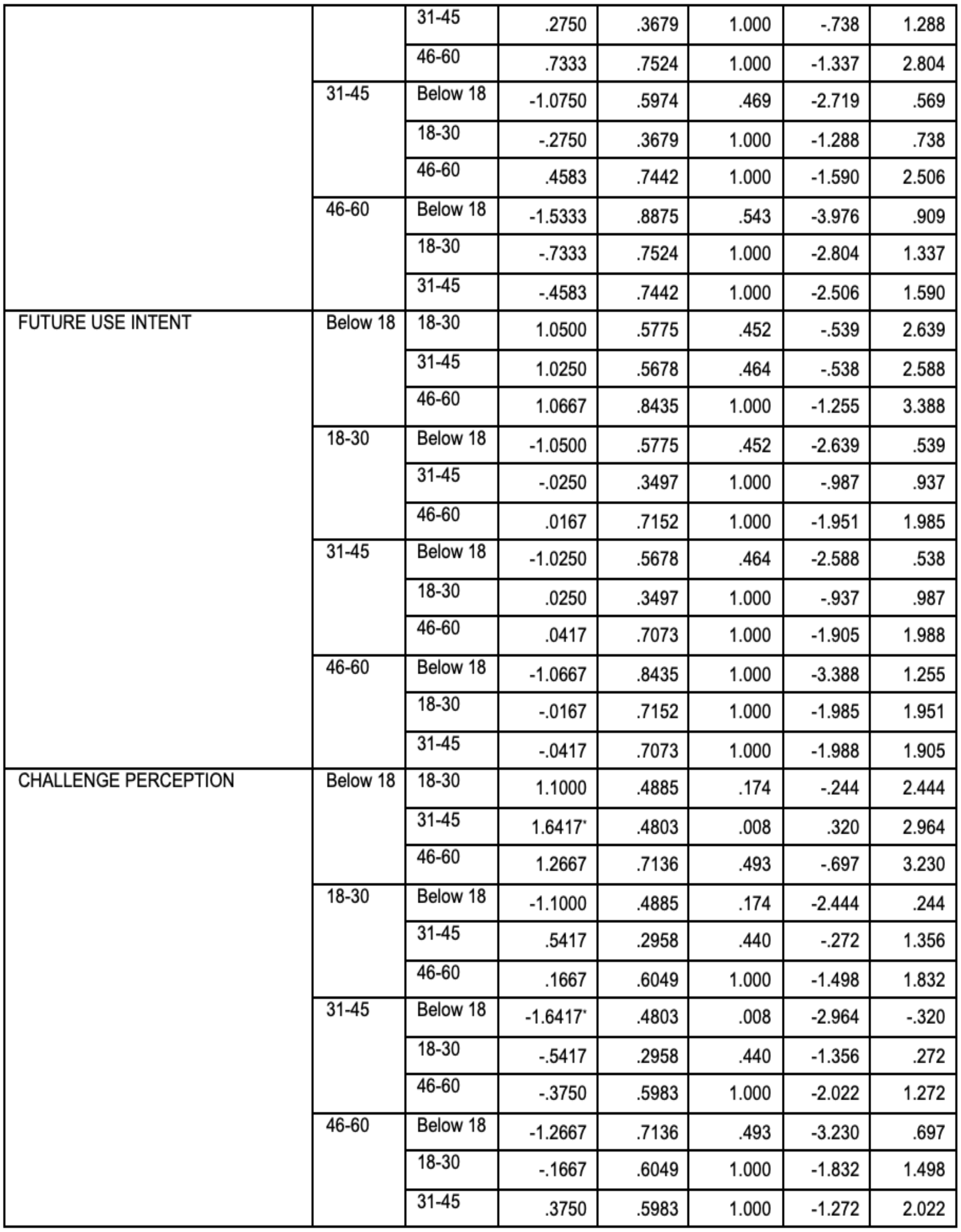
Figure 8 – ANOVA.

The ANOVA test indicates that there are significant differences between the age groups about the usage and perception of digital health technologies. Analysis of collected data presented the presence of significant variations in both awareness of digital health technologies (F = 3. 048, p = 0. 037) and challenge perception (F = 4. 170, p = 0. 011) which means that age affects individuals' preparedness or familiarity with such technologies and the challenges associated with them. In particular, awareness and the level of difficulties could differ between older and younger age groups because of the ways how they interact with digital health technologies. Frequency of using digital health technology tools, F(3, 48) = 2.447, p = 0.075; perception of its benefits, (F= 0.891, p = 0.452); improvement in patient engagement, (F= 1.396, p = 0.255); intention for use in the future, (F=1.220, p = 0.313) did not show any significant age-based variation. These results imply that although the awareness and perceived challenges are age-dependent, frequency of use, perceived benefits, enhancements in patient engagement, and overall future intentions to eHealth technologies use are not so strongly influenced by age.



Bonferroni

Dependent Variable			Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Awareness of digital healthtechnologies,patient records etc	Below 18	18-30	.2000	.4526	1.000	-1.046	1.446
		31-45	.9333	.4450	.248	-.291	2.158
		46-60	.6000	.6611	1.000	-1.219	2.419
	18-30	Below 18	-.2000	.4526	1.000	-1.446	1.046
		31-45	.7333	.2741	.061	-.021	1.488
		46-60	.4000	.5605	1.000	-1.142	1.942
	31-45	Below 18	-.9333	.4450	.248	-2.158	.291
		18-30	-.7333	.2741	.061	-1.488	.021
		46-60	-.3333	.5543	1.000	-1.859	1.192
	46-60	Below 18	-.6000	.6611	1.000	-2.419	1.219
		18-30	-.4000	.5605	1.000	-1.942	1.142
		31-45	.3333	.5543	1.000	-1.192	1.859
Frequency of digital health technology tool use	Below 18	18-30	1.5500	.5730	.057	-.027	3.127
		31-45	1.2167	.5634	.215	-.334	2.767
		46-60	1.1333	.8370	1.000	-1.170	3.437
	18-30	Below 18	-1.5500	.5730	.057	-3.127	.027
		31-45	-.3333	.3470	1.000	-1.288	.622
		46-60	-.4167	.7096	1.000	-2.369	1.536
	31-45	Below 18	-1.2167	.5634	.215	-2.767	.334
		18-30	.3333	.3470	1.000	-.622	1.288
		46-60	-.0833	.7018	1.000	-2.015	1.848
	46-60	Below 18	-1.1333	.8370	1.000	-3.437	1.170
		18-30	.4167	.7096	1.000	-1.536	2.369
		31-45	.0833	.7018	1.000	-1.848	2.015
BENEFIT PERCEPTION	Below 18	18-30	.7000	.4760	.887	-.610	2.010
		31-45	.6833	.4680	.905	-.605	1.971
		46-60	.9333	.6952	1.000	-.980	2.847
	18-30	Below 18	-.7000	.4760	.887	-2.010	.610
		31-45	-.0167	.2882	1.000	-.810	.777
		46-60	.2333	.5894	1.000	-1.389	1.855
	31-45	Below 18	-.6833	.4680	.905	-1.971	.605
		18-30	.0167	.2882	1.000	-.777	.810
		46-60	.2500	.5830	1.000	-1.354	1.854
	46-60	Below 18	-.9333	.6952	1.000	-2.847	.980
		18-30	-.2333	.5894	1.000	-1.855	1.389
		31-45	-.2500	.5830	1.000	-1.854	1.354
PATIENT ENGAGEMENT IMPROVEMENT	Below 18	18-30	.8000	.6076	1.000	-.872	2.472
		31-45	1.0750	.5974	.469	-.569	2.719
		46-60	1.5333	.8875	.543	-.909	3.976
	18-30	Below 18	-.8000	.6076	1.000	-2.472	.872



		31-45	.2750	.3679	1.000	-.738	1.288
		46-60	.7333	.7524	1.000	-1.337	2.804
	31-45	Below 18	-1.0750	.5974	.469	-2.719	.569
		18-30	-.2750	.3679	1.000	-1.288	.738
		46-60	.4583	.7442	1.000	-1.590	2.506
	46-60	Below 18	-1.5333	.8875	.543	-3.976	.909
		18-30	-.7333	.7524	1.000	-2.804	1.337
		31-45	-.4583	.7442	1.000	-2.506	1.590
FUTURE USE INTENT	Below 18	18-30	1.0500	.5775	.452	-.539	2.639
		31-45	1.0250	.5678	.464	-.538	2.588
		46-60	1.0667	.8435	1.000	-1.255	3.388
	18-30	Below 18	-1.0500	.5775	.452	-2.639	.539
		31-45	-.0250	.3497	1.000	-.987	.937
		46-60	.0167	.7152	1.000	-1.951	1.985
	31-45	Below 18	-1.0250	.5678	.464	-2.588	.538
		18-30	.0250	.3497	1.000	-.937	.987
		46-60	.0417	.7073	1.000	-1.905	1.988
	46-60	Below 18	-1.0667	.8435	1.000	-3.388	1.255
		18-30	-.0167	.7152	1.000	-1.985	1.951
		31-45	-.0417	.7073	1.000	-1.988	1.905
CHALLENGE PERCEPTION	Below 18	18-30	1.1000	.4885	.174	-.244	2.444
		31-45	1.6417*	.4803	.008	.320	2.964
		46-60	1.2667	.7136	.493	-.697	3.230
	18-30	Below 18	-1.1000	.4885	.174	-2.444	.244
		31-45	.5417	.2958	.440	-.272	1.356
		46-60	.1667	.6049	1.000	-1.498	1.832
	31-45	Below 18	-1.6417*	.4803	.008	-2.964	-.320
		18-30	-.5417	.2958	.440	-1.356	.272
		46-60	-.3750	.5983	1.000	-2.022	1.272
	46-60	Below 18	-1.2667	.7136	.493	-3.230	.697
		18-30	-.1667	.6049	1.000	-1.832	1.498
		31-45	.3750	.5983	1.000	-1.272	2.022

Figure 9- Post-Hoc Bonferroni.

The study is exploratory with a view of carrying out a post-hoc analysis depending on the results obtained; this analysis provides information on how different age groups view and interact with the technologies in the digital health continuum. In the awareness of digital health technologies, the ‘p’ values above ‘0. 05’ depicted that the mean differences in each age group were also insignificant. However, challenge perception presented a remarkable difference between the 31-45 age group and the below-18 group with a mean difference of ‘1. 6417’ (P = 0. 008). This would imply that middle-aged people consider more challenges than younger people, which could be due to the expectations of middle-aged people or other age groups concerning digital health technologies.

Regarding the overall usage, the frequency of the digital health technology tool demonstrated that there is no variation in the usage across the different age groups because the p-values revealed are non-significant. Likewise, there were no significant differences across the age factor whereby benefit perception, patient engagement improvement and future use intent were all virtually equal. This means that although there may be variations when it comes to awareness and perceived challenges, concerning the use frequency, perceived usefulness, and the probability of using digital health technologies within the upcoming weeks the outcome is almost the same across different ages.

Table 1: Secondary Data Analysis.

Themes	Key Findings	Critical Discussion	Evidence Base
Issues with Electronic Health Records (EHRs)	The implementation of Electronic Health Records (EHRs) enables coordination among healthcare providers, improves data accessibility, and reduces duplication of efforts as well as medical efforts.	Though the implementation of Electronic Health Records (EHRs) is central to digital tools implementation and modernization of healthcare, interoperability and data security issues pose significant threats.	Adeniyi et al. (2024); Carter et al. (2022); Aldhafiri et al. (2024) Oufkir & Oufkir, (2023)
Telemedicine	Telemedicine increases access to healthcare services by reducing travel costs, and inconvenience of travel for remote patients and enables patients to access services even during travel restrictions (like in the context of COVID-19)	While telemedicine has improved patient engagement through improved access to services, issues about the quality of care, equity of access and digital literacy remain.	Gillie, Ali, Vadlamuri & Carstarphen (2022); Shaw, Brewer & Veinot (2021); Chang et al. (2021) Anawade et al., (2024)
Patient Portals and Health Apps	Patients can receive instant care through guidelines and online tests available on NHS-approved portals and apps.	NHS-approved apps and portals can improve patient engagement and outcomes though can create trust issues due to data privacy issues.	Mata-Cervantes, Clay & Baxter (2017); Kuntzman, Miyake & Martin (2019) Kc et al., (2023)
Barriers to Digital Health Adoption	Barriers to digital implementation include increased costs, digital literacy issues among patient demographics etc.	Overcoming these barriers will require policy support, more investment in digital infrastructure, centralized and coordinated digital systems etc.	Knitza et al. (2020); Lyles et al. (2020)

Issues with Electronic Health Records (EHRs)

EHRs have become one of the major ways through which UK healthcare is delivered today, while at the same time bringing about some difficulties. One major challenge is data compartmentalization, where several types of EHR systems cannot support the sharing of the patient's Health IT data across the various health care providers or organizations resulting in a disjointed continuum of care, which includes duplicate testing. This can be risky to the patient since the healthcare providers may not have necessary data on the patient at time. The first one is connected with the issues of data protection (Adeniyi et al. 2024). Based on the results of the study, EHRs contain patients' personal data, which can be easily targeted by hackers. They result in cases of unauthorized access to patient information as well as tampering of medical data. Meaningful use also presents other issues; the providers also get fatigued and burnt out because of the increased paperwork required by EHR. The complexity of the interfaces that must be managed and the continuous need for record update reduces the time spent on actual patient care (Carter et al. 2022). Also, due to variation in these systems, the integration of genomic data and other innovative technologies in the healthcare sector becomes challenging. Finally, the resistance to adoption is quite prevalent among healthcare providers, especially the elderly workers. These include perceived disruption of workflows and absence of technical skills about EHR systems that slow down their implementation. As a way of dealing with these challenges it is necessary to enhance the interfaces between the systems, enhance security of the systems, as well as provide sufficient training and support to the healthcare providers in order to realize the full potential of EHRs in enhancing the quality of the services offered to patients.

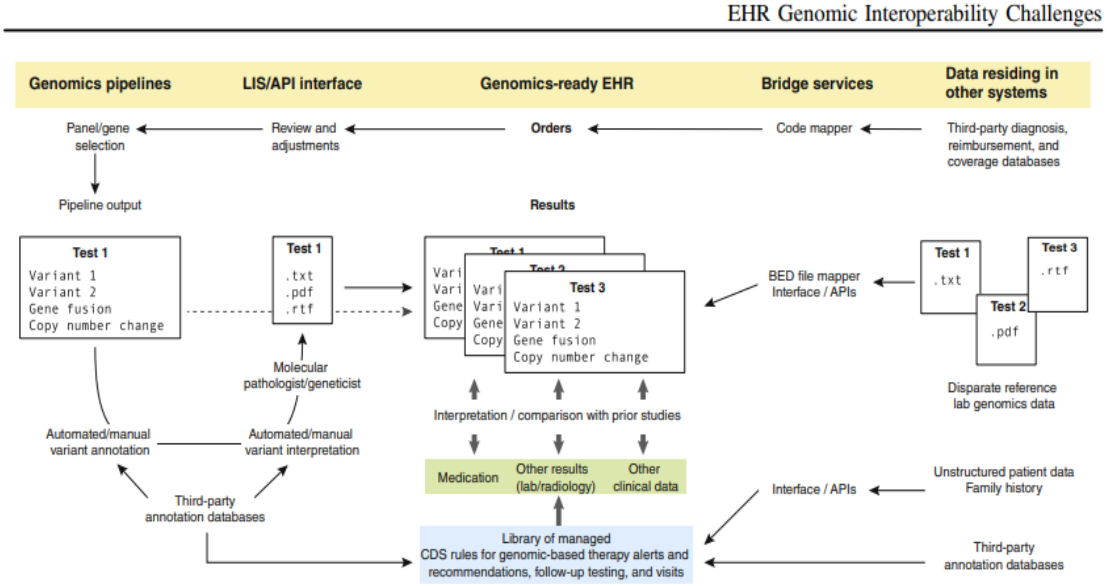


Figure 10 – Data Transfer process. Source: (Aldhafiri et al. 2024).

Telemedicine

Telemedicine has become the new phenomenon in healthcare delivery made even more relevant during the COVID-19 pandemic which eliminated physical face to face consultations with the physician. This approach tends to enhance access to patient care especially for those in rural or developing areas while on the other hand it helps the hospitals to organize their volumes of patients. (Phuong et al., 2023) Using video conferencing and other virtual means of communication, the telemedicine assists in checkup on chronic conditions and treatment of emergent cases from a distance (Gillie, Ali, Vadlamuri & Carstarphen 2022). Telemedicine has remained a veritable tool in the delivery of healthcare because it has enhanced access to healthcare and improved health status especially of patients located in the rural or developing world. By offering video consultations, remote monitoring, and health applications, telemedicine allows patients to stay with their physicians without actually visiting their clinics and hospitals that results in less time loss in diagnosis and treatment. This has become important in dealing with chronic and mental health illness and other routine health problems which are neglected because of geographical or physical barriers (Shaw, Brewer & Veinot 2021). Telemedicine also leads to improved patients' involvement and compliance with their needed treatment regiments. Vital parameters and symptoms are continuously recorded using remote monitoring equipment so that health care practitioners are in a position to apply the necessary adjustments according to the situation (Anawade et al., 2024). The population is more in control of treating illnesses, and the gadgets make it easier to remind them when to take their drugs, when to check in with a doctor, and general health tips. Besides, they save the cost of using a lot of health resources through decreased frequency of hospitalizations, transport costs, and clinic rentals. It also has the benefit of relieving some of the burden from hospitals, and sources which should address more serious concerns. During war-like situations or pandemics, telemedicine offers the convenience of seeking consultation from the doctor without having to go through the channel of interacting with humans, which are a threat to the doctors, nurses and the patients. Nevertheless, some of the limitations which should be discussed are technological difficulties, digital ethos, and data protection problems to provide equal access to a telemedicine solution (Chang et al. 2021). However, it can be seen that the revolution in the telemedicine system integration in the mainstream healthcare system has latent to revolutionize the patient prognosis and eradicating disparities and inefficiency in the existing healthcare model.

Telemedicine is one of the most breakthrough innovations in healthcare systems that helps to overcome barriers between a patient and a doctor. In its implementation, it solves several problems faced in the conventional health care systems including geographical restraints and lack of access to specialists. It can also help those who have transportation issues or those who live in remote areas to receive consultations from experts without travelling far and hence save time as well as energy.

This technology also enables one to be more proactive concerning the state of his or her health. To this end, patients can use telemedicine applications to make appointments, review their medical data, and obtain guidance and encouragement at the right time. Such constant availability of care promotes early treatment which can eliminate severe health risks and enhance the general well-being of their patients (Chang et al. 2021). Moreover, telemedicine enshrines the principle of personalized and flexible approach to treatment options. It also means that the providers can have centralized and optimum control of the care plans, which makes it easier to enhance patient satisfaction and engagement.

Patient Portals and Health Apps

Modern health care could not function without patient portals and health apps as these bring many benefits that improve the quality of the programs. Together with the help of social media these patients have constant access to their own medical records, test results, as well as treatment plans. Through direct communication with the healthcare providers, patient portals enhance medical care efficiency, lessen the time taken before a patient is attended by the relevant medical practitioner and enhanced convenience for both the patients and the providers. There are smart health apps which involve features like medication alarm, appointment calendar, and telemonitoring that are helpful mostly for chronic diseases. About GDPR, NHS Digital has been busy working on its Apps Library with accurate applications selected for patients and the public to utilize in order to increase their health literacy (Mata-Cervantes, Clay & Baxter 2017). To help organizations direct people to these apps, The Library provides an 'NHS badge' that if an app has been through the vetting process, then either it is marked as 'NHS Approved' or 'Currently being Used and Tested in the NHS'. However, the fact is that the NHS badge is not so clear cut, as it can be seen that placing an app in the library does not necessarily mean the app has already been endorsed by the NHS (Kc et al., 2023). The library available contains choices that only partially approve it; likewise, the safety in the verification process is partially inclusive of data safety (Mata-Cervantes, Clay & Baxter 2017). Terms and conditions used by health apps show that the legal and social environment of the health apps is multi-layered and contradictory in nature. To analyse data usage within app context, a toolkit focuses on data acquisition and sharing through permissions' request and trackers. Permissions are said to help safeguard an individual's data where the user handles an application on his/her smartphone. The two protection levels are 'normal' and 'dangerous'. 'Simple' permissions represent areas where an app has to read data or resources beyond the app itself, while 'complex' or 'destructive' permissions are the ones that need the user's personal information or require phone functions (Kuntsman, Miyake & Martin 2019). These permissions can be malicious or exploitable and for this reason, the user + their data is at its most vulnerable state. Evaluation of the selected apps shows that irrespective of the well-articulated and rigorous app privacy policies, the apps demand more unrelated information other than the main purpose beyond the essentials, thus infringing on the user's rights, human rights, and GDPR laws.

Barriers to Digital Health Adoption

Rheumatic and musculoskeletal diseases patients are receptive to mHealth technologies because of structured electronic data acquisition. (Mas et al., 2023) Patients prefer questionnaires, video calls and electronic doctor's letters for better clinical experience and less time consumption. But some patients have a desire for tangible touch and issues related to data storage and their transfer. It showed that there ought to be a structured approach to mHealth information and that it should be detailed to be subsequently tailored to patients' needs. The feature utilities of the App are the provision of information on medication and rheumatology (Knitza et al. 2020). Thus, the study recommends that rheumatologists and societies professionally own and oversee mHealth in rheumatology for the appropriate and accurate medical information. Consequently, it can be implied that sharing mHealth data with a big research registry could bring the enhancement of treatments and rheumatology studies. There are a number of challenges that affect the use of digital health which reduces the possibility of evolving the health system in the UK. That is, a major challenge may be the lack of adequate digital literacy level among both the practitioners and the consumers in the healthcare industry. It has been identified that in the UK most of the users are not skilled enough to properly take advantage of the technology leading to minimal utilization or even improper utilization.

Another reason is privacy and data management and security where the information involves certain details of health, and this is a huge risk that has to be considered. Incidents and more so, misuse of the data compromise trust in the digital platforms. (Mumtaz et al., 2023) There are also mandatory requirements that make adoption implementation complicated by the fact that the requirements vary across countries hence making it hard to reach agreement on best practices. This is especially demanding where the policies regarding sharing of data are not constant, especially in the provision of healthcare services across borders. Furthermore, the availability is also restricted because of financial issues, especially in the developing countries (Lyles et al. 2020). Some of the healthcare systems may still be rudimentary to accommodate for massive digital health delivery while patients might not be able to afford devices or internet connection for some of these services (Ahmed et al., 2023). Another important factor consists in the reluctance of health care professionals to switch to innovative approaches that they might find more convenient to stick to the traditional models (Milella et al., 2021). Clinicians can be suspicious of technologies in practice, or they may think that introduction of technology can destabilize existing clinical patterns (Jones et al., 2021). Last but not least, the ethical issues related to artificial intelligence and algorithm-based approaches also affect this category: diagnostic decision and patients' privacy (Mennella et al., 2024).

There are several factors that pose challenges and hinder digital health from being effective and to easily fit in the existing systems. Cultural resistance is a major factor; patient, and providers may resist new technologies due to lack of familiarity, or they deem the technology challenging (Mumtaz et al., 2023). Lack of interoperability among various digital health systems also poses a great threat to integration resulting in disparate patient information and coordinated care (Mumtaz et al., 2023). This is made worse by the high implementation costs as technology, training as well as maintenance costs are often very high for organizations, especially in the early stages of implementing the technology (Knitza et al. 2020). There are several validation questions whenever emerging digital health equipment that has not been proven efficient are brought forward, so stakeholders are often cautious (Guo et al., 2020). On the same note, ethical and equity considerations with regards to technology use and access, raise concern over inequalities that may arise from unequal access to the said technology and may in fact widen existing disparities in health access (Zarif, 2021). In order to avoid the derailment of the goals of these digital health innovations and improve the delivery of healthcare services it is essential to address these barriers (Mumtaz et al., 2023).

Discussion of Findings

The pilot study therefore reinforces the generally positive impact of digital health technologies on patients in terms of their engagement and outcomes. Whereas awareness and usage vary across geographical locations and age, with suburban residents having higher awareness of use compared to their rural counterparts, younger people face fewer challenges. Perceptions of benefits and intentions for future use are, however, consistently favorable across all these variations.

The above-discussed findings are also supported by literature that offers meaning to the pilot study and a background against which to compare the findings. In Bol et al.'s (2018) study where they explore mHealth app usage across the various users' characteristics, the authors unveil that the younger, more educated user is a regular user of mHealth and those with high e-health literacy. This corresponds well with what was observed in the pilot study where participants who reported fewer difficulties were young people, and in general, the young participants were more active online. Bol et al.'s differentiation in usage patterns based on demographic factors also supports the pilot study finding of the variation of awareness and usage by age and place.

Moreover, Bol et al. (2018) also note that depending on the population, they use certain kinds of health applications because of their peculiarities and worries. This is in line with the pilot study findings of geographical and age variation when it comes to the utilization of digital health technologies, arguing that there is a need for a new approach to cater for the different needs and challenges of adopting technology.

Győrffy et al. (2023) build the following insights regarding the discussed parameters: the usage of digital health technologies is gradually rising among older adults, but these consumers use these technologies less frequently than young people. This can be in line with the pilot study which established that young people are more inclined to the use of such technologies. The pattern of the observed delay in the response of the older adults corresponds to the overall picture revealed in the pilot part of the research.

Giebel et al. (2023) explains the barriers in the use of mHealth apps by conducting a scoping review to establish problems like usability of mHealth apps, adherence to the prescription of the apps and technological issues in mHealth apps. This is in line with the pilot study which revealed that difficulties perceived are noticed to be associated with demographic characteristics. Four of the barriers mentioned by Giebel et al., are usability of technology and how it can be incorporated into daily lives, asserts the existing issues of rural and older people, supporting the notion that available solutions should be adapted to address specific issues that hinder adoption.

Stilgoe et al. (2020) examine demographic profile of the health station consumers then as the data indicated, people in the working age, middle-Upper SES, and dominant ethnic group, and those less based in the rural areas were more likely to avail the health station services. This correlates with the pilot study's finding about the place of residence that a resident of the suburb who probably has better access to digital health technologies records a higher usage compared to an equal aged rural resident. It has to be noted that the demographic discrepancies described by Flitcroft et al., correlate with the differences in knowledge and service adoption in the pilot study.

Patel et al. (2022) explores the use of social determinants for the use of digital health tools and identified usage correlates with activities including socio-economic status, residency in the urban areas, and interacting with the healthcare system. This was in line with the pilot study, which found that demographic factors do affect adoption behavior. By focusing on the social determinants employed by Patel et al., the pilot study again brings up the point that, though the effectiveness of digital health technologies is on balance positive, the adoption issue can be different for different people.

Consequently, the results of the pilot study indeed corroborate with literature which puts forth that there are various and interrelated demographic factors which have a direct relationship with the usage of digital health technology. These findings are supported by prior research that reveals the variation of awareness, utilization, and barriers of mHealth technologies by age and geographical area on patients by demonstrating the constant benefit to patient experiences and engagement with this innovation. This information supports the views on how different approaches should be applied to streamline barriers that affect the various populations in the use of digital health technologies

Conclusion

Therefore, it can be concluded that patient-centered information and communication technology enhances the health industry through improving the patient's experiences and health results. Such tools as electronic health records, telemedicine, and health applications have improved accessibility, personalization, and the possibility of remote service with systems like NHS Digital. These innovations enable the patient to engage in the management of his or her own health and also offloading facilities and increasing operational capacity. But there are quite many barriers that digital health technologies enrolment encounters, for instance, integration, data protection, and digital inequality. According to the findings in this report, geographical and demographic characteristics affect awareness and the uptake of digital health tools and in the current study, the barriers to the use of digital health tools for rural and elderly population are higher than for the urban and the young population. However, technologies such as telemedicine provide the solutions for the delivery of healthcare for people with limited physical mobility but issues of equality, quality of care, understanding of digital technologies and right to privacy prevalence of these technologies for patients have not yet been fully solved. The conclusion derived from this research supports the idea that these were issues that needed to be addressed to optimize on the advantages of digital health. Further advancements should therefore lie in developmental key areas such as infrastructure development as well as the creation of compatibility or interfaces between various systems to increase the adoption of EHMRs by enhancing safety of patient data. These enhancements offer digital health technologies the possibility of enhancing the healthcare delivery and patients' consequences in varied populations.

Key Recommendations

Main Findings of the Study Concerning Innovation, Change or Value

Enhanced Patient Engagement through Digital Tools: The adoption of EHRs, telemedicine solutions and health applications increase the patient engagement in the healthcare process dramatically. These technologies make patients' records and data available to them and allow them to manage their diseases and have virtual consultation to enhance their engagement in their healthcare processes.

Operational Efficiency and Cost-Reduction: E-Health technologies apply to the structures of the healthcare organisations focused on the likes of NHS to improve efficiency and cut costs and time on administration among others. For example, tele-rehabilitation and tele-diagnosis lessens the necessity of physically going to a hospital and in so doing, takes the burden off important healthcare facilities and personnel.

Improved Quality of Care: With the help of what has been said above, the use of digital tools enhances effective and timely delivery of decisions by the healthcare providers based on real-time data collection and analysis. For instance, Electronic Health Records facilitate the exchange of patient information among different caregivers and hence reduces adverse health events.

Addressing Health Inequities: This dearth of knowledge was identified by the study where although it was discovered that the use of help in the elimination of geographical accessibility gaps thus improving health literacy, the reality in MH&A is not a true representation of this reality in rural areas. Telemedicine and other telecommunication technologies can play a significant role in solving this problem and providing adequate care for patients from remote areas.

Relevance of the Research

Patient-Centred Care

NHS has a vision of patient-centered care, meaning that people need to receive high-quality medical services, which improve their health status and their satisfaction. The study highlighted the examined digital tools, to include patient portals, telemedicine, and health apps, which enable patients to be more engaged in healthcare decisions, which is consistent with the NHS's goal to serve as the patient-centered healthcare system.

Efficiency and Resource Optimization

The other pressure currently being felt by the NHS is the need to operate with lower costs of operation while delivering quality care. Several of the results discussed in the study regard possibilities of telemedicine and other digital health technologies to cut costs which the NHS can use to lighten the load.

Health Equity

The NHS's goal is to offer citizens of the United Kingdom equal rights to health care. Telemedicine being one of the digital health technologies has possibilities of dealing with the unequal distribution of healthcare services between the urban and the rural areas. This is especially relevant for the NHS since it is a large organization catering to clients of different origins distributed across the four nations of the United Kingdom.

Recommendation

Expand Telemedicine Services

Telemedicine has been established to be one of the most prominent and useful forms of digital health that has facilitated enhancement of access to care mainly in such areas that are under-served, for instance rural regions. It helps a patient to seek medical advice from a doctor without having to go through the tiresome process of having to travel all the way to the doctor's office. The NHS should increase telecommunication services' availability in all these areas with special emphasis on regions that are rural and unprofitable. Leveraging information technology on telemedicine such as secure video conferencing, and other remote monitoring equipment. Educating patients, physicians and other caregivers on embracing the new change of embracing telemedicine approaches. For the groups mentioned for the provision of better telemedicine services subsidies or incentives to encourage the low-income patients for availing the proper services of the telemedicine as well as internet connection support and inexpensive apparatus.

The need for expanding telemedicine services is due to the fact that offering more and more care through telemedicine delivery models means that the NHS can improve access to and decrease the disparities within the healthcare system, while lessening overall pressures on physical healthcare buildings, which in turn will lead to better patient outcomes and operational functionality for the healthcare system.

Optimise the Interoperation and Security of Data

One of the greatest challenges of using EHRs and other related genres is the problem of compatibility of various types of healthcare systems and applications. Fourth, there is always a concern of data insecurity given that patients as well as healthcare providers may be reluctant to share large amounts of information given the possibility of hackers stealing the information. Engage with the technology suppliers to guarantee that the ACO digital health systems are interoperable to enable convergence of the patients' data between the different providers and geographic location. (Hodapp & Hanelt, 2022) Adhere to high privacy measures include using encryption of data at the end of the transmission line and the use of authentication methods on patients' information. Create a healthy data sharing environment which includes EHRs, telemedicine data, patient portals for all care providers involved in treating a patient whether it is an in-person visit, telehealth visit, online self-scheduling or video visit. The increased communication, data security and exchange will thus increase the effectiveness of healthcare, reduce recurrent incidences of medical negatives and boost the confidence of patients in the ever-improving use of digital health technologies, thereby increasing the use of the same and improving the health of patients.

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Appendix

Supplementary Documents:

Survey Form NHS.pdf

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The impact of Private Healthcare on the adoption of Value-Based Healthcare Principles

SIMON RATNAKAR KUNCHE

Patients Relations Executive Coordinator, India

Email: simon.cool51@gmail.com

Abstract:

Background: Value-based care is becoming increasingly popular around the world because of rising healthcare costs. The project's goal is to investigate how the adoption of value-based healthcare principles is affected by the private healthcare sector. The study looks at the data limitations, incentive providers, insurance structure, and other potential barriers that could prevent the private healthcare sector from implementing value-based care concepts. The report uses data from five journal articles that are relevant to the research topic. These data are used by the research to generate themes that are aligned with the research topic.

Findings: The findings show that healthcare organizations are significantly changed by value-based healthcare principles. Additionally, it has noted that the operation of hospitals is significantly improved by the application of value-based healthcare principles. The findings also show that implementing value-based healthcare concepts contributes to the long-term progress of healthcare systems.

Conclusion: The project's stated goal is to investigate how value-based healthcare principles affect private healthcare systems. Additionally, it has included the goals associated with this objective, which include appreciating the importance of value-based healthcare principles. Analyzing how the application of value-based healthcare principles affects private healthcare was another goal. Given that the project is a conceptual investigation of the systematic dynamics between value-based care and private healthcare systems, the project structure is also discussed. The project's importance and worth are also highlighted in relation to the organization.

Keywords: Value-based care, Job Satisfaction, Transparency, Accountability.

List of Tables and Figures

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Introduction

The increasing tide of healthcare expenses has involved a global movement towards value-based care. This tide is considered to prioritize the outcomes of the patient and care quality over the simple quantity of services made to the patients. The promises of value-based care are considered undeniable, but its implementation in the systems of private healthcare is seen to present fascinating challenges. The essay includes real-time examples of the private healthcare industry in India adopting value-based healthcare principles. The essay is divided into some segments like an introduction having the purpose of the research which is followed by a section saying the requirements of the project. After this, a section of the literature review is provided with the findings section followed by a conclusion and recommendation relevant to the research.

Research Aim and Purpose

Aim

The project aims to explore the effects of the private healthcare system on the adoption of value-based healthcare principles.

The purpose of this report is to evaluate the complicated association between private healthcare systems and the implementation of value-based care. The report examines the potential roadblocks that exist within the private healthcare system that can restrict the adoption of value-based care principles, which include data limitations, incentive providers and insurance structure.

Research Objectives

- **RO1:** To understand how private healthcare implements value-based healthcare principles.
- **RO2:** To analyze how private healthcare is affected by the implementation of value-based healthcare principles.
- **RO3:** To figure out the extent to which private healthcare organizations are influenced by value-based healthcare principles.

Research Questions

RQ1: What is the relevance of value-based healthcare principles?

RQ2: What is the effect of implementing value-based healthcare principles on the management of private healthcare?

RQ3: What methods must be used to understand the effect of value-based healthcare principles to the management of private healthcare?

The intersection of private healthcare and value-based care (VBC) is the primary focus of this project. It does not break down a particular program or drive, but instead the more extensive fundamental elements such as “a clear, shared vision with the patient at the center; leadership and professionalism of health care workers; a robust IT infrastructure; broad access to care; and payment models that reward quality improvement over volume” (Smith, Blanchard & Vuernick, 2020). The report examines how adopting VBC principles, which emphasize patient outcomes over service volume, is influenced by the inherent characteristics of private healthcare, such as profit motives and flexible structures.

Limitations

I am confined to using the available information to conduct the project since data on healthcare, especially about the UK healthcare system. Moreover, I am confined to using the available metrics to conduct this research due to the lack of standardized metrics to measure the healthcare quality and outcomes which made it difficult to compare the performance across the systems and providers.

Research Structure

The project will initially introduce the concept of value-based healthcare and its implications for private healthcare. The inherent features of private healthcare will also be discussed in this project which includes the adoption of VBHC principles to create a considerable number of opportunities and challenges that are related to the adoption of these principles. The report will also examine and evaluate the challenges and opportunities faced by the private healthcare systems in the Indian context while adopting value-based healthcare principles. It will provide case studies and examples. The report will also evaluate the positive as well as negative impacts of adopting value-based health care principles in the private healthcare context. The report will also provide few recommendations to adopt these principles effectively drawing from the analysis. The project will include a section introducing the research topic followed by a section that finds the requirements of the project. Then the project involves the main analysis discussing the literature related to the topic and the main findings of the studies. This is followed by a section of conclusion that provides a summary of the significant points that are covered in the report and the implications involved in the research.

Identification of Project Requirements

The idea reflects the overall concept of the interdisciplinary report rather than a specific program or large-scale initiative based on integrating the private healthcare sector and VBC. It looks at how the inherent features of private medical care like benefit cognitional considerations and flexibilities influence the acceptance of VBC standards that tend to focus on patient outcomes more than on help quantity (Sibbald et al., 2021). The investigation is based on the relations between the principles of value-based care and private healthcare.

Relevance and value of the task to the organisation

The global percentage of total healthcare expenditure is increasing because of which transition toward value-based care is also seen to improve. This means that service provision does not dominate the process, but instead, patients' immediate health status and later developments are given high priority. At the same time, quite different challenges are at the heart of VBC integration into private healthcare systems, which becomes an issue on its own (Abdelfadil et al., 2023). Where VBC is centered on improved efficiency and minimization of costs, there appears to be a clear contradiction with what is offered in private healthcare settings, which are, at times, intricately linked with profit-making intent. VBC adoption might be hindered by insurance paradigms that are still driven by the unit counts rather than their value and providers' reward mechanisms based on completed procedures (Song et al., 2020). It can also be difficult to follow patients' progress and evaluate the success of a program under a VBC model, as the data is distributed across private systems.

In addition, there may be chances that private healthcare supports VBC. VBC is a flexible, efficient and innovative care model but is not limited to preventative care and patient engagement programs (Lindner & Lorenzoni, 2023). Moreover, from the nature of various strategies, it can be deduced that although VBC has high qualifications, this direction corresponds to the client-oriented goals of private systems. The precise activity for discussion in this research is to situate the impact that private healthcare has on the implementation of key VBC benchmarks (Silveira Bianchim et al., 2023). The organisation can find out the strategies for overcoming the challenges to harness the opportunities of implementing VBC into private health systems through the analysis of the issues and opportunities of this integration (Ismail, Materwala & Hennebelle, 2021).

Research Methods

The analysis of the list of valuable research philosophies for the topic, it can be said that the concept of value-based care (VBC) in the sphere of private healthcare is best compatible with the "positivism research philosophy". Positivism stresses the importance of measuring things and variables. Because success relies on such parameters as cost efficiency, patient outcomes, and quality of care, it is crucial when assessing VBC's outcomes (Sawatzky-Girling, 2020). It can minimize the issues of subjectivity and assumptions that can be seen in more qualitative research since the study can reveal the picture of how VBC was affected by private healthcare based on easily quantifiable factors. The positivism research aims at finding affirmatives that are generalizable across the population (Nyein et al., 2020). This is because understanding the impact of private healthcare initiatives regarding VBC adaptation will be useful in the broader framework of healthcare policy and strategy.

Since the aim of understanding the effects of private healthcare realignment towards the implementation of a value-based care approach is to evaluate propositions based on established theories, a deductive research method is applicable in this case (Varpio et al., 2020). This fits well with this review, given that there are already proposed hypotheses and theories, particularly on VBC standards and their sustainability. Applying such theories aids the project in making assumptions on how systems of private or personal healthcare could motivate or dissuade VBC usage (Dowsett, Green & Harty, 2022). The deductive type of research has the primary assumption of including or expanding the ability that already exists about the given situation of the studies. This is vital because there may be research on the efficacy of VBC that is a growing area in the healthcare industry (Saunders, Lewis, & Thornhill, 2019). As a result, a deductive technique to the topic can be used within the observation to recognize how VBC's capabilities are within the context of personal healthcare corporations.

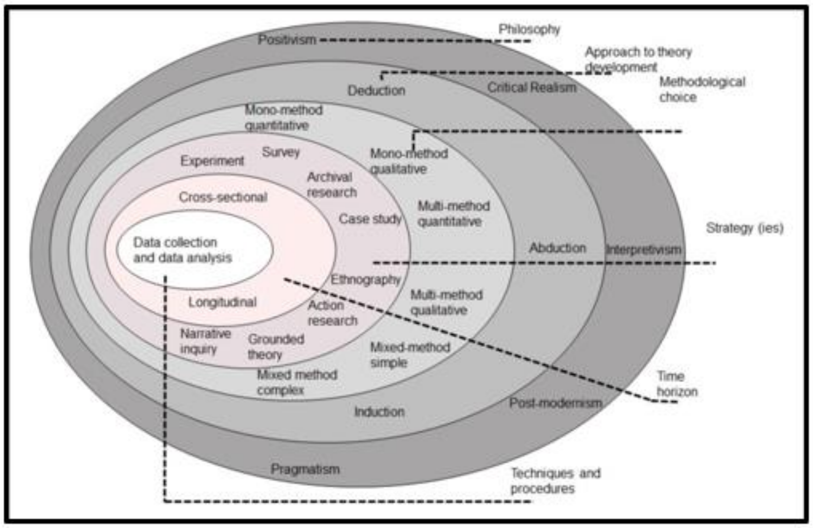


Figure 1: Research Onion. (Source: Saunders, Lewis & Thornhill, 2019)

For focusing on the effect of private healthcare systems at the reception of sizeable price-based care (VBC) standards, an "explanatory research design" is a huge strength (Mttus et al., 2020). Explanatory research aims help to explain the research topic and describe the modern state of VBHC. This is entirely objective of the evaluation, which is to parent out how the characteristics of personal scientific offerings frameworks affects the reception of VBC requirements. The investigation of factors' causal relationships is taken into consideration in this exam layout. This example can look at how factors inside non-public healthcare frameworks, which include safety designs or dealer motivations, prevent or facilitate VBC adoption (Turner, 2023). Informative examination exists to make and look at hypotheses. Through statistics series and analysis, those hypotheses may be shown or disproved, revealing the impact of private healthcare on VBC.

The "secondary records series approach" is an idea to be useful for collecting statistics on the impact that personal fitness care systems have on the utility of value-based total principles in health care. According to Baig et al. (2002), the secondary statistics collection method is less costly and broadly said too characteristic extra fast. This is because this approach uses records that are already assessed and come from truthful sources. It is also much less pricey than accumulating number-one records for studies. Additionally, secondary statistics are favored for this study because of their abundance and ability to cover a broad range of personal healthcare systems (Rathinam et al., 2021).

Because of this, it is practical to look at regularities and modifications that are normal of larger and greater considerable populations, which may additionally provide popular conclusions. Peer-reviewed magazine articles, government files, business and economics textbooks and magazines, and newspaper articles offer statistics on the impact of personal healthcare systems at the adoption of cost-primarily based principles (Ramos et al., 2021). The research proposed to use three peer-reviewed journal articles associated with the given study's subject and include crucial statistics for the research.

The information retrieved from those journals is then subjected to qualitative thematic information analysis due to the fact this technique of data analysis is bendy (Saah, Mbohwa & Madonsela, 2024). The codes are pointed out to be proper to the benchmark of values of healthcare principles and how these affect the private healthcare systems. These codes aid in the search for the categories that are of most focus and are further subjected to analysis in the research to arrive at results for the study (O'Connor & Joffe, 2020)

Main Analysis

Literature Review

Value-Based Healthcare (VBHC) Theory

The Value-Based Healthcare (VBHC) theory explains how private healthcare systems can translate principles that underscore patient outcomes and cost-efficiency meaningfully for implementation (Wallace & Wray, 2016). VBHC's goal is therefore to provide the highest value to patients through the best health outcomes and at the least amount of cost. In several key aspects, this theory aligns with the fact that private healthcare affects the implementation of VBHC principles (Krohwinkel et al., 2021).

Patient-Centered Care

Therefore, competition and consumer choice have effectively prepared the private healthcare system to incorporate patient care models. According to Zanotto et al. (2021), VBHC emphasizes prescribing treatments to match patients' needs and satisfy the satisfaction of the patients, coordinated with the marketoriented goals of private healthcare service providers to attract customers by delivering popular experiences.

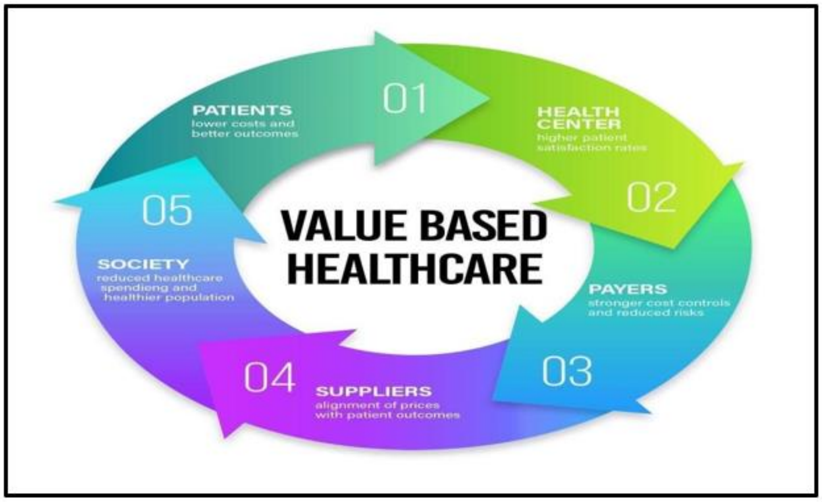


Figure 2: Value-Based Healthcare (VBHC) Theory. (Source: etkho.com, 2023)

Outcome Measurement

One of the core factors of VBHC is the frequent assessment and analysis of outcomes in patients. To track their performance, private healthcare providers are most probably going to develop impressive data analysis and reporting systems out of competition forces (Moro Visconti & Morea, 2020). Consequently, best practices are found, quality is increased, and worth is shown to patients and payers when the focus is on the specified behaviors (Franco Miguel et al., 2020).

Cost Management

In this respect, VBHC standards attach significance to reducing the unnecessary use of healthcare services as far as supporting important levels of quality. Thus, by restoring the community benefits, prioritizing cost containment, and emphasizing outcomes and productivity, private healthcare systems are expected to minimize dumping, increase resource use, and design models of providing healthcare (Chisholm et al., 2021). By applying VBHC principles, they can reduce costs and thus enhance their competitive advantage on the market.

Innovation and Flexibility

Private healthcare can be said to be an innovation region due to the competition present in this area. Private healthcare providers are also motivated to explore modern technologies, therapeutic approaches, and ways of providing care that improve value to patients and reduce costs because of VBHC's focus on value (Lokman, 2020). The VBHC framework is closely aligned with this adaptability and willingness to invest in innovative solutions.

Research Gap

The existing literature focuses on only one system, which is the adoption of value-based healthcare principles of private healthcare systems without comparing the advantages and challenges saw, by these systems and the public healthcare systems in adopting these value-based healthcare principles (Krohwinkel et al., 2021). Moreover, there are certain specific difficulties seen by the private healthcare systems while adopting these healthcare standards, which include market competition, profit motives and financial incentives that are not explained significantly in the existing literature. The details cost-benefit analysis also hardly found that measures the financial implications of adopting value-based healthcare standards within private settings (Krohwinkel et al., 2021). These are considered the literature gap for research.

Relevance of value-based healthcare principles

As global healthcare expenditures continue to rise, along with the focus on the results of the provided treatment, the principles of VBHC are becoming paramount. Providing the right care at the right interval is an aim of value-based care to reduce admissions and avoid beneficial but efficient procedures (Tyack et al., 2024). Patients, insurance companies, or society may receive help from this a lot. According to Eijsink et al. (2023), higher patient health and, therefore, lower complications are due to VBHC concentrating on prevention and acting on chronic diseases. They exposed a more extensive method of covering the patients' welfare gives a benefit.

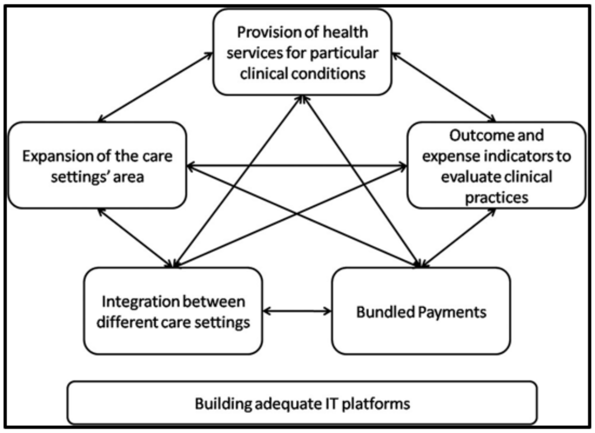


Figure 3: Relevance of value-based healthcare principles. (Source: Salvatore et al., 2021)

VBHC does more than just provide services. According to Todd & Stern (2023), it centers around estimating and working on persistent results, such as decreased readmission rates and expanded patient fulfilment. This guarantees the efficient use of healthcare resources. The goal of VBHC is to align incentives for patients and providers alike (Kidanemariam et al., 2023). As provided by Akinbami (2024), suppliers are compensated for conveying quality consideration that further develops well-being results, while patients are encouraged to take part in preventative measures and make educated decisions about their care. While challenges exist in conducting VBHC, its emphasis on cost viability, quality improvement, and patient focused care makes it a significant idea for building a more reasonable and compelling medical services framework (Stringer, 2014).

Aligning Profit and Value in Healthcare: A UK Perspective

VBHC in the UK

The healthcare system of the UK, being public, could earn profit from vital strategic private sector inclusion lined up with VBHC standards. By boosting suppliers to convey top-notch care at ideal expenses, VBHC can improve productivity and patient fulfilment (Stringer, 2014). For example, confidential emergency clinics could zero in on specific methods, lessening the weight of the NHS and working on largely understanding results.

To execute VBHC effectively in the UK, a few stages are significant which are as follows:

- Moving from the expense for administration to contracts connected to patient results would urge suppliers to concentrate on quality and effectiveness.

- When comparing performance to value-based metrics and finding areas for improvement, robust data collection and analysis are essential (Salvatore et al., 2021).
- Engaging patients effectively take part in their consideration choices and giving them applicable data can improve treatment adherence and results (Xu et al., 2023).
- Presenting risk-dividing systems among suppliers and payers can adjust impetuses and advance the practical delivery of care.

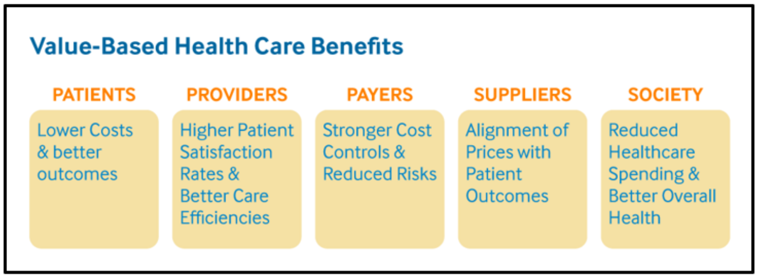
For instance, in the Indian healthcare industry, which do profit-driven private players, financial gains often take precedence over patient welfare (Mehta, Kumar & Sodhi, 2023). Integrating value into the profit equation is essential to rectify this. Value-Based Healthcare (VBHC), a model underlining quality results over number of administrations, offers a promising arrangement.

Integration of value-based principles of healthcare into the management of private healthcare systems

There are challenges and opportunities associated with incorporating value-based care (VBC) principles into private healthcare systems.

Opportunities

Innovative care models used in the Indian healthcare system, such as preventative care and patient engagement programs that are in line with VBC objectives can be tried by private healthcare systems. As said by Litwin (2021), VBC's emphasis on high-quality care is in line with private healthcare's tendency to place a high value on patient satisfaction. This is the reason using this focus can help to engage the patient more actively in preventive steps (Newman et al., 2021). The VBHC principles can help private systems understand areas of wastage and avoid them thus reducing costs for the patients and other providers in the system (Waterval, 2024).



Value-Based Health Care Benefits

PATIENTS	PROVIDERS	PAYERS	SUPPLIERS	SOCIETY
Lower Costs & better outcomes	Higher Patient Satisfaction Rates & Better Care Efficiencies	Stronger Cost Controls & Reduced Risks	Alignment of Prices with Patient Outcomes	Reduced Healthcare Spending & Better Overall Health

Figure 4: Benefits of Value-Based Healthcare. (Source: Pajewska, Partyka & Czerw, 2020)

Challenges

Private frameworks, driven by benefit, could oppose practices that emphasize cost-viability. It can be difficult to shift incentives to prioritize quality outcomes over quantity of services. As said by Aziz et al. (2021), the conventional expense for administration protection models reward methods does not guarantee better wellbeing results. It is necessary to focus on aligning insurance structures with VBC objectives (Wang et al., 2023).

Following Saddique & Al-Kudwah (2021), private healthcare systems can become vivid champions of VBC, and it can be easily introduced into practice having positive consequences, cutting challenges and exploring opportunities. For this reason, every individual may receive help from the enhanced patient-centered and sustainable health care delivery system.

A convincing model is the rising impact of healthcare insurance payers on healthcare delivery. Value-based contracts of the Indian healthcare system are replacing fee-for-service models for insurers which is also used by several countries which also includes the UK (Edmiston, 2022). Providers are encouraged to provide lower-priced, high-quality care (Wang et al., 2023). For example, insurers could offer packaged instalments for explicit circumstances, empowering suppliers to organize care proficiently and lessen superfluous administrations.

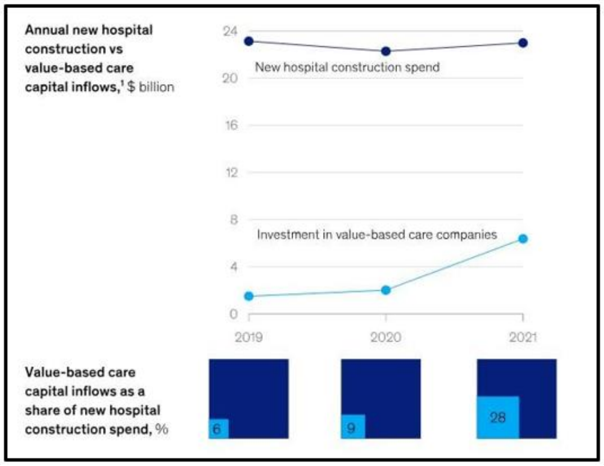


Figure 5: Investment in Value-Based Healthcare. (Source: Atme et al., 2024)

As a researcher, I notice a few critical difficulties and valuable opportunities in this change. I feel that precise and exhaustive information on persistent results, expenses, and asset usage is essential for VBHC. However, interoperability and data standardization remain significant obstacles. I feel that the advancement of powerful information assortment and examination procedures had all the earmarks of being tested. One of the pillars of VBHC is giving patients the ability to actively take part in their care. I can investigate successful systems for patient commitment and shared navigation.

Positive and Negative Effects of the Value-based Principles on the Management of Private Healthcare

Positive Impacts

Enhanced Quality: VBC increases preventive attitude and chronic sickness treatment that enables enhanced patients and fewer elaborate issues (Ogunjobi et al., 2024). This can be used by private systems to attract and keep these patients so that they can achieve their goal of receiving quality health care.

Cost efficiency: It holds the promise to reduce the incidences of frivolous operations and hospitalizations through providing the "right care at the right time''. According to the research conducted by Crowley et al. (2020), there is potential for patients, insurance companies and the entire private health system to receive help from such plans.

Patient Engagement: However, VBC is customer, or patient, centered in its approach to outcomes and satisfaction. According to Molina-Mula & Gallo-Estrada (2020), it may be applied by private systems to develop the patient's trust, promote preventive care, and aid patients in making rational healthcare decisions.

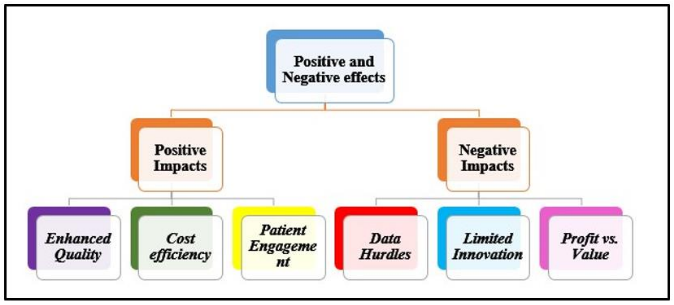


Figure 6: Positive and Negative Effects of Value-based Principles. (Source: Influenced by Ogunjobi et al., 2024)

Negative Impacts

Data Hurdles: It can be difficult to check the patient's status or evaluate success based on VBC models since the data is scattered across the different private systems (Iqbal et al., 2021). It often becomes necessary to invest a lot in data integration. **Suggestion:** This issue can be mitigated with the use of training and keeping simpler techniques of data handling.

Limited Innovation: Although VBC could lead to the promotion of some progressive care models; by focusing solely on cost efficiency, it can put a damper on both research and novel treatments within private systems: (Cox, 2024). **Suggestion:** This issue can be mitigated by adopting greater forms of innovation and making greater investments in innovation.

Profit vs. Value: The fact that VBC stresses cost is going to be a hard pill to swallow for the private healthcare industry, which is profit oriented. Albeit it can be challenging to change an organization's incentive structure to move from prioritizing the number of services delivered to focusing more on the quality of those services (Iqbal et al., 2021). **Suggestion:** This issue can be managed by focusing more on patient value than organisation profit.

Finding and Analysis

Details of the Journals used for data collection

Table 1: Data Extraction Table.

Article name	Author	Purpose	Method	Findings
"Value-based health-care principles in health-care organizations"	Salvatore et al., (2021)	This study aims to analyze the valuebased healthcare model in characterizing a procedure to direct the development of medical care associations toward a valueoriented model. It is necessary to redefine the concept of competition in healthcare and align it with the idea of maximizing patients' value to ensure economic sustainability and improve the quality of care.	A crucial part of healthcare organisation analysis is performance measurement. Porter presented the measurement of healthcare outcomes based on health conditions, the effectiveness of healthcare organizations, and the kind of service provided, as well as an efficient analytical method.	The research found that to evaluate the improvement in treatment value over time, clinical outcomes and data on each patient's care costs are essential. Taking part in the assessment of what befalls patients in their course of care empowers the development of the estimation of results since it estimates all the well-being administrations connected with it.
"The implementation of value-based healthcare: a scoping review"	van Staalduinen et al., (2022)	This study aimed to recognize and sum up how value-based healthcare services (VBHC) are conceptualized in the literature and executed in hospitals.	By searching online databases for articles published between January 2006 and February 2021, a scoping review was conducted. There were both empirical and nonempirical articles included.	62 publications were used for data extraction out of 1729 that were screened. Most of the articles did not show a conceptualization of VBHC but just conceptualized the objectives of VBHC or the idea of significant worth. Most hospitals only implemented one or two VBHC components, primarily Integrated

				Practice Units (IPUs) for cost and outcome measurement. Barely any investigations inspected the impacts. Execution methodologies were portrayed seldom and were even less evaluated.
"A field guide to US healthcare reform: The evolution to value-based healthcare"	Harrill & Melon, (2021)	This paper aims to explain working definitions and calculated limits inside the vocabulary of U.S. medical services change efforts that originated before and include normal topical points of view inside the developing VBH change worldview.	PubMed, MEDLINE, and Google searches for U.S. healthcare reform terms, as well as publications from legislative bodies and government agencies, were used to gather secondary journals.	The PatientCentered Care Model, the Patient-Centered Medical Home, Population Health, Personalized Medicine, P4 Medicine, Precision Medicine, Managed Care, and Accountable Care were all recognized as influential precursors to VBH.

Axial Coding

Table 2: Axial Coding.

Author	Theme	Description	Code
Salvatore et al., (2021)	Theme 1: Value-based healthcare principles have a significant impact on healthcare organisations	The value-based healthcare principles are considered to be significant for healthcare organisations. These principles of value-based healthcare are highly adopted by private healthcare systems and enable the systems to operate effectively.	Value-based healthcare principles
van Staalduinen et al., (2022)	Theme 2: Value-based healthcare principles have significant and positive effects on the operation of hospitals	The value-based healthcare principles are observed to have a significant and positive impact on the hospitals, and they positively affect the operation of these hospitals within the market.	Value-based healthcare principles

Harrill & Melon, (2021)	Theme 3: The adoption of value-based healthcare principles helps the healthcare systems to move towards immense success in the long run	Most of the healthcare systems in the present world, specifically private healthcare organisations are observed to adopt value-based health principles that help these healthcare systems to gain success in the end while operating within the industry.	Value-based healthcare principles

Thematic Analysis

Theme 1: Value-based healthcare principles have a significant impact on healthcare organizations.

Value-based care has grown into a revolutionary concept of healthcare delivery, which focuses on patients' outcomes and cost-effective approach.

Quality Improvement in Patient Care

VBHC's core proposition is perfectly aligned with the postmodernism notion that shows that the project should look at healthcare in terms of value rather than the volume of care. According to Dong, Jameel & Gagliardi (2022), health organizations prioritize quality, comprehensive care since patient-centeredness requires it. Healthcare providers are recommended to provide an evidence-based approach, ensure the right diagnosis, and work out patient-centered care plans as much as patients' outcomes are valued (Rossiter, Levett-Jones & Pich, 2020). It is important to note that healthcare professionals' desire to provide the best for their patients automatically creates the desire for better healthcare outcomes and, thus, quality healthcare.

Enhanced Efficiency in the Workplace

Furthermore, the research also shows that the VBHC principles incite healthcare organizations to avoid wastage and increase productivity. This approach shifts the focus from paying for services, which often are processes that do not enhance patients' quality lives to value-based care and in the process, organizations are encouraged to cut down on procurements and activities that are not relevant such as unnecessary procedures and tests (Kaplan et al., 2021). The use of advanced health information technologies, including the use of EHRs and data analytics that aid the providers in checking the patient's progress, the areas that need enhancement, and the continuum of care, also promotes this efficiency (Wickham & Wilcock, 2020). Thus, this modern incorporation of these technologies relieves administrative woes that deny most healthcare providers sufficient time and resources to address patients (Salvatore et al., 2021).

Financial Sustainability

The impact of VBHC on healthcare organizations is that there is an effect on financial viability, and becoming more financially practical is probably the major positive outcome that the researchers have found to be associated with VBHC. The proposed paper argues that, as a predominant payment structure, fee-for service is capable of driving healthcare costs up while not necessarily enhancing patients' outcomes. Meanwhile, VBHC motivates providers based on their efficiency in delivering quality care, thereby linking them financially to patient health (Prabhod, 2024). At the same time, potential cost savings may stem from reduced invasive procedures, like fewer tests and less time in the hospital and readmissions, this alignment may help healthcare organizations cut costs. In addition, organizations can reduce the cost of treatment for severe diseases by focusing on chronic health conditions and the use of relevant products. The contingency-based payment schemes are gaining popularity among the payers including insurance providers and governmental programs because they help to bring the necessary financial performance to the healthcare organizations following the principles of VBHC (Widyaputri, 2022).

Cooperative Care Models

The study also sets up that VBHC enhances the permission of interprofessional care approaches that involve a patient's coordinated care by different EMH care providers. In the collaboration, as described by Schot, Tummers & Noordegraaf (2020), healthcare workers include physicians, nurses, specialists, and other caregiving professionals practicing in different settings to address a client's issues. By promoting collaboration and communication among providers, healthcare organizations can assure their patients that they will receive continual and well-rounded care to enhance patient's health. Because of efficiency improvement in patient care delivery, systematic medical errors are minimized while patient satisfaction is enhanced by the harmonized care delivery system.

Theme 2: Value-based healthcare principles have significant and positive effects on the operation of hospitals

Improved Patient Outcomes

VBHC prioritizes patient outcomes when providing healthcare. Health and medical facilities ensure that the practice of the treatment is effective and proper for a particular client by basing it on research findings. Such an outcome is beneficial since it also helps to reduce the rate of complications experienced, the need to admit patients to the hospital often, and hasten recovery (van Staalduinen et al., 2022). Hospitals can enhance the overall quality of patients' care since patient outcomes can be perfected if constant assessments are made and analyzed.

Cost Effectiveness and Resource Enhancement

Under the theory of VBHC, the said hospitals should cost less due to fewer tests, procedures, and hospitalizations made when they are not needed. Another application is that resources are used more efficiently via data analytics and other technologies, which include using electronic health records (EHRs) (Tayefi et al., 2021). For example, predictive analytics can predict patient admissions to health care facilities and efficiently manage bed occupancy (Williams, 2012). Besides, despite the circumstances, the rational use of resources guarantees that patients receive targeted and prompt treatment.

Enhanced Financial Incentives

In addition, through its analysis, the study shows that VBHC is of value in driving purchase-related decisions by matching financial incentives with clients' health conditions; particularly in the case of hospitals encouraging them to focus on the prevention and treatment of chronic diseases. Hospitals are incentivized to offer efficient, effective, and valued care through plan reimbursement techniques such as bundled payment and ACO. To reduce the occurrence of unnecessary complications, hospitals need to consider stressing long-term outcomes for improving their monetary situation and sustainability (Beauvais, Dolezel & Ramamonjiarivelo, 2023). Hospitals are recommended to pay more attention to the quantity of patient healthcare services due to the shift from a volume-based to a value-based payment structure.

Teamwork across multiple disciplines

This project sets up that VBHC means that healthcare providers from different specializations must collaborate in a patient's care. All aspects of a patient's health needs are met through this approach, thus improving the chances of synchronized health care (Gaebel et al., 2020). Enhanced communications, especially among providers, reduce the risks of medical mistakes and enhance patient safety and health.

Focus on Preventive Care

The core of VBHC is the consideration for prevention. Because chronic illnesses are prevalent in the aged, and because acute health risks can be fatal, hospitals focus on first treatment and disease control. It entails periodic examinations, immunizations against fatal diseases and counselling of the patients on ways to adopt healthy lifestyles. The measures that are taken in hospital settings can enhance the well-being of clients and cut the overall cost of healthcare by sparing the need for emergency occurrences and halting the advancement of sickness (Levine et al., 2020).

Patient-Centered Care

VBHC also supports patient engagement and choice as one of the major factors in patient-centric care. Patients' participation interventions include the discussion of treatment plans, preferences, and other related goals; having individualized plans and goals; and using effective communication with the hospital to help the patient feel, more involved (Tobiano et al., 2021). This involvement leads to an increase in the level of patient satisfaction, their adherence to the treatment plan recommended and their general health status. Engagement is most likely to occur when patients make decisions or take an active role in receiving their treatment.

Technological Advancements

The application of VBHC principles saw in the study outcome pushes hospitals to select and implement the latest technologies that enable ambitious standards of care delivery. Technologies such as health information exchanges, telemedicine, and other related innovations enhance patients' tracking, and care management (Zhuang et al., 2020). Through these technologies, access is also enhanced especially to patients in rural areas or other regions that are not densely populated hence resulting in better interventions as well as constant engagement of the patient.

Theme 3: The adoption of value-based healthcare principles helps the healthcare systems to move towards immense success in the long run Driving Innovation

VBHC principles have therefore been revealed to ease innovation in healthcare systems, as deduced from the observations of the study. It mandates the HC providers to search, develop, evaluate and incorporate novel technologies, therapies and ways of practicing for improved healthcare delivery by relating them to cost and patients' benefits. Solutions like telehealth, remote patient monitoring, and personal medicine are more inclined to penetrate and become integrated into practice (Harrill & Melon, 2021). These privileges do not only make the treatment of patients better, but they ensure that the health facilities are always able to compete in the future as they are today.

Improving Workforce Satisfaction

Additionally, the findings suggested that the implementation of VBHC might increase employee satisfaction among healthcare professionals. Value-based care models, which emphasize patient-centered practices, teamwork, and collaboration, create a more rewarding work environment (Forsyth et al., 2023). When healthcare professionals can see how their work directly affects the outcomes of their patients, job satisfaction rises. Furthermore, lessening managerial burdens related to charge-for-administration models allows medical services experts to focus on patient consideration, improving their general work insight and decreasing burnout (Wald, 2020).

Promoting Accountability and Transparency

Additionally, it has been seen that VBHC enhances transparency and accountability in healthcare systems. By tying financial incentives to patient outcomes, healthcare providers must openly report and evaluate their performance. This transparency fosters trust because patients and stakeholders can see metrics and outcomes related to the care that is provided (Khanna & Srivastava, 2020). Providers are guaranteed to uphold high care standards and continuously strive for excellence using accountability measures.

Empowering Organizations and Coordinated efforts

Medical frameworks are encouraged to form associations and coordinate efforts with a variety of partners because of the acceptance of VBHC standards. These partners include other providers of medical care, guarantors, innovation organizations, and local associations. Patients' results can be worked on by cooperating to share assets, share information, and direction care endeavors (Gittell et al., 2020). The ability of collaborative networks to draw on a variety of sources of ability and innovative ideas enhances the overall ability and effectiveness of healthcare systems.

Refining the Use of Resources

VBHC aids healthcare systems in more strategic and efficient resource allocation. By focusing on high-value care and reducing waste, resources can be directed toward the areas that have the greatest impact on patients' health (Moleman et al., 2021). This optimization includes population health initiatives, chronic disease management, and preventative care. If they make beneficial use of their resources, healthcare systems can keep providing high-quality care for a long time.

Discussion

The project has also discussed the relevance and value of it to the organizations related to private healthcare organizations. It is discussed that the integration of value-based care principles into the systems of private healthcare presents certain opportunities as well as unique difficulties (Barends et al., 2014). It is also noted that implementation of the value-based care also emphasizes being cost-effective and helps healthcare organizations to run efficiently (Collis & Hussy, 2014). The adoption of these principles might be discouraged by the structures of insurance, which favors the volume of service provided rather than value. The discussion is supported by using the value-based care model, which states that it might appear to be challenging to record the outcomes of the patient and assess the success due to the fragmented information within the private systems (McNiff, 2017).

The methods adopted for conducting the research involve secondary data. The “secondary data collection method” is known to be time-efficient and cost-effective since it involves using the existing information about the topic of study from reliable sources, which are available readily and are less expensive (Ma, 2023). The project also makes use of “thematic data analysis” in which codes are developed from the data collected from the journals. The project uses three companion-surveyed diaries from which the data is gathered concerning the use of significant worth-based care standards and their effect on confidential medical services frameworks (Sarkies et al., 2020).

According to the findings of the study, supplying the ideal type of care at the correct time is one of the pinnacle priorities for cost-primarily based healthcare ideas, which aim to reduce the number of unnecessary tactics and hospital admissions (Sales & De Castro, 2021). In addition, the project recognized the ability advantages and downsides of implementing value-primarily based care requirements in personal healthcare carrier frameworks. According to Valaitis et al. (2020), personal healthcare systems can evaluate with innovative care models, which are in line with VBC goals, such as preventative care and affected person engagement packages. The VBHC concepts may additionally aid private structures in discovering and disposing of wasteful practices, saving sufferers and vendor’s money and growing performance (Schwarz et al., 2022).

This looks at conditions that affected person effects, now not the wide variety of offerings provided, which should be used to evaluate medical care. It is also recognized that healthcare service providers' attention is on providing tremendous, individualized care because of this affected person-centered technique. Healthcare vendors are urged using Habibi et al. (2020) to use practices that might be based on proof, guarantee conclusions, and encourage individualized treatment plans by emphasizing understanding effects. The project decides that after imparting healthcare, VBHC places patient results first. Verification based practices are used by clinical offerings frameworks to ensure that remedies paintings and tailored to every patient's wish (Femi, Friday, and Enam, 2023). There were fewer complications, fewer clinic readmissions, and quicker recovery because of this attention.

The assignment found that considerable value-based healthcare (VBHC) requirements emphasize affected person outcomes, price viability, and framework supportability to deal with a shift in global healthcare service frameworks. According to Song et al., (2020), the VBHC principles foster innovation in healthcare structures. The results suggested that healthcare professionals' levels of satisfaction with their jobs might rise because of VBHC implementation. A genuinely compensating working environment is made by esteem-based care models, which stress patient-centered practices, collaboration, and eased exertion.

Conclusion

The project began by mentioning the aim of exploring the impact of value-based healthcare principles on private healthcare systems. It has also provided the goals related to this aim, which involves understanding the significance of the value-based healthcare principles. The aims also included analyzing the way private healthcare is affected by the implementation of value-based healthcare principles. The project structure is also mentioned with the nature of the project being a conceptual analysis of the systematic dynamics that exist between the private healthcare systems and the value-based care. The relevance and value of the project are also mentioned towards the organisation.

The project shows that value-based care provides both opportunities as well as challenges to private healthcare systems while working within the market. The project is also seen to use data collected from 3 peer-reviewed journals and analyze the collected information through thematic data analysis. The project has also discussed the significance of value-based healthcare principles that provide the correct kind of care at the correct time is a significant priority (Tyack et al., 2024). It is shown that this value-based care decreases hospital admissions and procedures for the patients increasing their positive outcomes. The results of the project portray that value-based care influences the healthcare outcomes of patients in private healthcare systems.

The results obtained from the project show that value-based care principles help in improving the quality of care provided to patients by private health care services. It additionally upgrades the effectiveness of the medical care administrations working inside the economy. It also helps private healthcare systems to use cooperative care models and become financially sustainable. Patients' stages of satisfaction and engagement additionally upward push because of the cost-primarily based care concepts (Newman et al., 2021). It improves the assets used by the hospital therapy frameworks, contributes to the availability of cost-powerful treatment to patients, and builds the nature of patient prosperity. Patient-focused care is moreover underscored inside the well worth together consideration framework's accentuation concerning multidisciplinary cooperation.

Key Recommendations

Main Outcomes of the Project

According to the findings of the project, non-public healthcare vendors have applied the principles of primarily based healthcare using developing individualized remedy plans that concentrate on the precise requirements and options of every affected person. The implementation of VBHC has resulted in quantifiable improvements in patient wellbeing consequences because of its emphasis on quality, instead of quantity of care (Mberg and Malmmose, 2024). It has additionally been set up that the shift toward VBHC has resulted in cost savings for patients and carriers due to a decrease in the variety of pointless processes and an emphasis on preventative care. Data analytics and eras have been used by non-public healthcare structures to improve efficiency, lessen administrative burdens, and streamline operations.

The findings also show that the huge use of telemedicine and other virtual fitness solutions is at once related to the implementation of VBHC ideas in healthcare delivery. To improve diagnostic accuracy and treatment efficacy, private healthcare providers have included innovative technologies like synthetic intelligence and system studying (Ahmed et al., 2020). In addition, the transition to VBHC has resulted in the implementation of result-primarily based repayment models, which ensure that suppliers are compensated for his or her excessive level of attention instead of the number of offerings they offer. As in keeping with Mallat, Vrontis, and Thrassou (2002), direct execution estimations, which are made handy to patients and accomplices to evaluate the concept of care gave, are considered as dependable using carriers.

Additionally, the study's findings show that VBHC increases patient engagement and satisfaction by involving patients in care decision-making processes. One important result has been seen that increased patient and healthcare provider communication has led to increased trust and treatment plan adherence (Salvatore et al., 2021). To meet all the patient's needs, private healthcare systems have implemented multidisciplinary care teams to ensure a comprehensive treatment approach. Patients' continuity of care has improved because of improved care coordination among various healthcare providers.

In addition, it is seen that, despite the positive outcomes, fully implementing the VBHC principles is difficult due to obstacles such as resistance to change, the need for significant investments in technology, and aligning incentives among all stakeholders (van Staalduinen et al., 2022). Equal access to high-quality care is still a concern because private healthcare providers may place profit primarily, which could result in disparities in care availability and affordability. The adoption of significant value-based healthcare service standards in private healthcare services has prompted huge enhancements in persistent consideration, effectiveness, advancement, and supplier responsibility (Harrill & Melon, 2021). However, ongoing efforts are needed to address difficulties with implementation and guarantee that all patient populations equally reap the benefits of VBHC.

Awareness of the relevance to the Client’s requirements

Understanding the influence of private healthcare on the implementation of value-based healthcare (VBHC) principles directly addresses the client's requirements for improving patient care and operational efficiency. By taking on VBHC, confidential medical services frameworks have shown critical advancement in patient focused care through customized therapy designs and further developed wellbeing results, following the client's aim of further developing medical services quality (Wong et al., 2022). The cost-effectiveness achieved by reducing unnecessary procedures and preventive care strategies meets the client's need for better resource use.

The incorporation of innovative technologies and digital health solutions into private healthcare also reflects the client's focus on innovation and modernization of healthcare delivery. The expanded duty and "final results-based repayment fashions" assure that suppliers provide the consumer with several ideas and care truly fostering acceptance with ease. The customer's emphasis on ongoing power and progressed medical care reports is supported with the aid of progressed affected person consequences and pride due to the adoption of VBHC requirements.

Last but no longer least, multidisciplinary groups' collaborative efforts and coordinated care align with the consumer's purpose of comprehensive and streamlined medical services. Utilizing the research insights into overcoming implementation barriers, the customer can navigate the complexities of VBHC adoption, making sure that blessings are allotted fairly and in step with their strategic goals.

Recommendations Comprehensive Assessment of Needs

Private healthcare systems can engage patients, providers of safety nets, and policymakers to learn about the perspectives, requirements, and concerns of key partners regarding VBHC. I feel that they can likewise take part in the social occasion of subjective and quantitative information concerning the present status of medical services results, costs, patient fulfilment, and functional efficiencies. Measurement of the impact of VBHC execution and the identification of districts in need of improvement will receive help from this data (Joudyian et al., 2021).

Set Specific Objectives

In my view, to improve the health outcomes of patients, private healthcare systems need to give quality of care more importance than quantity of services. They can also set goals to lower healthcare costs by reducing unnecessary procedures, improving resource use, and providing preventative care. To additionally foster consideration of transport and utilitarian capability, the structures can approach goals for organizing automated prosperity game plans and pattern-setting advancements.

Develop Strategies for Implementation

Medical care providers should receive extensive training to understand and adopt VBHC standards from private healthcare frameworks. I feel that preventive measures, result-based repayment models, and patient-focused care may all play a role in the systems' successful operation (Ramos, 2023). They should put money into innovative technologies like telemedicine, tools for data analytics, and electronic health records (EHR). These technologies will support the implementation of VBHC by enhancing diagnostic accuracy, easing patient engagement, and providing real-time data (Rees et al., 2021). To ensure a patient-centered approach, healthcare systems can also encourage the formation of multidisciplinary care teams. The systems need to encourage healthcare professionals to collaborate to meet all the patient's needs.

Establish reimbursement models based on outcomes

Private healthcare systems must develop reimbursement models that reward healthcare providers for achieving positive patient outcomes rather than focusing on the volume of services provided. I feel that financial incentives will now align with VBHC's goals because of this. Additionally, they must develop transparent performance metrics for evaluating professional healthcare's quality. To foster patient responsibility and trust, these measurements should be freely available (Nguyen et al., 2023).

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