



TRITECH

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Hywel Dda University Health Board

Evaluation Report

Diabetes transformation project:

**Integrating technology as a novel approach to boost
planned primary care for people living with diabetes.**

Med Tech Accelerator Project

Funded by Welsh Government

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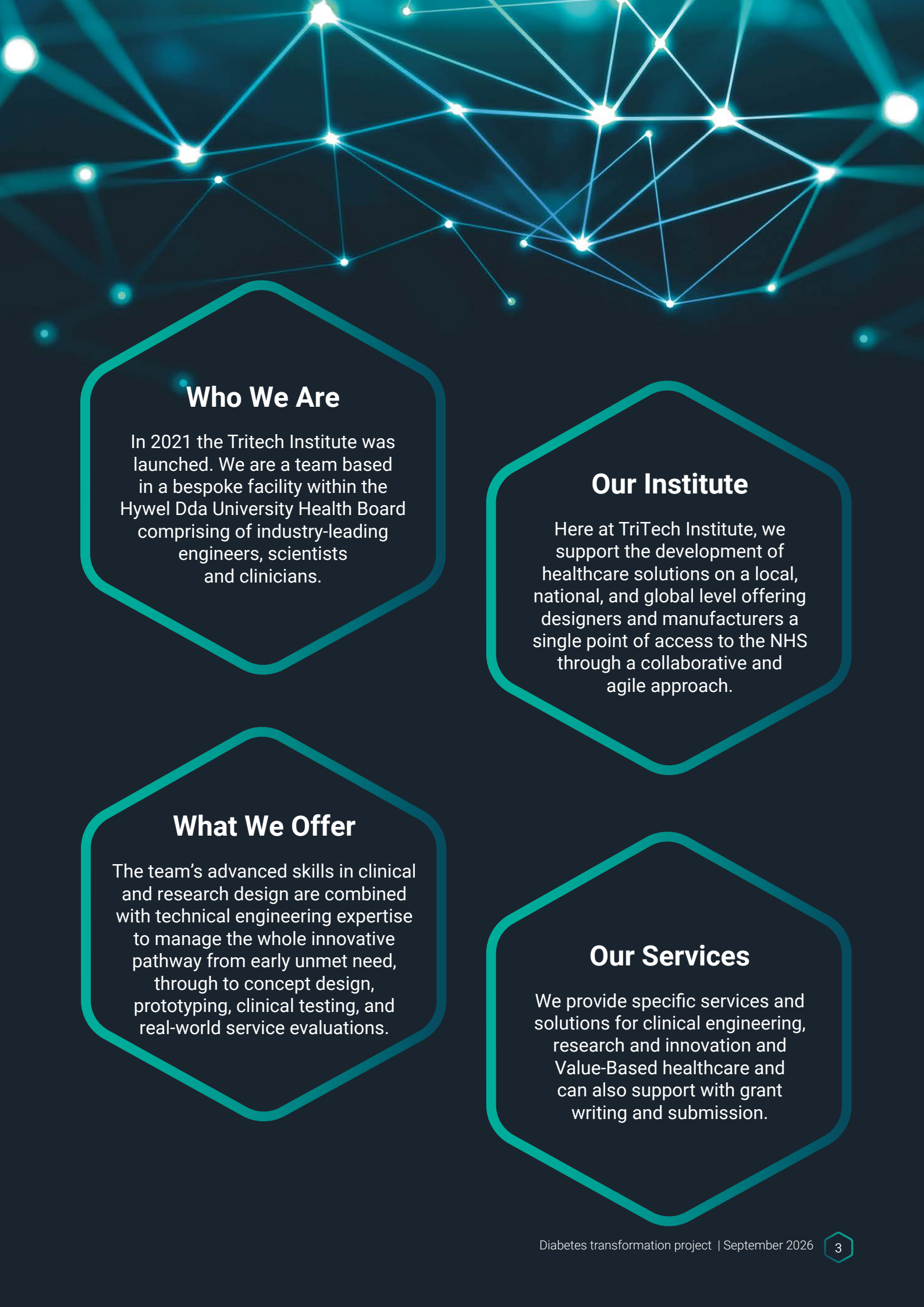
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Who We Are

In 2021 the TriTech Institute was launched. We are a team based in a bespoke facility within the Hywel Dda University Health Board comprising of industry-leading engineers, scientists and clinicians.

Our Institute

Here at TriTech Institute, we support the development of healthcare solutions on a local, national, and global level offering designers and manufacturers a single point of access to the NHS through a collaborative and agile approach.

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The team's advanced skills in clinical and research design are combined with technical engineering expertise to manage the whole innovative pathway from early unmet need, through to concept design, prototyping, clinical testing, and real-world service evaluations.

Our Services

We provide specific services and solutions for clinical engineering, research and innovation and Value-Based healthcare and can also support with grant writing and submission.

Executive summary

Betsi Cadwaladr University Health Board (BCUHB), the largest health board in Wales, faces significant pressures in delivering consistent, high-quality care for people living with long-term conditions, particularly diabetes. Rising prevalence, widening health inequalities, workforce shortages, and post-pandemic recovery challenges have intensified demand on primary care services. In response, BCUHB developed an innovative long term conditions hub (LTCH) model, aligned with the diabetes transformation project led by nurse consultant Julie Lewis.

The LTCH model integrated point-of-care testing (POCT), redesigned care pathways, and collaborative cluster-based working to streamline annual reviews that would normally involve six separate GP appointments into one appointment thus improving planned primary care. Initially piloted in 2021–2022 during the COVID-19 pandemic, the model demonstrated strong early results, enabling rapid expansion across all six practices within the participating cluster. The hub provided a “one-stop” service where trained healthcare assistants deliver POCT for HbA1c, UEC, and urine ACR, while practice nurses, nurse practitioners, and specialist practitioners conduct same-day clinical reviews. This approach improved completion of NICE recommended diabetes care processes, enhanced patient experience, and reduced variation in care quality.

A key enabler of the model is the strong partnership between the POCT Team within pathology and industry partners Siemens and Cain Medical. Together, they introduced digital connectivity through Atellica Connect, a secure cloud-based platform with the capability to transmit POCT results directly into EMIS and the Welsh clinical portal in real time. This development significantly enhanced governance, auditability, data quality, and clinical decision-making. The project successfully secured Welsh Government funding to evaluate the wider rollout of connectivity across additional sites. This deployment marked the first

implementation of Cain Medical’s CMExtender connectivity platform within NHS Wales and the first use of this architectural approach in general practice settings to enable direct integration of point-of-care testing (POCT) devices with Atellica Connect. This pioneering deployment highlights the innovative nature of the model and demonstrates a novel approach to achieving interoperability between primary care diagnostic devices and digital laboratory systems.

Despite its success, the project highlighted systemic barriers, including limited POCT workforce capacity, digital infrastructure challenges and the resource requirements associated with governance and connectivity support needed to deliver primary care POCT safely at scale. Nevertheless, the model demonstrated clear benefits including improved efficiency, reduced duplication of appointments, enhanced patient safety, and the potential to prevent complications through earlier intervention.

The long-term vision was to scale the LTCH model across all Welsh Health Boards, supported by increased point-of-care testing (POCT) workforce capacity to facilitate broader implementation within primary care settings.

Concurrently, the development of community based diagnostic hubs has the potential to provide more accessible testing closer to patients’ homes, thereby reducing demand on acute hospital services and emergency departments.

Collectively, these initiatives represent a sustainable and potentially transformative approach to the management of long-term conditions, aligning with national strategic priorities focused on place-based care, prevention, early diagnosis, equitable access to services, and the reduction of health inequalities.

Recommendations

Recommendation 1: Strengthen early digital readiness and governance planning to enable full integration

To support effective scale up of connected POCT models, future implementation should prioritise early engagement with digital, cyber security, and Information Governance teams to ensure that essential approvals, configuration tasks, and integration activities can be completed ahead of operational deployment. The pilot demonstrated that compressed timelines and limited capacity within enabling teams constrained progress, resulting in incomplete connectivity, reliance on manual transcription, and reduced efficiency. Establishing a structured digital readiness process including advance notice of implementation timelines, early initiation of cyber security and IG assessments, and coordinated technical planning across stakeholders would reduce pressure on teams and support more complete integration. Investing in this preparatory phase with dedicated project management is likely to minimise administrative burden during delivery, ensure safe data flows, and enable the full benefits of the model to be realised.

Recommendation 2: Replace and modernise analyser fleet across Wales

Modernising the analyser fleet across Wales is essential to ensure consistent analytical performance, digital connectivity, and compliance with current POCT standards. Replacing ageing devices with modern, fully connected analysers will reduce the risk of EQA failures, support real time governance, and ensure that POCT services remain safe, reliable, and fit for purpose. This investment will also standardise equipment across Health Boards, improving training, quality assurance, and long term service sustainability.

Recommendation 3: Implementation of approved POCT connectivity solutions

Support the progression of approved POCT connectivity solutions that enable secure, real-time transfer of results into EMIS and the Welsh Clinical Portal.

Digital Health and Care Wales (DHCW) to support POCT connectivity in primary care. Full middleware integration is critical for delivering a safe and efficient POCT service across primary care. Real time connectivity to EMIS and the Welsh Clinical Portal enables immediate access to results, automated QC/EQA monitoring, and robust auditability. This reduces transcription errors, strengthens clinical governance, and provides the POCT team with continuous oversight of device performance and testing activity across all sites.

Recommendation 4: Strengthen the POCT workforce within each health board

Expanding the POCT workforce is necessary to support the growing demand for primary care based POCT services. Each Health Board requires dedicated POCT staff including a Clinical Lead, Manager, Coordinator, and Associate Practitioner & support worker to manage deployment, training, quality assurance, and ongoing monitoring. Investing in workforce capacity will ensure that services remain safe, responsive, and able to support largescale implementation across community settings.

Existing workforce limitations have already been recognised through formal Health Board risk management processes. As healthcare delivery continues to shift from acute hospital settings into primary care, community services and virtual models of care, the demand placed upon pathology-led POCT services will continue to increase. Without additional investment in POCT staffing, digital infrastructure and governance support, Health Boards may be unable to safely deliver the level of community diagnostic expansion envisaged within national policy. Sustainable growth of community-based diagnostics will therefore require proportional investment in the POCT workforce and supporting infrastructure.

Recommendation 5:
Scale the diabetes one stop hub model regionally and nationally

The diabetes one stop hub model has demonstrated substantial benefits in efficiency, patient experience, and clinical outcomes, and now requires coordinated regional and national scale up.

Expanding this model will deliver consistent, streamlined diabetes reviews, reduce GP workload, and provide earlier intervention for patients at risk of cardiovascular, renal and metabolic complications. National implementation will also help reduce unwarranted variation in diabetes care across Wales.

The Primary Care workforce model would be strengthened. Changing from an individually reliant model to a sustainable team model. Dynamic and responsive to support sudden gaps in capacity due changes in practice staffing, education and training.

Importantly, this approach has scope and potential to broaden the remit for other long term condition care.

Recommendation 6:
Adopt an All Wales managed service contract for POCT devices

Transitioning to an all Wales managed service contract will provide a sustainable and cost-effective framework for POCT provision. This approach offers predictable pricing, VAT recovery, and standardised access to high quality devices, consumables, and maintenance. A unified contract model also strengthens governance, simplifies procurement, and supports scalable deployment across primary and secondary care settings.

Recommendation 7:
Enhance governance, QA, and risk management processes

Strengthening governance and quality assurance processes is vital to ensuring safe and consistent POCT delivery. Enhanced oversight, including real time QC/EQA review, user competency controls, and standardised operational procedures

will reduce clinical risk and support rapid resolution of analyser or testing issues. A robust governance framework will underpin the safe expansion of POCT across community settings.

Recommendation 8:
Align financial models to ensure sustainability and reinvest efficiency savings

Long-term sustainability will depend on embedding POCT within broader primary care transformation programmes. Funding should be supported through efficiencies achieved from reduced pathology laboratory activity, collaborative federated and cluster models, alongside Health Board investment in proactive population health and risk reduction initiatives. This approach provides a more stable basis for meeting ongoing operational costs while supporting future service development and scale-up.

Recommendation 9:
Prioritise service access in areas of deprivation to improve equity

Scaling the POCT model presents an important opportunity to reduce health inequalities by prioritising implementation in areas of high deprivation. Establishing community based POCT hubs in underserved populations will improve access to timely diagnostics, support earlier intervention, and enhance chronic disease management for those most at risk. This targeted approach will help deliver a more equitable and prevention focused health system.

Recommendation 10:
Strengthen Change Control & Digital Governance

Future community POCT deployments should be supported by formal change control processes for middleware, connectivity platforms and digital interfaces. Software upgrades, system configuration changes and interface developments should undergo documented risk assessment, testing, validation and post-implementation review to minimise service disruption, maintain patient safety and support reliable community diagnostic services.

Recommendation 11:
Explore Information-Led Models of
Long-Term Condition Management

The evaluation should be used to inform future service design for long-term conditions across primary care. The findings suggest that immediate access to diagnostic information can improve the quality of consultations, support timely clinical decision-making and enhance patient experience.

Future models should consider how information-led care, enabled through integrated diagnostics and shared clinical capability, could complement traditional appointment-based systems. Federated and cluster-based approaches should be explored as potential mechanisms for supporting practices to deliver existing care differently whilst retaining clinical ownership within GMS. These improvements reflect the ethos of Community by Design. Where future models are designed around the principles of person-centred care, equitable access, efficient use of resources, robust data assurance and the long-term sustainability of primary care services.



Table of contents

Who we are 3

Executive summary	4
Index of tables and figures	10
Acronyms	11
Acknowledgements	12
Purpose of this document	12

1 Background 13

1.1 The current understanding of diabetes in the UK and its burden on healthcare	13
1.1.1 Economic burden on the NHS	13
1.1.2 Impact on healthcare services	13
1.2 The diabetes burden in Wales	14
1.3 Current diabetes management	14
1.3.1 What is a diabetes annual review	14
1.3.2 Review of the diabetes management process in the UK and Wales	15
1.4 Setting the scene (BCUHB)	15
1.4.1 Key challenges in 2023/24 in primary care	16
1.4.2 Evidence for change	17
1.5 The long-term condition hub	17
1.5.1 Point of care testing (POCT)	17
1.5.1.1 Role and governance of POCT departments in Wales	18
1.5.1.2 The Role of POCT as a complement to laboratory diagnostics	18

2. The new service 19

2.1 Overview	19
2.1.1 Funding	19
2.2 The diabetes transformation project	19
2.3 Delivery approach	20

2.3.1 The service	20
2.3.2 Stakeholders	20
2.4 Outcomes of the service	21
2.4.1 Strengthening POCT delivery through strategic collaboration	21
2.4.2 Impact on ways of working	23

3. Evaluation plan 24

3.1 Evaluation context and aims	24
3.2 Design	24
3.2.1 Trittech evaluation plan	24
3.2.1.1 Key points included:	24
3.2.1.2 Evaluation questions	25
3.2.1.3 Data collection tools and activities	25
3.2.1.4 Data analysis	25
3.2.1.4.1 Qualitative assessment	26
3.2.1.4.2 Service users	26
3.2.1.4.3 Data collection	26
3.3 Ethics	26

4. Findings 26

4.1. Implementation, barriers and delays	26
4.2. Patient and carer experience	28
4.3. Staff and stakeholders reflections	29
4.3.1. Theme 1: Variation in practice readiness and delivery context	29
4.3.1.1 Funding fragility and perceived double payment	29
4.3.1.2 Short-term contracts and workforce instability	29
4.3.1.3 IT, governance and integration barriers	29
4.3.1.4 Variation in how services were set up and delivered	30
4.3.2 Theme 2: Delivering POCT in practice: operational complexity, governance, and enablers of clinical confidence	31

4.3.2.1 Restructuring workflows and improving efficiency	31
4.3.2.2 Governance, uncertainty, and the development of clinical confidence	31
4.3.2.3 Operational challenges and maintaining safety	32
4.3.2.4 System requirements for sustainable implementation	33
4.3.3 Theme 3: Transformative impacts on care delivery and patient experience	33
4.3.3.1 Dependency on workforce engagement and implementation conditions	33
4.3.3.2 Streamlining care pathways and reducing system burden	34
4.3.3.3 Immediate clinical decision-making and responsiveness	34
4.3.3.4 Enhancing patient understanding and engagement	34
4.3.3.5 Improving access, reducing barriers, and supporting re-engagement	35
4.3.3.6 Patient experiences and perceived value	35
4.3.4. Theme 4: Conditions for sustainability and future scalability	36
4.3.4.1 Technology infrastructure and digital integration requirements	36
4.3.4.2 Workforce engagement, training, and clinical confidence	37
4.3.4.3 Funding, sustainability, and future direction	38
4.3.5. Qualitative findings	38
4.4 Process map	39
4.4.1 Number of patients seen by the community POCT hub	39
4.4.2 Costs of the service	40
4.4.3 Other important considerations	42
4.4.3.1 Carbon footprint reduction	42
4.4.3.2 Effect on the local economy	42
4.4.3.3 Considerations of scalability within BCUHB	42

5. Discussion	44
5.1 Challenges	44
5.1.1 Outdated and end-of-life POCT Equipment	44
5.1.2 Limited digital connectivity	44
5.1.3 Workforce capability and scope	44
5.2. What went well?	44
5.3 Scale and spread	45
5.3.1 Implementation considerations	45
5.3.2 Additional resource	45
5.3.3 All Wales managed service contract	46
5.3.4 POCT middleware	46
5.4. Anticipated benefits	46
5.4.1 Financial and commercial	46
5.4.2 Quality, governance and patient safety	46
5.4.3 Service efficiency and sustainability	46
5.4.4. Potential wider benefits beyond diabetes	46

6. Conclusions	47
6.1. Recommendations	48
References	50
Appendix 1 - policy context	52
Appendix 2	54

Index of tables and figures

Figure 1 The nine care process for diabetes care	15
Figure 2: Map of the region covered by BCUHB	16
Figure 3: Overview of the concepts behind the LTCH	18
Figure 4: Examples of POCT devices	19
Figure 5: Infographic showing the key enablers in developing the POCT Infrastructure	22
Table 1: Impact on ways of working	23
Figure 6: Pictures of the 3 GP sites	27
Table 2: Key themes identified from patient feedback	28
Table 3: Cost comparison: GP led model vs POCT Hub	39
Figure 7: Significant cost efficiency potential of the POCT hub approach	41
Figure 8: Map of BCUHB regions	43
Table 4: National implementation – staffing requirements	45
Table A1: How the diabetes transformation project supports national priorities	53
Figure A2: Data connectivity diagram	54



Acronyms

BCUHB	Betsi Cadwaladr University Health Board
DHCW	Digital Health and Care Wales
EQA	External quality assessment
GP	General practitioner
HCL	Hybrid closed loop
IQC	Internal quality control
LTCH	Long term conditions hub
OPD	Outpatients department
POCT	Point of care testing
QA	Quality assurance
QC	Quality control
T2DM	Type 2 diabetes mellitus
UEC	Urea, electrolytes and creatinine
WCP	Welsh clinical portal
QAIF	Quality assurance and improvement framework

Glossary

HbA1c	Blood test that measures the average blood glucose (sugar) levels over the past 2–3 months
UEC	Common blood test used to assess kidney function and electrolyte balance
Urine ACR	Test used to detect early kidney damage, especially in people with diabetes or high blood pressure.

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Our appreciation extends to the participating GP practices and clinical teams, whose engagement, time, and reflective input shaped much of the learning captured in this evaluation. Their readiness to adapt workflows, test new approaches, and offer honest reflections was essential to understanding the real world impact of the POCT model.

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Finally, we thank all stakeholders, service users, and staff who shared their experiences, insights, and expertise. Their collective commitment made this real-world evaluation possible and has informed recommendations for future development, scalability, and sustainability.

Purpose of this document

This document presents the findings of an independent evaluation of the Diabetes Transformation Project, which integrated point-of-care testing (POCT) within a Long-Term Conditions Hub model in North Denbighshire, Betsi Cadwaladr University Health Board (BCUHB).

The evaluation was undertaken by the Trittech Institute, Hywel Dda University Health Board, and explored the implementation, delivery, outcomes, and perceived impact of the service on patients, staff, and the wider healthcare system.

The report brings together qualitative and quantitative evidence to assess the feasibility, effectiveness, benefits, challenges, and sustainability of the model. It also identifies key lessons learned and provides recommendations to inform future service development, scalability, and the wider adoption of connected POCT-enabled models within primary and community care settings.

1. Background

1.1 The current understanding of diabetes in the UK and its burden on healthcare

Diabetes is now widely recognised as one of the most significant long-term health conditions facing the United Kingdom. It represents not only a growing public health challenge but also a major and sustained burden on the National Health Service (NHS). Over recent decades, the understanding of diabetes has evolved from viewing it as an individual metabolic disorder to recognising it as a complex, population level condition driven by social, behavioural, and economic factors. This shift has important implications for how the disease is managed, prevented, and funded. (Hex, et al., Estimation of the direct health and indirect societal costs of diabetes in the UK using a cost of illness model, 2024)

The scale of diabetes in the UK is substantial and continues to increase. Current estimates suggest that approximately 5.6 million people are living with diabetes in the UK. This makes diabetes one of the most common chronic diseases in the country. In addition, around 1.3 million people are thought to be living with type 2 diabetes without knowing it, highlighting a significant hidden burden. (The Lancet Diabetes & Endocrinology, 2024)

Type 2 diabetes accounts for roughly 90% of all cases, with type 1 diabetes and rarer forms making up the remainder. Importantly, a further 6.9 million people are identified as being at high risk of developing type 2 diabetes, meaning that more than 12 million individuals in the UK are either living with the disease or are at significant risk of developing it. (Diabetes UK, 2026)

The rise in prevalence is closely linked to demographic and lifestyle changes. Obesity, which affects around 30% of adults and contributes to the majority of type 2 diabetes cases, is a major driver. Diabetes is now widely recognised as one of the most significant public health challenges in the United Kingdom. It is a chronic, progressive condition characterised by elevated blood glucose levels, with two main forms: type 1 diabetes, an autoimmune

disease, and type 2 diabetes, which accounts for around 90% of cases and is strongly associated with lifestyle and socioeconomic factors.

Over recent decades, the UK's understanding of diabetes has evolved from viewing it as a relatively contained chronic illness to recognising it as a complex, system-wide condition that drives morbidity, mortality, and escalating healthcare demand. (Diabetes UK, 2026)

In the UK, diabetes leads to more than 184 amputations, 1010 strokes, 700 heart attacks and 3,340 cases of heart failure each week. Research has consistently shown that for some people, combined lifestyle interventions including diet, physical activity and sustained weight loss can be effective in reducing the risk of type 2 diabetes by about 50%. (Diabetes UK, 2026)

1.1.1 Economic Burden on the NHS

The financial burden of diabetes on the UK healthcare system is substantial and continues to grow. Analysis by the York Health Economics Consortium estimated that diabetes cost the UK NHS £10.7 billion in 2021/22, equivalent to approximately 6% of the total UK health budget. (The Lancet, September 2024) When wider economic impacts, including productivity losses associated with illness and premature mortality, are considered, the total annual cost of diabetes to the UK has been estimated at almost 24 billion including approximately £13.9 billion in indirect societal and productivity costs. Importantly, around 60% of direct NHS expenditure is associated with managing diabetes-related complications, many of which are potentially preventable through earlier intervention and effective ongoing management. (Hex, et al., Estimation of the direct health and indirect societal costs of diabetes in the UK using a cost of illness model, 2024)

1.1.2 Impact on Healthcare Services

Diabetes places pressure across the entire healthcare system. In primary care, it is one of the most common long-term conditions managed by general practitioners, requiring regular monitoring, medication management, and annual reviews. Secondary care services are heavily involved in managing complications, including

dialysis, vascular surgery, and ophthalmology services. Emergency care is also impacted, with acute complications such as hypoglycaemia, diabetic ketoacidosis, and cardiovascular events leading to hospital admissions.

Despite structured care models, gaps in service delivery persist. A substantial proportion of people with diabetes do not receive all recommended routine care processes, including blood testing, foot examinations, and retinal screening. This contributes to variation in clinical outcomes and exacerbates health inequalities. Individuals living in more deprived communities and those from certain ethnic backgrounds experience higher disease prevalence, poorer glycaemic control, and less favourable outcomes, reflecting the wider influence of the social determinants of health.

1.2 The Diabetes burden in Wales

More than 7% of the adult population in Wales (over 200,000 people) live with diabetes, with a further 350,000 people thought to be at risk of developing type 2 diabetes mellitus (T2DM) (Welsh Government, 2023). In 2017 the annual cost of treating diabetes in Wales was estimated at £500m, equating to approximately 10% of the NHS budget (Welsh Parliament, 2017). Since 2009 the number of people aged 17 or over living with diabetes in Wales has increased by 40%. If this trend continues, it is estimated that 1 in 11 adults in Wales will have diabetes by 2035/36 equating to approximately 260,000 people (Public Health Wales, 2023). In addition, there have been several policies documents and guidelines produced in Wales to try to address the issues (see Appendix 1).

1.3 Current Diabetes Management

To address the increasing prevalence and associated burden of diabetes, the NHS has established a structured diabetes review pathway within primary care. Although the diabetes review process evolved over time rather than being introduced at a single point, its modern form was largely shaped by the introduction of the Quality and Outcomes Framework (QOF) in 2004. This framework incentivised the systematic delivery of comprehensive diabetes care processes,

embedding regular reviews and evidence-based monitoring as routine and measurable components of primary care practice.

1.3.1 What is a Diabetes annual review

A diabetes review is a comprehensive assessment undertaken for individuals with type 1 or type 2 diabetes to evaluate disease management, identify complications at an early stage, and optimise treatment and support. The review encompasses a range of clinical, biochemical, and lifestyle assessments designed to promote long-term health and reduce the risk of diabetes-related complications. Over time, the diabetes review process has evolved and become aligned with a series of nationally recognised care standards and quality improvement frameworks, including:

- The “9 care processes” (A now widely used benchmark) (see figure 1)
- National audits (e.g. National Diabetes Audit)
- NICE guidance recommending these checks be done every 12 months [nice.org.uk]



Figure 1: The nine care process for diabetes care

Care Processes

All people with diabetes aged 12 years and over should receive all of the nine, NICE recommended care processes and attend a structured education program when diagnosed.

Nine Annual Care Processes for all people with diabetes age 12 and over	
Responsibility of Diabetes Care Providers (included in the NDA 8 Care Processes)	
1 - HbA1c	(blood test for glucose control)
2 - Blood Pressure	(measurement for cardiovascular risk)
3 - Serum Cholesterol	(blood test for for cardiovascular risk)
4 - Serum Creatinine	(blood test for for kidney function)
5 - Urine Albumin/Creatinine Ratio	(urine test for for kidney function)
6 - Foot Risk Surveillance	(foot examination for foot ulcer risk)
7 - Body Mass Index	(measurement for cardiovascular risk)
8 - Smoking History	(question for cardiovascular risk)
Responsibility of NHS Diabetes Eye screening (screening register drawn from practices)	
9 - Digital Retinal Screening	(Photographic eye test for eye risk)

1.3.2 Review of the diabetes management process in the UK and Wales

The National Diabetes Audit (NDA) conducted across England and Wales has consistently highlighted lower rates of completion of recommended diabetes care processes in Wales compared with England. The audit also demonstrates a marked disparity between diabetes types, with individuals living with Type 1 diabetes significantly less likely to receive all recommended care processes than those with Type 2 diabetes, raising concerns regarding equity of access and the consistency of diabetes care delivery. (NHS England, 2023)

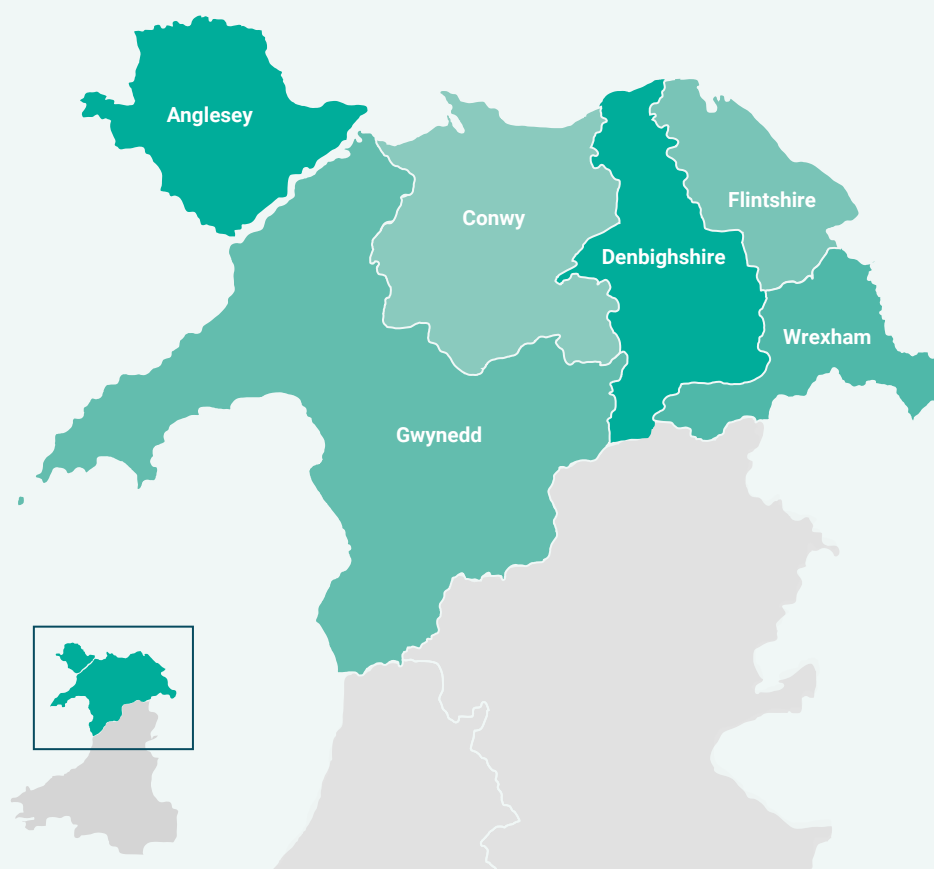
In 2021, the impact of the COVID-19 pandemic on the management of long-term conditions in primary care became increasingly evident. Large

numbers of patients were unable to access routine reviews and monitoring, creating a risk of deterioration in disease control and an increase in preventable complications. There were also concerns that unmet need within primary care could subsequently result in greater demand for urgent, emergency, and secondary care services.

1.4 Setting the Scene (BCUHB)

Betsi Cadwaladr University Health Board (BCUHB) is the largest health board in Wales serving around a quarter of the land mass and a quarter of the population (700,000 people) (see Figure 2). In the region there are three District Hospitals – Ysbyty Gwynedd (West), Ysbyty Glan Clwyd (Central), and Wrexham Maelor Hospital (East), 22 Acute Community Hospitals, 90 Health Centres & Community Clinics and 95

Figure 2. Map of the region covered by Betsi Cadwaladr University Health Board



GP Practices. As well as other associated NHS Services provided by Dentists & Pharmacies. (Betsi Cadwaladr University Health Board, 2026)

Betsi Cadwaladr University Health Board (BCUHB) serves the largest population of any health board in Wales and faces significant challenges associated with an ageing population, socioeconomic inequalities, and the provision of healthcare across a large rural geography. These factors contribute to a substantial diabetes burden and increase the complexity of delivering equitable access to services. Public Health Wales surveillance data show that diabetes prevalence continues to rise across Wales, with North Wales experiencing a significant and growing population living with diabetes. National audit findings also indicate ongoing variation in the completion of recommended diabetes care processes and treatment targets, highlighting persistent inequalities in access and outcomes across Wales. (Public Health Wales, 2023)

1.4.1 Key challenges across 2023/24 in Primary Care

During 2023/24, a service review was undertaken to identify the principal challenges affecting the delivery of diabetes reviews within primary care across Betsi Cadwaladr University Health Board (BCUHB). The review highlighted a number of key barriers to effective service delivery, including:

- Workforce challenges
- Long waiting lists
- Pandemic recovery (not yet back to pre-pandemic achievements in the NDA)
- Widening Health Inequalities; an unmet need
- Variation in care
- More young people with early onset type 2 diabetes
- More people with multiple long-term conditions
- Prevalence of overweight and obesity
- Variation on HCP knowledge in diabetes

- Limited use of risk stratification and prioritisation tools to identify people with the highest unmet need
- Drug shortages e.g. GLP-1s
- New technologies vs technophobia

1.4.2 Evidence for Change

Following the review, it was agreed that a transformation of existing service delivery models was required. A review of the evidence base identified a growing body of national and international literature supporting the implementation of earlier, more proactive diabetes management within primary and community care settings. Studies consistently demonstrate that structured interventions delivered in primary care, including regular monitoring of HbA1c, blood pressure, lipid profiles, and renal function, are associated with improved disease control, reduced risk of both microvascular and macrovascular complications, and favourable cost-effectiveness over the medium to long term (National Institute for Health and Care Excellence, 2022; UKPDS, 1998). These findings provide a strong rationale for redesigning diabetes services to improve access to routine monitoring, optimise clinical outcomes, and support the sustainable management of increasing demand.

Evidence from models of integrated and multidisciplinary diabetes care demonstrates that bringing diagnostics and decision-making closer to the patient through POCT, nurse-led clinics and shared care pathways improve glycaemic control, treatment intensification and patient satisfaction, particularly in deprived and rural populations. The literature also highlights that health systems with high diabetes prevalence face a “capacity gap” in primary care, where rising workload, workforce shortages and increasing multimorbidity limit the ability to deliver guideline-recommended care processes consistently (NHS England, 2019) (World Health Organization, 2021).

This is associated with unwarranted variation in outcomes, including higher rates of emergency admission and preventable complications in areas of deprivation and rurality, patterns that mirror the challenges seen in North Wales. Emerging evidence on POCT in primary care suggests that same-day testing and treatment

decisions can reduce non-attendance, shorten diagnostic pathways, and support more efficient use of clinician time, while also improving patient engagement with long-term condition reviews.

1.5 The long-term condition hub

The North Denbighshire Cluster has supported a transformation process to offer a new system of service delivery for the diabetes annual review. The innovative use of Point of Care Testing (POCT) equipment in this new service enabled rapid access to essential test results during the person's appointment. The project has delivered a significantly higher proportion of completed care processes for people with diabetes living in the Cluster area compared to accessing ‘usual care’.

The long term conditions hub (LTCH) concept was developed in September 2021 during the COVID-19 pandemic, with an initial pilot designed to improve completion of planned diabetes care within a North Wales cluster by introducing point of care testing POCT (HbA1c, UEC, urine ACR), adopting a nurse consultant-led model, enhancing the role of primary care healthcare assistants, and delivering a two-month demonstrator pilot (see Figure 3).

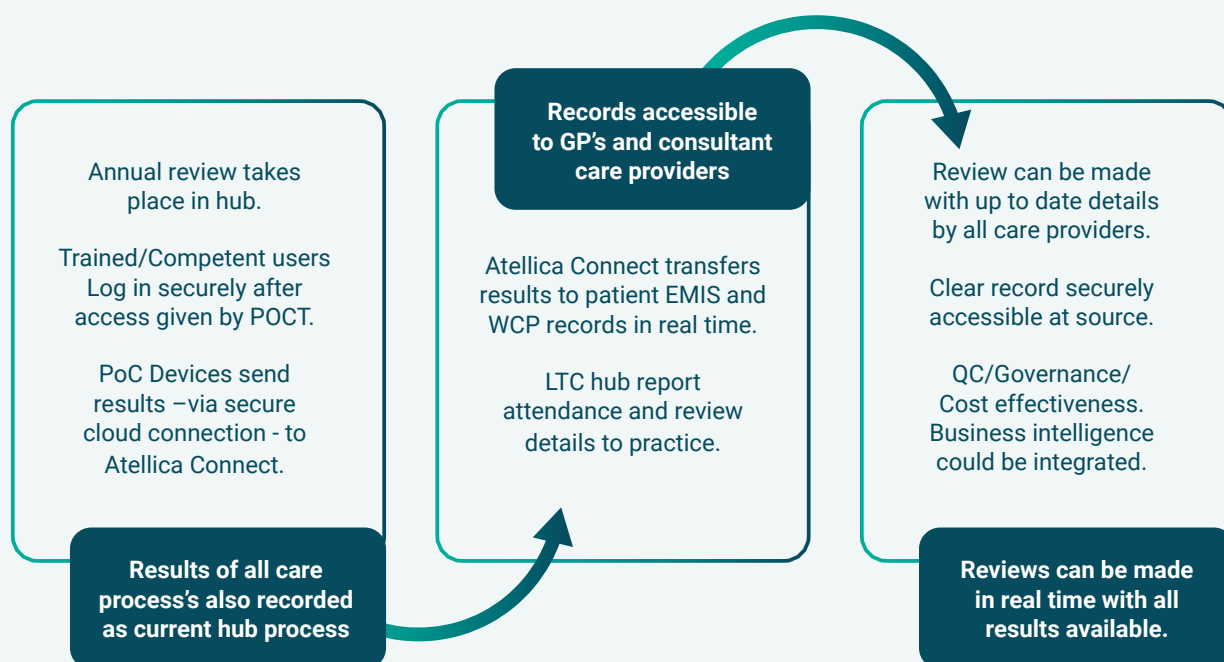
Despite delays caused by covid vaccination priorities in primary care, the pilot ran from February to March 2022 and produced encouraging results, leading to expansion and refinement of the model supported by cluster investment in chronic condition nurses.

In June 2022, all six practices in the cluster were benefiting from the adapted approach. The LTCH model operated as a collaborative, cluster-based hub providing a one-stop screening and review service for long-term conditions, delivering POCT-enabled annual care processes for diabetes, hypertension, chronic kidney disease, and cardiovascular risk, facilitating same-day follow-up reviews by practice nurses, nurse practitioners, and specialist practitioners, standardising lifestyle advice and patient education. Enhancing patient experience through a streamlined, efficient care pathway.

1.5.1 Point of care testing (POCT)

A key element to the LTCH was the integration and successful operation of point of care (POCT) testing at localised sites. It was

Figure 3. Overview of the concepts behind the LTCH



intended that the POCT will support in the efficient decision making within the LTCHs and reduced the burden on the system due to additional appointments and processes.

1.5.1.1 Role and governance of POCT departments in Wales

Point of Care Testing (POCT) (see figure 4) departments in Wales are embedded within pathology and operate under the leadership of a Clinical Lead, a Service Manager, and a skilled multidisciplinary team comprising Biomedical Scientists and Nurses. These teams play a critical role in the evaluation and verification of new POCT technologies, undertaking comparative studies against gold standard laboratory methods to ensure analytical accuracy, clinical safety, and suitability for patient testing.

POCT departments are responsible for maintaining rigorous quality assurance through oversight of internal quality control (IQC), external quality assessment (EQA), verification of POCT devices against laboratory methods, training, competency assessment, and adherence to Health Board governance frameworks in line with the Welsh Government POCT Policy.

Their work ensures that all POCT activity meets nationally agreed standards and is delivered safely and consistently across clinical services.

1.5.1.2 The Role of POCT as a Complement to Laboratory Diagnostics

Laboratory based testing is widely recognised as the gold standard for diagnostic accuracy, benefiting from highly controlled conditions, complex analytical platforms, and comprehensive quality assurance processes. However, point of care testing (POCT) offers distinct advantages that complement laboratory services, particularly in environments where timely clinical decisions are essential.

Although POCT may sacrifice some of the analytical depth achievable in a laboratory, it provides rapid, actionable results at the patient's side, supporting earlier intervention, improved patient flow, and more efficient pathways of care. When used for monitoring, screening, and managing long term conditions, POCT delivers clinically reliable results that meet identified needs while reducing delays, minimising unnecessary hospital attendance, and enhancing patient experience. With strong

Figure 4. Examples of POCT devices



governance from the POCT team, POCT represents a highly valuable extension of diagnostic capability within both community and acute settings. The benefits of POCT have been proven during the pilot of the North Denbighshire diabetes hub model, they included:

- Additional service that encourages health professionals from primary and specialist services to work better together to improve diabetes care, thus blurring traditional service delivery approaches

- Proven the model facilitates immediate POCT results to be provided to the person attending the service
- Created a positive patient reported experience of the model compared to usual care

2. The New Service

2.1 Overview

In 2024, the project secured Welsh Government funding to expand the model and introduce digital connectivity across three GP-based LTCH sites.

This involved:

- Point of care team support from pathology for training, implementation, EQA & QC monitoring & troubleshooting
- Collaboration with Cain Medical
- Cyber security and DPIA compliance
- Development of a server to host Siemens Atellica Connect
- Establishing a secure cloud-based results transfer pathway

2.1.1 Funding

This project was supported through the Welsh Government's MedTech Accelerator Fund, which was awarded via a competitive funding process designed to support the adoption and evaluation of innovative healthcare technologies. The funding package also included provision for an independent evaluation of the project, undertaken by the Tritech Institute at Hywel Dda University Health Board, to assess implementation, outcomes, and the potential for wider scale-up across NHS Wales.

2.2 The diabetes transformation project

The diabetes transformation project built on the success of the LTCH model by introducing an innovative, technology-enabled approach to improving planned primary care for people living with diabetes across North Wales. Led by Julie Lewis, Nurse Consultant and Clinical Lead for Diabetes at BCUHB, the project redesigned care pathways and integrated point-of-care testing (POCT) to improve the consistency and quality of annual diabetes reviews that would take normally

take up to 6 separate appointments. Its core innovation is a nurse-led “one-stop shop” model that enables same-day testing, clinical review, and treatment decisions, demonstrating how streamlined pathways and collaborative cluster-based working can enhance delivery of diabetes care processes, improve patient experience, and reduce unwarranted variation.

The initiative directly addressed long-standing pressures in primary care such as workforce shortages, long waiting lists, widening health inequalities, and inconsistent diabetes management by embedding technology and reshaping service delivery to create a sustainable, person-centred model for long-term condition care.

The project aimed to assess the potential impact of scaling the approach across all Welsh health boards, with an increase in POCT staff capacity to enable the service to extend its support into primary care, ensuring safe, consistent, and sustainable delivery.

The development of community hubs was anticipated to help ease pressure on hospitals by improving patient flow, reducing avoidable A&E attendances, and strengthening a preventative, sustainable model for managing long-term conditions.

Connecting primary care hubs to the POCT service via POCT middleware provided a direct, secure interface into Pathology. This infrastructure enables patient results to be recorded and monitored in real time by the POCT team, while simultaneously allowing results to be transmitted to the Welsh Clinical Portal through the Laboratory Information Management System (LIMS) (see Appendix 2 for a diagram of the data transfer).

2.3 Delivery Approach

2.3.1 The service

Through the expanded project, the model was available for surgeries in North Denbighshire to access. POCT was incorporated into a ‘one-stop’ clinic model for the diabetes annual review appointment.

Using test results during the appointment enabled immediate assessment, and a negotiated plan of care to be constructed in a

timely way between the person with diabetes and a competent health professional.

To ensure equitable access for individuals who were unable to travel to the designated hub practice, particularly those living in more deprived communities, the service was also delivered from alternative locations closer to patients’ homes and accessible on foot. The flexibility to deploy the pathway across a range of community-based clinical settings, including smaller and single-handed practices, strengthened the place-based approach to service delivery and enabled care to be tailored to local population needs while reducing geographical and socioeconomic barriers to access.

Having the results immediately transmitted from the WPOCT software to the Welsh Clinical Portal allowed clinicians to have the results available digitally and provided a results history to observe/audit. The laboratory had the ability to monitor from a distance by ensuring that the laboratory POCT analysers were performing correctly at their location & were working safely for patient testing.

Only staff who are deemed competent by the POC Team were enabled access to POC equipment via password protection. Quality control data & reagent/test numbers were available in real time to ensure a cost-efficient service.

2.3.2 Stakeholders

The key stakeholders for the new service included:

- People living with diabetes - The PREMS reporting has provided valuable qualitative insight into the patient experience of accessing diabetes care through the new model (compared to usual care). The clinic templates were designed and modified specifically for this project by a neighbouring cluster GP, to ensure that a systematic recall process could be followed, that coding and units of measurement from the POCT results were correctly recorded; and that review measures (beyond diabetes) could also be completed on the day
- The project team actively engaged with all primary care services in the Cluster to encourage a ‘drop-in’ on any of the hub days. This helped colleagues who may

have been hesitant to commence, to see the process in action and meet the team. This approach improved engagement

- The Cluster coordinator reported on progress / any questions at cluster level were regularly presented at the Cluster meeting. A range of primary and community stakeholders from different service areas were positive about the service model. Including GP and senior community nursing support which was consistently fed-back to the small clinical team providing this service
- BCUHB Pathology POCT leads have visited to walk through the process. Oftentimes, the patient facing opportunities are low in such services. Seeing the model in action has provided colleagues with reassurance regarding the quality and competency surrounding the POCT analysis and data reporting
- Senior executive colleagues within the Health Board including the Executive Director for Nursing, the Primary Care director and Transformation leads visited the LTC hub, seeing an opportunity for spread and scale, and provided valuable feedback as to the utility of the model, potential expansion, and target areas (inverse care, those at risk for admission) where additional value can be realised
- Clinical teams - The specialist nurses for diabetes (DSN's) were frequently involved, to mentor the team, provide clinical updates, and to provide direct clinical advice that reduces the need to refer to the hospital-based diabetes team. As time has progressed, and skill base improved, the 'Hub' staff therefore relied less on the DSN's for direct advice and there is now a very well-connected service model in place where the 'Hub' team can access prompt advice by telephone
- Siemens provided the equipment and testing technology required for the project to offer the range of POCT procedures undertaken in the LTC Hub. The model is a test bed for potential investment and growth, and there is international interest in the scope of practice within a joint working process for this (and other similar companies) to consider as future

ventures. Some of the analysers have been purchased outright as part of the LTC hub. Others were provided on loan from Siemens

2.4 Outcomes of the service

- The service enabled planned care reviews in one clinic appointment thus increasing the capacity for diabetes annual reviews in North Denbighshire
- On the spot POCT testing and results for Urine ACR, HbA1c and eGFR. This was discussed as part of a complete plan of care in one appointment
- Reduction in the requirement for recall to discuss tests and measures arising from traditional annual review appointments
- Immediate 24hr ambulatory BP measuring (linked directly to the patient record) as per gold standard NICE guidance for assessing hypertension
- Prompt results and changes in therapy for glucose control, promoted CVD risk reduction and optimised safe kidney disease management (BP/ Microalbuminuria)
- Access to all therapies within the relevant NICE guidance, including injectable treatments for glucose control

2.4.1 Strengthening POCT delivery through strategic collaboration

The project required close collaboration and communication between the BCUHB POCT leads, Siemens & Cain Medical, bringing together several essential components to ensure rapid and effective implementation. This included the use of Siemens EPOC NXS analysers, which were purchased for the project, alongside DCA Vantage devices provided on loan, as well as comprehensive POCT training and competency assessments for staff (see Figure 4).

Robust clinical governance and quality control processes were established to maintain safety and accuracy, and the strong existing relationship with Siemens enabled the team to mobilise quickly and deliver the project at pace.

Figure 5. Infographic showing the key enablers in developing the POCT Infrastructure

BCHUB & Siemens Partnership
Technology used 
Siemens EPOC NXS analysers (purchased)
Siemens DCA Vantage devices (loaned)
Workforce Training 
Full POCT training programme
Competency assessments for all staff involved
Quality & Governance 
Strong clinical governance framework
Ongoing quality-control processes to ensure accuracy and safety
Rapid Mobilisation 
Enabled by long-standing, trusted collaboration
Good communication with BCUHB POCT leads and Siemens

Integration of the POCT analysers into a dedicated POCT middleware platform enabled secure monitoring, storage, and review of patient results by the POCT team, while supporting robust governance, quality assurance, and connectivity standards. By replicating principles used within the central laboratory environment, the model ensured consistency, full traceability, auditability, and effective oversight across all testing locations. The middleware infrastructure also facilitated verification of POCT analyser performance against laboratory methods, ensuring testing remained safe, accurate, and aligned with the laboratory gold standard.



2.4.2 Impact on ways of working

Another benefit of the new model was its impact on staff working practices, with key changes and perceived benefits reported by participants summarised in the table below.

Table 1. Impact on ways of working

From fragmented appointments to a one stop model	The current hub consolidates the annual review into a single appointment, compared with multiple contacts previously across outpatients departments/ GP/practice nurse that were often missed or rearranged.
Workforce shift	Move from multiple professionals and sites to a nurse/HCP led one stop clinic completing the 8 care process measures in a standardised way.
Near-instant clinical decision making (except for lipids)	Point of care testing (POCT) provides same day results for key analytes (e.g., HbA1c via DCA Vantage, blood gases/chemistry on EPOC), enabling medication changes at the appointment; lipids still followed the laboratory route. Lipid analysers were not available at the time of the project, but are now available and could feasibly be incorporated.
Laboratory pathway still drives delay for lipid-dependent decisions	Where laboratory testing is required, treatment decisions can be delayed by up to two weeks while results are processed and reviewed. However, when additional non-POCT blood test were needed, these were undertaken during the same hub visit and sent directly to the laboratory, reducing the need for subsequent phlebotomy appointments and improving patient experience.
Quality Assurance	POCT team oversight embeds visible QC/QA, real-time device status monitoring, and assurance of staff competency into routine primary care practice.
Digital flow improving, but interoperability is the constraint	Devices are connected via the POCT infrastructure/cloud, but while the trial is running, hub results still require printing /transcription. This is a temporary workaround pending full interoperability with Welsh clinical portal (WCP). WCP integration remains the key dependency (plus IG assurance).

3. Evaluation plan

As part of the project, the Tritech Institute was commissioned to undertake an independent evaluation of the Point-of-Care Testing (POCT) for Diabetes in Primary Care Service. The evaluation was designed to assess the implementation, effectiveness, acceptability, and potential scalability of the service model, providing an objective assessment of its impact on patients, healthcare professionals, and service delivery.

3.1 Evaluation context and aims

The evaluation aimed to assess the implementation of a point-of-care testing (POCT) model for diabetes reviews and to examine its impact on both service users and healthcare professionals involved in delivery. Qualitative data were collected through interviews with key stakeholders to explore experiences of the service, perceived benefits and challenges, impacts on patients and staff, factors influencing successful implementation, and considerations for future adoption and scale-up. These qualitative findings complemented quantitative analyses of service activity, performance, and costs, providing a comprehensive understanding of both outcomes and the operational context in which the model was delivered. Collectively, the evaluation identified the strengths, limitations, and opportunities associated with the POCT approach, informing recommendations for service optimisation and potential expansion across additional primary care and community settings.

3.2 Design

A qualitative service evaluation was undertaken to explore stakeholder perspectives on the implementation and delivery of a point-of-care testing (POCT) enabled diabetes review model within primary care settings in North Wales. The evaluation sought to understand experiences of service implementation, perceived impacts on patients, healthcare professionals, and service delivery, and the key factors influencing adoption, sustainability, and potential scale up. Through engagement with a range of stakeholders, the evaluation examined the facilitators and barriers to implementation,

identified areas for improvement, and generated insights to inform the future development and wider deployment of the model across primary and community care settings.

3.2.1 Tritech Evaluation Plan

The evaluation plan formed an integral component of the overall quality improvement and reporting framework, providing a structured approach to assessing the implementation, effectiveness, and impact of the project. The evaluation process encompassed the following key elements:

- **Evaluation Objectives and Key Considerations**
Defining the purpose, scope, and intended outcomes of the evaluation.
- **Evaluation Questions**
Establishing the principal questions to be addressed regarding implementation, outcomes, stakeholder experiences, and service impact.
- **Data Collection Methods**
Identifying and implementing appropriate quantitative and qualitative approaches to gather relevant evidence.
- **Data Analysis**
Systematically analysing the collected data to identify patterns, outcomes, and insights.
- **Reporting and Dissemination of Findings**
Synthesising and presenting evaluation findings to inform stakeholders, support learning, and guide future service development and decision-making.

3.2.1.1 Key Points included:

- **What are we hoping to learn from the evaluation?**
Whether the use of POCT and digital dashboard systems streamline the current Primary Care Long Term Condition Hub service being delivered at BCUHB, and provides improved outcomes, value, experience and cost effectiveness.
- **What decisions do you expect to make as a result of the evaluation?**

Whether the use of POCT testing and digital management systems are effective and should be adopted more widely.

- **When do you hope to make those decisions?**

Following completion of the project.

3.2.1.2 Evaluation Questions

The evaluation was designed to address the following key questions:

1. Does POCT and associated monitoring platform work and is easy to integrate into the current clinical systems and ways of working at the HUB?
2. Does POCT and associated monitoring platform improve patient outcome?
3. Does POCT and associated monitoring improve the patient experience?
4. Does POCT and associated monitoring platform improve the clinical staff experience and prove useful to staff in helping them manage and treat their patients?
5. Is the POCT and associated monitoring platform cost effective and prove to have value (from a VBHC analysis standing)? And the financial impact of the technology?

3.2.1.3 Data Collection Tools and Activities

A mixed-methods approach was employed for this evaluation, incorporating both qualitative and quantitative methodologies alongside analysis of existing service data. A key consideration within any evaluation is the selection of appropriate data collection methods to address the evaluation questions effectively. The choice of methods influences the evaluation tools required and the activities undertaken. Where primary data collection was necessary, bespoke tools were developed to reflect the specific context of the service. The evaluation utilised the following data collection approaches:

Clinical Data

Clinical data were collected from a range of sources, including clinical portals, performance

dashboards, patient records, and data generated through the POCT devices and associated digital platform. These data were used to assess service activity, clinical effectiveness, and the performance of the POCT and digital systems supporting service delivery.

Patient-Reported Outcome and Experience Measures (PROMs and PREMs)

Patient-reported outcome measures (PROMs) were utilised to evaluate patient health outcomes and experiences associated with the service. Generic measures, such as the EQ-5D, were used alongside technology-focused questionnaires designed to explore patients' experiences of receiving care through a digitally enabled service. Patient-reported experience measures (PREMs) were also collected to assess satisfaction, acceptability, and perceptions of the service model.

Interviews

Semi-structured interviews were conducted with staff who consented to participate in the evaluation. These interviews explored individual experiences of delivering and engaging with the service, providing rich qualitative insights into its implementation and operation. The findings contributed to a broader understanding of the service and the role of POCT technology within it. Interviews also examined staff perspectives on whether the introduction of the new technology improved service delivery. Data were collected at different stages of the project to compare initial expectations with actual experiences and outcomes following implementation.

3.2.1.4 Data Analysis

The analytical approach adopted for the evaluation was determined by the nature of the data collected. Quantitative data were analysed using appropriate descriptive and inferential statistical methods to assess service activity, clinical outcomes, and implementation measures. Qualitative data were analysed using thematic analysis, following the methodology described by Braun and Clarke (2006). This involved an inductive and reflexive process comprising data familiarisation, the generation of initial codes, and the iterative development and refinement of themes. Coding was undertaken

across the dataset to identify recurring patterns and areas of convergence and divergence both within and between participant accounts. Themes were subsequently reviewed, refined, and clearly defined to ensure they accurately represented the data and addressed the aims and objectives of the evaluation. The integration of quantitative and qualitative findings provided a comprehensive understanding of service implementation, outcomes, and stakeholder experiences.

3.2.1.4.1 Qualitative assessment

Qualitative data were collected through semi-structured interviews with key stakeholders involved in the delivery and use of the service. Participants were invited to reflect on the perceived impact of point-of-care testing (POCT) on both staff and patients, identify elements of the model that facilitated or hindered effective implementation, and provide insights into the strengths and limitations of the approach. Interviews also explored considerations for the future sustainability, scalability, and wider adoption of the programme, enabling the identification of factors that may support successful spread across additional settings.

3.2.1.4.2 Service users

A purposive sample of nine stakeholders was recruited to ensure representation from a range of roles involved in the development, implementation, delivery, and governance of the service. Participants included industry partners as well as clinical, operational, and managerial personnel from primary care and broader health system functions, including general practice, service management, and commissioning. This sampling strategy enabled the capture of diverse perspectives on the strategic, organisational, and operational dimensions of the model, providing a comprehensive understanding of its implementation, impact, and future scalability.

3.2.1.4.3 Data collection

Nine semi-structured interviews were conducted using a topic guide designed to explore implementation experiences, perceived impact, enablers and barriers, and future considerations for the model. Interviews were conducted remotely via

Microsoft Teams, audio-recorded with consent, and transcribed verbatim for analysis.

3.3 Ethics

As part of the project governance process, the project was assessed using the Health Research Authority (HRA) decision tool to determine whether it constituted research or service evaluation activity. The assessment confirmed that the work met the criteria for a service evaluation, as its primary purpose was to assess and improve an existing service rather than generate generalisable research knowledge. Consequently, formal Research Ethics Committee approval was not required.

Nevertheless, all participants provided informed consent prior to participation in the evaluation. To maintain confidentiality and protect participant privacy, interview data were anonymised during transcription and all potentially identifiable information was removed from the dataset. Data were handled, stored, and managed securely throughout the project in accordance with NHS information governance, data protection, and confidentiality requirements.

4. Findings

4.1. Implementation, Barriers and Delays

The service was implemented across three general practice sites (Figure 5). During the pilot phase, valuable learning was generated regarding the operational, workforce, and governance requirements necessary to support the sustainable implementation of point-of-care testing (POCT) within primary care settings.

At two sites, local workforce and operational challenges affected the continuation of service delivery. In one practice, staffing pressures and variability in operator training and competency contributed to inconsistencies in device utilisation and performance, ultimately resulting in the service being paused. This experience highlighted the importance of maintaining robust training programmes, ongoing competency assessment, and workforce resilience to support safe and effective delivery within decentralised POCT models. At the second site, changes to staffing and registration arrangements prior

Figure 6. Pictures of the 3 GP sites



to implementation prevented the service from being established as originally intended.

Despite these challenges, the pilot was successfully implemented at the third general practice site, demonstrating the feasibility of delivering a fully connected POCT service within a primary care environment. Feedback from stakeholders at participating sites was positive, and there was interest in sustaining and further developing the model beyond the pilot period. However, the project concluded in December 2025 following the completion of the allocated funding programme. The pilot nevertheless provided important implementation learning and evidence to inform future adoption and scale-up of POCT-enabled diabetes services across primary care settings.

A significant challenge identified during the project was the complexity and timescales associated with digital connectivity, information governance, and system approval processes required to enable secure POCT integration (see Appendix 2). Establishing compliant connectivity pathways across organisations proved more resource-intensive than anticipated and resulted in delays of over 12 months before full implementation could occur. These delays affected project momentum across participating GP sites and limited the available timeframe for full-service evaluation. However, the experience provided important learning to inform future POCT connectivity projects and highlighted the critical need for early engagement with digital, governance, and cybersecurity teams during project planning stages.

4.2. Patient and Carer Experience

The redesigned pathway delivered a far smoother patient experience, with fewer handoffs, fewer missed appointments, and far less need to travel between multiple sites. Same-day medication changes could be made using POCT results, reducing delays in treatment, while only lipid-related follow-ups require later review. Connected POCT devices streamlined testing, minimise transcription errors, and support faster, more reliable decision-making once full interoperability is in place. Clear information-governance arrangements ensured safe data sharing between primary and secondary care, and the shift to a single, nurse-led clinic model means patients received coordinated assessments in one visit rather than navigating fragmented services.

In total 5 number of patients were invited to interview and provided feedback on their experiences of being part of the services. Overall, the pathway reduced inconvenience, accelerated treatment decisions, and provided a more consistent, predictable journey for people managing long-term conditions. Patients consistently

reported a smoother, more convenient experience, valuing the one-stop approach, immediate results, clear communication, and the supportive manner of staff.

When patients were asked to suggest future improvements to the service, the feedback received highlighted a consistently positive patient and carer experience, with staff praised for their caring nature and ability to make individuals feel comfortable. The current “one-stop shop” model is viewed as highly effective, reducing pressure on secondary care while maintaining a high standard of service that patients hope will continue as demand grows. Several patients reported that the clinic has been particularly beneficial in supporting the management of diabetes and overall health, reinforcing the value of sustaining the service in its present form. A key suggestion for future development is the inclusion of retinopathy services within clinic times to further enhance the comprehensive care already provided.

Patients were invited to provide feedback using patient reported experience measures (PREM's) on the one stop shop model; key themes were identified and are presented in the table below.

Table 2: Key themes identified from patient feedback

Convenience & Efficiency: valued getting all tests done in one appointment	“Everything done in the one appointment is much better than the old system.” “No need for further visits – excellent service.”
Immediate Results: appreciated receiving HbA1c and other POCT results on the day	“Having HbA1c results immediately was very helpful.” “Good to get all results there and then.”
Communication & Clarity: felt communication was clear and helpful	“Communication was clear and excellent.” “Staff explained everything that was done.”
Staff Experience: described staff as friendly, reassuring, or professional	“Expert service with a friendly face.” “Nurse... put me at ease.”
Confidence in Care: felt more confident in managing their diabetes after the appointment	“Great advice to assist in lowering blood sugar.” “Found the experience brilliant.”

4.3. Staff and Stakeholders Reflections

A total of nine key stakeholders participated in the interview phase of the evaluation, and the resulting data were subjected to thematic analysis. Participants represented a broad range of perspectives and included general practice staff, healthcare professionals, members of the Point of Care Testing (POCT) team, and industry partners involved in the development and delivery of the service.

Analysis of the interview data identified four overarching themes, reflecting the structural, organisational, and experiential aspects of implementing a POCT-enabled diabetes service within primary care settings in North Wales. These themes captured stakeholders' experiences of service implementation, perceptions of impact on patients and staff, factors influencing successful delivery, and considerations for future sustainability and scalability. The findings were synthesised into the following key themes:

4.3.1. Theme 1: Variation in practice readiness and delivery context

Implementation of the POCT model occurred within a complex and resource-constrained system, shaped by short-term cluster funding, existing contractual arrangements, digital barriers, and variation in local readiness. Across the data, implementation did not emerge only as a technical rollout, but as a service innovation that had to be negotiated within organisational, financial, and operational constraints.

4.3.1.1 Funding fragility and perceived double payment

A recurring concern was the fragility of the funding model. The service relied on cluster funding and project-based resource, which limited opportunities for long-term planning and iterative development. As one participant reflected, "we didn't stand a chance to do that because the funding time frame... it's just the way it comes to us" (P1).

Financial ambiguity also created tension around the legitimacy of the model within existing primary care arrangements. Participants questioned whether the service represented

additional investment in innovation or duplication of activity already funded elsewhere, asking "are we paying twice as an NHS? Are we paying twice for the same service?" (P2). This reflected wider uncertainty regarding how the model aligned with existing funding structures and raised concerns about its long-term sustainability.

4.3.1.2 Short-term contracts and workforce instability

Short-term funding also had consequences for workforce continuity. The temporary nature of project roles made it difficult to retain skilled staff and maintain momentum, particularly where experienced practitioners could not be offered secure employment. This was illustrated by the observation that "we lost a really good member of staff, partly because there was a level of uncertainty about the ongoing funding of the project" (P2). This uncertainty was perceived to impact workforce continuity, with implications for retaining expertise and embedding consistent ways of working across sites.

4.3.1.3 IT, governance and integration barriers

Implementation was also influenced by the complexity of digital integration and governance requirements, which affected the pace at which the model could be embedded within existing clinical and information systems. Although substantial progress was achieved during the pilot, connectivity arrangements continued to develop throughout the project, resulting in some sites relying on interim manual processes while system integration was being established. As one participant observed, "connectivity was starting to get there" and the various systems were beginning to communicate more effectively with existing clinical platforms (P7). Nevertheless, some POCT results still required manual transcription into EMIS during the evaluation period, reflecting both the transitional stage of the digital infrastructure and the broader challenges associated with implementing secure, interoperable connectivity across NHS systems.

The phased approach to integration was consistent with the objectives of the pilot, which was designed primarily to test and demonstrate the feasibility of secure connectivity between

POCT devices, middleware platforms, and pathology information systems, rather than to deliver a fully operational end-to-end service from the outset. While interim manual processes remained necessary in some cases, the pilot successfully demonstrated that a connected POCT infrastructure could operate safely within existing NHS digital, information governance, and clinical governance frameworks.

As system configuration, connectivity pathways, and governance arrangements continued to mature throughout the project, some of the anticipated efficiencies associated with full interoperability were not realised within the pilot timeframe. However, these implementation challenges generated valuable learning regarding the technical, governance, and organisational requirements necessary to support wider adoption and future scale-up of the model.

Stakeholders also highlighted the significant effort required to secure the approvals necessary for implementation. Participant 9 described how cyber security assessments, Information Governance reviews, technical system configuration, and completion of a Data Protection Impact Assessment (DPIA) all needed to be undertaken within a compressed implementation schedule, at a time when Digital, Cyber Security, and Information Governance teams were operating under considerable organisational pressures. As noted by P9, several critical activities had to be progressed rapidly because “there was a short implementation period before the operational phase was due to begin” (P9). These experiences emphasised that successful deployment of connected POCT services depends not only on the availability of technology, but also on organisational readiness, effective cross-sector collaboration, robust project management, and sufficient capacity within enabling services to support implementation and scaling.

4.3.1.4 Variation in how services were set up and delivered

Implementation varied across sites, reflecting differences in how diabetes care was already organised and delivered. Existing service modes differed in structure and consistency, with some practices operating more formalised pathways

than others. In some settings, care followed a structured review process, where “they go for their annual review and then they automatically get an appointment at a determined interval...sometimes that could be two weeks” (P1). However, this level of organisation was not consistent across sites.

Variation was also evident in the extent to which GP practices were prepared to adopt the new model, particularly regarding existing workflows and previous experience with connected POCT devices. For many GP teams, introducing CMExtender marked a notable departure from established arrangements in which hospital POCT teams typically oversaw device connectivity and management. This influenced how readily the model could be embedded in day to day practice. Although CMExtender was described as functioning largely “out of the box” (P9), its use still required practices to adjust to new processes, including automated, real time transmission of results. These adjustments highlighted how differences in digital maturity, staff familiarity, and established routines shaped the ease with which practices could integrate the model, resulting in varied implementation experiences across sites.

Participants also highlighted variation in how services could be operationalised in practice. While some models assumed the ability to deliver care within defined structures, this was not always feasible locally. As one participant noted, “it’s all very well saying you’ll just schedule those eight patients, but...they’re not available in my practice” (P2), reflecting differences in workforce availability and capacity. In response, some service adapted delivery models to better align with local contexts, including redistributing roles or shifting where care was delivered.

The configuration of services also influenced accessibility and uptake. Earlier hub-based models, which required patients to attend central locations, were described as creating barriers for some groups, particularly where travel or unfamiliar settings were involved. Shifting delivery of the HUB approach/model into local practices was associated with improved engagement, with patients describing as being “very happy to come and walk into the surgery in a familiar environment (P1).

Taken together, these findings suggest that implementation was shaped by local service organisational and capacity, with delivery models adapted overtime in response to contextual constraints. and context-dependent, shaped not only by the model itself but by the extent to which funding, staffing, governance, and local service structures could support it.

4.3.2 Theme 2: Delivering POCT in practice: operational complexity, governance, and enablers of clinical confidence

4.3.2.1 Restructuring workflows and improving efficiency

The introduction of POCT reshaped existing clinical workflows, reducing reliance on laboratory schedules while introducing new operational, governance and assurance requirements. Alongside these challenges, a range of enabling factors, including leadership, collaborating, and technical support, were critical to delivery and the maintenance of clinical confidence.

Traditional laboratory pathways were described as externally constrained, with service delivery shaped by transport logistics rather than clinical need. For some clinicians, having to draw blood “in the morning because that’s when the transport comes” (P2) meant that this single operational requirement “completely dictates how I’m running clinics” (P7). In contrast, POCT enabled a more responsive and clinically aligned workflow, allowing immediate action on results and the restructuring of appointments around patient need rather than transport schedules. The shift was characterised by participants as offering “a level of flexibility we just didn’t have before” (P2), moving routine diabetes reviews away from rigid sequencing and towards a more efficient, real-time model of care.

Participants described changes in how clinics were organised, with fewer steps required and processes becoming easier to manage. With POCT embedded into clinic delivery, participants noted that processes that previously required multiple stages could be consolidated. This was reflected in wider efficiencies, where elements of testing and review could be delivered within a single visit, reducing fragmentation across appointments. As one participant explained, “...

everything else was able to be done in that one appointment” (P7). This consolidation also enabled a more streamlined care pathway, reducing the need for separate appointments and supporting more efficient delivery of care.

4.3.2.2 Governance, uncertainty, and the development of clinical confidence

The introduction of POCT transferred elements of diagnostic testing traditionally undertaken within laboratory settings into primary care, thereby creating additional responsibilities relating to governance, quality assurance, and clinical validation. These requirements reflected the enhanced level of oversight necessary to ensure the safe and effective operation of connected POCT services. Throughout implementation, confidence in the reliability of POCT results was reinforced through ongoing verification and quality assurance activities, including the periodic comparison of POCT results with those generated by central laboratory methods to confirm analytical accuracy and support informed clinical decision-making. As one participant explained, services were “duplicating the tests periodically... to be able to validate the results...and constantly looking for ways to strengthen the safety and governance” (P2). This approach helped maintain clinical assurance, supported regulatory compliance, and fostered trust in the adoption of POCT within routine primary care practice.

Participants recognised that small differences between POCT and laboratory results can occur due to the differing analytical methodologies and near-patient testing environment, and these were generally considered clinically acceptable within defined performance limits. As one participant reflected, “we never really noticed any big discrepancies... maybe like two or three either side...but we never had any that required us to question the machine’s accuracy” (P7). Where larger variations were identified, these were appropriately escalated and investigated through established POCT governance processes, demonstrating the importance of ongoing quality oversight, competency assessment, and comparison against laboratory standards. In one example, “we did have an issue with one of the centres where we were getting much bigger differences than we were expecting” (P6),

prompting further review and corrective actions to maintain patient safety and clinical confidence.

These experiences reinforced the importance of robust POCT governance frameworks in ensuring reliable and clinically safe testing. Rather than undermining confidence in POCT itself, the evaluation demonstrated the effectiveness of quality assurance measures, including training, competency assessment, IQC, EQA participation, and laboratory verification processes, in identifying and addressing issues promptly.

Participants also highlighted the extensive digital governance requirements needed to operate a connected POCT model within NHS cyber-secure environments. Because results were transmitted directly from community settings into hospital systems, teams were required to complete cyber security assessments, Information Governance review, and a DPIA. As one participant noted, the CMExtender platform provided “end-to-end encryption, dual redundancy, and continuous monitoring” (P9), supporting compliance with NHS security standards (see Appendix 2).

4.3.2.3 Operational challenges and maintaining safety

Operational challenges also contributed to initial uncertainty during implementation. For example, errors in specimen handling were identified as a source of variability, with one participant noting that “the wrong bottles were used for a while, and the use of the wrong bottle impacted on the accuracy of the test... and when that was resolved, it was all fine again” (P2). Such experiences highlighted the importance of robust training, standardised operating procedures, and ongoing competency assessment to ensure the reliability of testing processes.

Quality assurance requirements also demanded continuous oversight and monitoring. Participants reported occasions where “the quality control... wasn’t quite right” (P1), requiring testing activities to be temporarily suspended until corrective actions had been implemented and assurance processes completed. In some instances, discrepancies between results or uncertainty regarding test performance necessitated escalation through local governance pathways. As one stakeholder explained, there

was “conflicting information... at one point... the Nurse Manager stopped it” (P2), illustrating the cautious and safety-focused approach adopted throughout the pilot. These experiences reinforced the importance of strong governance arrangements, responsive quality management processes, and clear lines of accountability in maintaining patient safety and clinical confidence within POCT-enabled services.

Operational challenges were not limited to technical factors but were also influenced by how testing processes were understood and applied within routine clinical practice. In some cases, variation in sampling technique and adherence to standard operating procedures contributed to differences in test results. Participants recognised the importance of maintaining consistent practice within POCT environments, noting that “users get complacent...they start cutting corners with testing...and you can train someone every week; they still won’t always do it right” (P5). Given the sensitivity of point-of-care sampling techniques, even small deviations in collection procedures were perceived to influence result consistency, with participants observing that “if they change the way they sample, it alters the result” (P3).

These experiences reinforced the importance of ongoing competency assessment, refresher training, and quality oversight in supporting safe and sustainable POCT implementation. In some sites, variability in user confidence and interpretation of discrepancies affected engagement with the service, particularly where expected and observed results differed. As one participant described, “the whole process... just broken down because they didn’t trust the devices anymore” and staff “wanted to just go back to getting the results the old way” (P5). However, these situations also demonstrated the value of structured POCT governance processes in identifying issues early and supporting investigation, retraining, and comparison against laboratory methods.

Despite these challenges, mechanisms were in place to support safe implementation and build confidence over time. The ability to repeat tests, compare results with laboratory outputs, and monitor variation allowed discrepancies to

be explored rather than acted on uncritically. However, confidence remained closely tied to the perceived reliability and accessibility of results. Concerns were raised where results were not easily integrated into existing systems, with participants highlighting that limited connectivity made results less accessible for wider clinical decision making. Without reliable integration, there was a risk of reduced confidence or gaps in understanding, particularly where results could not be easily verified or shared across teams.

Participants also highlighted the importance of operational reliability and responsive support in building and sustaining confidence in POCT systems. Although CMExtender was described as operating consistently without faults or service interruptions, implementation still required device reconfiguration to ensure full compatibility with local systems. Practices valued the availability of dedicated technical support, including assistance with configuration, maintenance, and troubleshooting, reducing the burden on clinical teams. As P9 reflected, having a “fully managed service” in place was critical for enabling smooth adoption. These experiences underscored that technical performance alone was not sufficient; sustained operational support was seen as essential for maintaining clinical confidence and ensuring safe delivery.

4.3.2.4 System requirements for sustainable implementation

Alongside this, participants described the importance of system-level support in sustaining confidence and enabling safe use. Access to appropriate infrastructure and ongoing investment was seen as critical, with participants highlighting the needs to “address the limitations around connectivity and establishing sustained funding” (P4). Without this, implementation risked remaining partial, with systems “dragging on and on without proper funding” (P7) and requiring teams to “cobble together a project” (P4) rather than embed a fully integrated service.

Taken together, these findings indicate that while POCT enabled more flexible and immediate care delivery, its successful integration into routine practice depended on the establishment of robust governance processes, reliable infrastructure, and the gradual development of

clinical confidence. The model functioned not as a direct replacement for existing systems, but as an approach requiring ongoing validation, oversight, and adaption. Without sustained investment and system-level alignment, there is a risk that implementation remains partial rather than embedded within routine care delivery.

4.3.3 Theme 3: Transformative impacts on care delivery and patient experience

Despite implementation challenges, participants consistently described the POCT model as improving both care delivery and patient experience, largely through consolidating care processes, providing immediate results, and enabling more interactive, patient-centred consultations. These changes supported a more holistic way of working, with staff “seeing this holistic care process and... learning from it” (P2) as they shifted away from fragmented pathways. However, these benefits were not uniformly realised. With variation across settings linked to differences in local implementation conditions, leadership, and workforce engagement.

4.3.3.1 Dependency on workforce engagement and implementation conditions

While participants described improvements in care delivery and patient experience, these benefits were not consistently realised, and remained dependent on local implementation conditions, workforce engagement, and clarity of roles. The success of the model was associated with the presence of clear leadership and shared understanding of the pathway, with early delivery often supported by a defined clinical lead who structured roles and responsibilities. As the model expanded, however, this coherence was not maintained, with participants observing that “as it expanded, that was lost because there was no figurehead” (P5). Others similarly reflected on the absence of structured oversight, noting that “what we lacked was project management to support the fidelity of the model going forward” (P1).

This lack of structure contributed to variation in how the model was understood and enacted across sites. Participants highlighted that while staff could be trained in the technical use of devices, this did not necessarily translate into

effective implementation. As one explained, “you can train someone to use a machine, [but] if they don’t understand how that fits into the process, it’s not going to work” (P3). Clinicians also emphasised that successful delivery required more than technical competence, relying on teams “who trust the equipment, who trust the results and have an established protocol to use those results” (P4). In practice, gaps in understanding meant that “the process got lost and wasn’t really fully understood... by a lot of the teams” (P5), contributing to inconsistent delivery across settings.

4.3.3.2 Streamlining care pathways and reducing system burden.

The introduction of POCT enabled a shift from multi-step, fragmented care pathways to a more consolidated “one-stop model” (P6). This reduced the need for multiple appointments and simplified the overall structure of care delivery. From an operational perspective, this was associated with lower administrative demands and more efficient use of clinic time. As one participant noted, “once we had the point of care tester machines, we didn’t necessarily have any of that additional administrative activity... most of our patients came into the clinic and we did most of their diabetic review in clinic itself” (P7). This reduction in administrative complexity was closely linked to the consolidation of appointments, with participants describing how “from an administrative point of view, we saved a lot of time as well as appointments...because otherwise you need 3 appointments to get this done” (P8).

This shift also reflects a broader restructuring of care delivery, where reliance on sequential appointments is replaced by a single, integrated interaction. As one participant noted, traditional models could require “six or seven appointments for a patient to get the treatment they need” (P3), highlighting the extent to which the POCT model was perceived to reduce system complexity and patient burden.

4.3.3.3 Immediate clinical decision-making and responsiveness

A central feature of the model was the availability of results during the consultation, enabling more immediate and responsive clinical

decision-making. Participants highlighted the benefit of patients receiving “access to their actual results within 10 minutes” (P1), allowing clinicians to act on current data rather than relying on retrospective review.

This immediacy was also seen to enhance clinical action within the consultation itself, with participants describing how POCT “gives them an immediate result they can then act on... there’s that immediacy of clinical action” (P4). In contrast to traditional pathways reliant on laboratory processing, this supported real-time treatment decisions, informed decision-making and reduced delays between testing, treatment and review.

Participants emphasised that this immediacy was not simply a matter of convenience but fundamentally altered the ability to make timely clinical decisions, with one noting that “there is no other way...to give results that quickly and make those clinical decisions... without the use of point of care devices” (P3).

4.3.3.4 Enhancing patient understanding and engagement

The availability of real-time results also changed the nature of clinician-patient interactions, supporting more active patient involvement in care. Consultations were described as more interactive, with clinicians able to tailor discussions dynamically: “having a look at your results today... is there anything here that you’re particularly worried about” (P1). This created opportunities for more personalised dialogue, shaped by patient concerns and priorities.

Participants also described how real-time discussions supported understanding, with clinicians able to adapt explanations based on patient responses; “being able to explain things in a way that you can sense from the person’s questions, that they’re reinforcing that they know what it is that you’re trying to explain” (P1). The visibility of results further supported patient reflection and engagement, with patients able to compare and interpret results over time: “they can actually say, oh, right, this one looks really bad. What was it like last time”? (P2). Additionally, it allows for immediate trends in their bloodwork and conversations to be held around any changes to their diet or health behaviours that

need to be made. For example, “I can bring up their trends, and I can go back and discuss this with them compared to what it is today and not was it was a month and half ago”. This allows clinicians to have “a good conversation about the results there and then” (P7).

In addition, the transparency of completing care within a single visit appeared to increase patient appreciation of the process, with patients “seeing that everything’s being done there and then...and they’re probably...a bit more appreciative of the clinics” (P8).

4.3.3.5 Improving access, reducing barriers, and supporting re-engagement

Flexibility in service delivery was identified as an important enabler of access, particularly for working age populations and those facing practical barriers to engagement. Extended hours supported attendance among groups less able to engage with traditional models, with “working age individuals... happy to come to those evening appointments” (P2); “the evening clinics in particular were a game changer” (P1). Adaptions to appointment scheduling also helped address logistical challenges, particularly for patients relying on public transport with services allowing sufficient time to “get from the bus station to the venue” (P1). More direct communication routes further supported access, with participants noting this “made a big difference” for those struggling to engage (P1). These changes were also important in reducing disengagement and supporting re-engagement with care. Participants described how patients could “DNA three or four appointments and then... fall out of the system” (P7), highlighting the cumulative impact of access barriers. The POCT model helped mitigate this by combining care into a single visit, with patients “more likely to attend that one clinic knowing it’s one and done” (P8).

Collectively, these approaches improved engagement, with clinics reporting that “patient engagement was quite high” when delivered in more flexible, accessible formats (P8). Overall, adaptable service design not only reduced practical barriers but also enabled services to reconnect with individuals previously lost to follow-up, supporting more equitable access to care.

4.3.3.6 Patient experiences and perceived value

Overall, patient experience of the service was reported to be highly positive, with stakeholders describing the model as more convenient, efficient, and responsive than traditional approaches to diabetes monitoring. Participants consistently highlighted that patients valued receiving results during the same appointment and appreciated the ability to complete multiple elements of their diabetes review within a single visit. The immediacy of results supported more timely discussions and decision-making, while the consolidation of care reduced the need for multiple appointments and repeat attendances. As one participant noted, the service provided the “convenience... [of a] one-stop-shop... [where] patients were quite engaged” (P7). This integrated approach was perceived to enhance patient engagement, improve the overall care experience, and provide a more streamlined and reassuring pathway for individuals managing diabetes.

Although P9’s reflections centred primarily on infrastructure and implementation; they also highlighted positive effects on staff motivation and perceptions of service value. During a visit to one GP practice, P9 observed that teams were “highly engaged” and found the system straightforward to use, with clear benefits for patient flow and pathway efficiency. The portability of the battery powered Field Module enabled testing to be carried out flexibly across the practice, supporting more responsive care. These observations illustrate how digital enablement, once embedded, can enhance staff experience and workflow satisfaction, thereby contributing to improved patient experience and perceived service quality.

In addition to stakeholder accounts, patient feedback reported by participants provided further evidence of the perceived value, acceptability, and positive impact of the service model. Patients frequently described their experiences in highly favourable terms, with comments such as “first class service, best I’ve ever had, very informative” (P6) and “I highly recommend these one-stop-shop appointments” (P6), reflecting high levels of satisfaction and strong endorsement of the approach. The integrated nature of the service was particularly

valued, with patients highlighting the benefits of receiving results, clinical interpretation, and associated assessments within a single appointment. As one patient reportedly stated, “it was good to get all the results and tests there and then, so there was no need for further visits” (P6). These accounts suggest that the POCT-enabled pathway improved convenience, reduced the burden associated with multiple appointments, and contributed to a more efficient and patient-centred experience of diabetes care.

Patient feedback also highlighted the quality of clinical interaction and communication. Experiences were described as “good comprehensive information from the diabetic nurse” and “lots of good information given” (P6), with staff perceived as “professional, pleasant and very knowledgeable” (P6). These interactions appeared to contribute to patient reassurance and comfort, with individuals reporting that they “felt very assured” and that clinicians “made [them] feel at ease” (P6).

Practical aspects of the service delivery were also important to patient experiences. Patients valued being “seen on time” (P1) within a calm and organised environment, reinforcing perceptions of efficiency and respect for their time. Longer, more focused appointments were also viewed positively, with one participant reflecting that patients were “seen...in a timely, lengthy appointment for what’s required and not a 5- or 10-minute appointment” (P6), suggesting that the model enabled more meaningful clinical engagement. However, participants also acknowledged that these benefits must be considered alongside costs. POCT was recognised as “a lot more expensive than sending stuff to the lab” (P3) but its value was understood in broader terms. The “timeliness of it...[and] the fact that you’re not transporting things backwards and forwards” (P2) were seen as integral to its contribution, suggesting that traditional cost comparisons may not fully capture its wider system and patient-level impact.

Collectively, these findings suggest that POCT represents more than a service-level improvement, instead reflecting a fundamental shift in how care can be delivered within

primary care systems. Participants described the model as enabling a move towards more proactive and responsive care, with some suggesting that “if they want a healthcare system that is preventative rather than curative... the only way to do it is point of care” (P3). This positions POCT not only as a tool for improving individual consultations, but as a potential mechanism for addressing wider system pressures. Participants described how the model fundamentally altered service delivery, “cutting off how many interactions there were previously and how many interactions there are now” (P2), highlighting its potential to reduce complexity, streamline pathways, and support more efficient use of healthcare resources.

4.3.4. Theme 4: Conditions for sustainability and future scalability

4.3.4.1 Technology infrastructure and digital integration requirements

A central requirement for future implementation, and a key enabler of scalability, was the need for improved technology and fully integrated digital systems. Participants consistently highlighted the importance of interoperability across platforms, particularly the ability to incorporate POCT outputs directly into existing patient records. As one participant explained, the system “has the capability of sending it to EMIS and connecting with Welsh Patient Administration System (WPAS) to collate for that patient information” (P3), supporting more comprehensive and accessible clinical data.

Beyond immediate use, integration was also seen to enhance clinical oversight and continuity, with platforms described as “efficient, auditable... [where] they can look back at previous results” (P3). However, these capabilities were not consistently realised. Integration remained partial and evolving, highlighting the need for fully interoperable systems with real-time data flow.

Limitations associated with existing devices further emphasised the need for modernised and standardised analyser fleets. Participants noted that “the ones they had for the project are old machines and [an] old model” (P3), with “limitations, mainly around precision... and some differences in the numbers produced

between the laboratory and the point of care” (P4). Others reinforced this need, explaining that “we would definitely be looking for a more up to date, more precise piece of kit... we would also look for a more modern device for HbA1c analysis” (P4). These factors influenced perceptions of reliability and consistency, particularly in the context of wider scale-up.

Connectivity was also identified as an important enabler for safe and effective implementation. While systems had the capability to integrate, this was not always fully achieved, with participants highlighting the need for improved infrastructure to support consistent data flow and clinical oversight. Limited connectivity was described as raising governance concerns, particularly “the lack of connectivity of these devices in some ways, at least the early part of the project” (P4). Without reliable digital integration and coordinated system-level support, concerns remained regarding data governance, continuity of care, and clinician confidence, which may limit the extent to which POCT can be effectively embedded within routine practice.

P9 also highlighted the broader scalability potential of the digital infrastructure underpinning the model. While CMExtender had been used elsewhere in the NHS, this project marked its first deployment within NHS Wales and its first use in GP practices. According to P9, the platform is now being extended across multiple regions to support a wider range of community based services including pharmacy, ambulance services, cardiology, respiratory care, Hospital at Home, and virtual wards. Designed to integrate with any clinical information system and a broad range of POCT devices, the system can scale from individual practices to national programmes.

4.3.4.2 Workforce engagement, training, and clinical confidence

Workforce factors played a role in shaping the sustainability of the model, particularly in relation to training, engagement, and trust in the model. Participants emphasised the need for training that extended beyond the technical use of devices including how POCT should be applied within clinical pathways. This included clarity around when POCT should be applied

within clinical pathways and how results should be interpreted in practice. As one participant reflected, “we needed an awful lot of support... lots of education and training...we also had to produce an operational procedure to make sure we were safe in our governance” (P1).

However, training alone was not sufficient. Participants described uncertainty when results appeared unexpected, with clinicians reporting “an odd result...either too low or too high... [and] don’t know what to do afterwards with it” (P3). In these situations, staff often reverted to laboratory testing for confirmation, with one participant noting “we would always tell them to get confirmation...take a venous sample... send it to the lab” (P5). This reflects a transition phase, with continued reliance on established pathways as confidence in POCT develops.

Variation in practice was also linked to differences in experience and technique. In some cases, discrepancies were attributed to how samples were taken, with recognition that staff “didn’t take the blood sample correctly” (P3). This appeared to influence how confidently POCT was used in practice, contributing to some variation in its application across sites. These findings highlight that successful implementation relies not only on access to technology, but on building trust, shared understanding, and engagement across clinical teams.

P9 also described ongoing developments aimed at strengthening sustainability by increasing workforce autonomy and reducing reliance on external support. New functionality will allow POCT teams to use dedicated accounts to centrally monitor and configure device connections, giving services greater control over day to day management. Updates to online instructional materials are also being introduced to simplify configuration and reduce training demands. These enhancements underline the importance of investing not only in technical infrastructure but also in the digital capabilities of clinical teams, ensuring that POCT models remain scalable and sustainable beyond initial pilot conditions.

4.3.4.3 Funding, sustainability, and future direction

Alongside infrastructure and workforce considerations, the importance of establishing a clear and sustainable funding model was repeatedly highlighted. The project was widely described as having developed from short-term or opportunistic funding arrangements, which limited opportunities for long-term planning, evaluation and service embedding. Several participants emphasised how these stop-start cycles undermined progress, noting that funding often arrived late in the process, leaving “no time at all to deliver a proof of concept” (P1), and making it difficult to maintain momentum or carry learning forward. Without recurring investment and a clearly defined business case, the model risked remaining a temporary or fragmented initiative.

Despite these challenges, participants consistently reflected that the model had strong potential, particularly in improving access and streamlining care for patients in rural communities. Several noted the added value delivered during the pilot, with one reflecting that it was “important to note that we managed to review our whole diabetic register whilst we had the machines there” (P7). Others emphasised the wider system benefits, describing POCT as having potential to “reduce the admissions to A&E and hospitals... an absolute no-brainer for this to really work in Primary Care” (P5). The value of the service became especially apparent when it was withdrawn, with reported disappointment from practices and perceived negative impacts on patient care. This suggests that while implementation remains incomplete, there is fundamental demand and recognition of benefit.

Taken together, these findings indicate that POCT represents a promising model for future service delivery, but one that requires coordinated investment, robust infrastructure, and sustained workforce engagement to move from pilot to embedded practice. This was evidenced by one participant who summarised the broader requirement for scale-up, emphasising the need for “more modern equipment that’s fully connected to the patient record... but the most important thing all the way down is clinician

buy-in...so, GPs and Specialist Nurses with an interest who think this is a good idea, who trust the equipment, who trust the results and have an established protocol to use those results” (P4).

4.3.5. Qualitative findings

This evaluation highlights that the POCT model represents a promising and acceptable approach to delivering diabetes care within primary care settings, particularly in improving access, reducing fragmentation, and enhancing patient engagement. The ability to consolidate multiple stages of care into a single interaction was consistently associated with improved attendance, reduced disengagement, and a more efficient and patient-centred pathway.

However, findings also demonstrate that successful implementation extends beyond the introduction of technology alone. The model was delivered within a complex and constrained system, where limitations in digital integration, workforce capacity, governance processes, and funding structures shaped both its delivery and impact. While participants recognised clear benefits, these were not always fully realised due to partial integration, variability in infrastructure, and reliance on short-term or opportunistic funding arrangements.

Importantly, sustainability was dependent on coordinated investment across multiple domains. This includes fully integrated digital systems, modernised and reliable device infrastructure, and comprehensive workforce support encompassing training, governance, and clinical confidence. The absence of dedicated operational support, including project management, further highlighted the challenges of embedding and scaling the model within routine practice.

Despite these constraints, there was strong and consistent recognition of the model’s value, particularly in improving access, supporting more equitable engagement, and reducing system complexity. The reported impact following withdrawal of the service further reinforces the perceived benefit and unmet need within existing care pathways.

Taken together, these findings suggest that POCT represents a viable and impactful model for future service delivery. However, to move from pilot to sustained practice, it requires strategic alignment across funding, infrastructure, workforce, and system-level integration. Without this, there is a risk that the benefits observed remain localised and short-term, rather than embedded within routine care.

The findings also highlight that successful expansion of POCT into primary and community care settings is dependent on sustained investment in pathology-led POCT services, workforce capacity, digital infrastructure, and governance support. Existing POCT teams were primarily established to support acute hospital

testing and currently have limited capacity to safely deliver largescale community deployment without additional resource. As demand for community diagnostics and connected POCT services continues to increase, investment in POCT staffing, middleware infrastructure, digital connectivity, and quality management systems will be essential to ensure safe, standardised, and sustainable implementation across Wales.

4.4 Process Map

As part of the evaluation a process map second was developed for the new Diabetes was developed for the diabetes process map was then developed for the new service (POCT model). The key differences between the two pathways can be seen in Table 3.

Table 3. Cost comparison: GP led model vs POCT Hub

Metric	Current GP Model	POCT Hub Model	Difference
- GP time required	Up to 6 appointments taking 10 to 15 mins each – 60-90 minutes	0-15mins GP time (only on request)	Between 45-90 minutes of GP time saved per patient
Number of appointments	Up to 6 GP appts + additional blood tests required with phlebotomist/nurse	1 nurse led/Healthcare practitioner led 30 min review	-5 appointments Up to 30 minutes of HCP time
Diagnostic turnaround	Up to 2-6 weeks	½-1 Hour	Immediate care delivered

4.4.1 Number of patients seen by the community POCT hub

Point-of-care testing (POCT) offers a substantially faster turnaround time than conventional laboratory based testing, enabling diagnostic results to be available during the patient consultation and supporting immediate clinical decision-making. In contrast, traditional laboratory pathways can be associated with delays arising from specimen transport, laboratory processing, batching, and reporting procedures, which may result in patients waiting days or weeks for results. By providing results within minutes, POCT facilitates more timely clinical assessment and intervention.

The availability of near-patient diagnostic information enables key elements of the diabetes review process to be completed within a single appointment, reducing the need for additional follow-up consultations to communicate results or implement treatment changes. This reduction in diagnostic delay has the potential to improve workflow efficiency, enhance continuity of care, and support more responsive and patient-centred management of diabetes.

The POCT enabled diabetes review model was designed to replace a traditional pathway that frequently required multiple patient contacts and follow-up appointments with a coordinated,

“one-stop” review delivered within a single visit. The pathway consisted of two stages. The first involved completion of the diabetes review assessments, including POCT and other routine clinical measurements. The second involved consultation with a registered nurse who reviewed the results, discussed their clinical significance, and agreed an individualised care plan with the patient. The duration of the clinical consultation varied according to patient complexity and clinical need, typically ranging from 5 to 30 minutes. By providing immediate access to diagnostic results and supporting clinical decision-making during the same encounter, the model had the potential to reduce repeat appointments, improve patient experience, and release clinical capacity within primary care.

Between 23 June and 2 October 2025, a total of 225 patients attended the POCT Hub over a 101-day period. During the pilot, the diabetes review clinic operated one day per week, with approximately 11 to 12 patients scheduled per clinic session. Based on this activity, the service was projected to undertake approximately 795 diabetes reviews annually if delivered at the same level of activity throughout a full year. These findings demonstrate the feasibility of delivering a high-volume, POCT-enabled diabetes review service within a primary care setting while supporting timely assessment and integrated care delivery.

4.4.2 Costs of the service

Under the traditional GP led pathway, the average estimated cost of delivering a diabetes review was £434 per patient. This estimate incorporated the costs associated with GP appointments, clinical estate utilisation, phlebotomy, sample transportation, and laboratory analysis. In comparison, the community POCT Hub model was associated with an average estimated cost of £241.28 per patient, including healthcare professional time, POCT consumables, and reagent costs. This represents an estimated reduction in direct clinical costs of £192.72 per patient (Figure 6), largely attributable to the elimination of multiple GP appointments and the ability to complete assessment and clinical decision-making within a single visit.

During the evaluation period, the POCT Hub delivered 225 diabetes reviews over 101 days, equating to an estimated delivery cost of £54,288. Based on observed activity levels and projected throughput, the annualised cost of operating a single hub, assuming delivery of approximately 795 reviews per year, was estimated at £191,818.

To provide an equivalent number of diabetes reviews through the traditional service model would be expected to incur an annual cost of approximately £345,030. Based on the assumptions applied within this evaluation, the POCT Hub model therefore demonstrated the potential to generate an annual efficiency benefit of up to £153,212 per GP cluster when compared with the conventional pathway. However, these figures represent modelled estimates based on assumptions regarding appointment numbers, consultation duration, staffing costs, patient throughput, and clinic utilisation. Consequently, further evaluation would be required to determine the extent to which these projected efficiencies translate into realised financial savings and cash-releasing benefits in routine practice.

Importantly, the comparison may underestimate the operational benefits of the POCT Hub model. Given the substantially greater number of appointments required under the traditional pathway, it is unlikely that practices operating the conventional model would be able to review the same number of patients within a comparable timeframe. Based on the assumptions used in this evaluation, if a practice delivered reviews for approximately 353 patients annually under the traditional model, the total expenditure would be broadly equivalent to the cost of operating a POCT Hub serving 795 patients per year. This suggests that, for a similar level of investment, the POCT Hub model could potentially provide annual diabetes reviews for approximately 442 additional patients, substantially increasing service capacity and improving access to planned diabetes care.

These estimates do not include the upfront investment required for POCT devices, connectivity infrastructure, staff training, quality assurance processes, and ongoing technical support. Additional costs are also associated

with the middleware and digital systems required to enable secure connectivity between POCT devices and primary care and laboratory information systems. Such infrastructure is essential to support clinical governance, quality assurance, result traceability, and informed clinical decision-making. Technologies utilised within the pilot included the Siemens Atellica DCA, Abbott Afinion 2, and Roche Cobas b 101 platforms. The costs associated with these systems and supporting services vary considerably depending on procurement

arrangements, contract scope, and deployment scale. Nevertheless, a larger regional or national procurement approach across NHS Wales would be expected to achieve economies of scale and reduce overall implementation costs. Given the substantial estimated per-patient efficiency benefit observed within the evaluation, it is anticipated that these additional infrastructure and implementation costs could be accommodated within the overall economic case for wider adoption of the model.

Figure 7: Significant cost efficiency potential of the POCT hub approach



4.4.3 Other important considerations

4.4.3.1 Carbon footprint reduction

In addition to the financial implications, consideration should also be given to the environmental impact associated with reducing the number of patient appointments and the corresponding travel requirements. The redesigned POCT-enabled pathway reduced the number of appointments required for a diabetes review from multiple visits to a single appointment, generating environmental, operational, and economic benefits that align with NHS Wales decarbonisation ambitions and the principles of prudent healthcare.

To estimate the potential environmental impact, the analysis applied the pathway redesign to the 225 patients reviewed through the POCT Hub during the evaluation period. The assessment assumed a reduction from six appointments to one appointment per patient, equating to five avoided visits, and an average round-trip travel distance of 10 miles per appointment. Using the UK Government greenhouse gas conversion factor for average passenger vehicle travel (0.275 kg CO₂e per mile) and assuming private car use as the primary mode of transport, the model estimated a substantial reduction in travel related carbon emissions.

The analysis demonstrates that this intervention delivers significant triple-bottom-line benefits, including:

- 11,250 car miles avoided (Equivalent to removing ~1-2 cars from the road for a year)
- Carbon reduction: ~3.09 tonnes CO₂e (83% reduction in travel emissions)
- Operational efficiency: ~1,125 appointments released

This represents a high-value, scalable intervention aligned to NHS Wales decarbonisation and efficiency priorities. This change demonstrates strong alignment with the NHS Wales Decarbonisation Strategy; Welsh Government Net Zero public sector targets and Prudent Healthcare principles, including reducing waste and unnecessary activity.

4.4.3.2 Effect on the local economy

Reducing the number of GP visits also has wider socioeconomic benefits through increased

productivity, lower personal costs, reduced travel burden, and a reduction in the time individuals need to take away from work or other responsibilities to attend healthcare appointments. The POCT Hub model reduced the number of appointments required for a diabetes review by an estimated five appointments per patient. Assuming that each avoided appointment would otherwise have required approximately 1.5 to 2 hours of patient time, including travel, waiting, and consultation, the 225 patients reviewed through the POCT Hub avoided an estimated 1,690 to 2,250 hours of time associated with healthcare attendance.

Applying a conservative UK productivity value of approximately £20 per hour, this equates to an estimated productivity gain of £33,800 to £45,000, with a midpoint estimate of approximately £39,400. These productivity benefits reflect time that can be redirected towards employment, education, caregiving responsibilities, leisure activities, or other economically and socially valuable activities.

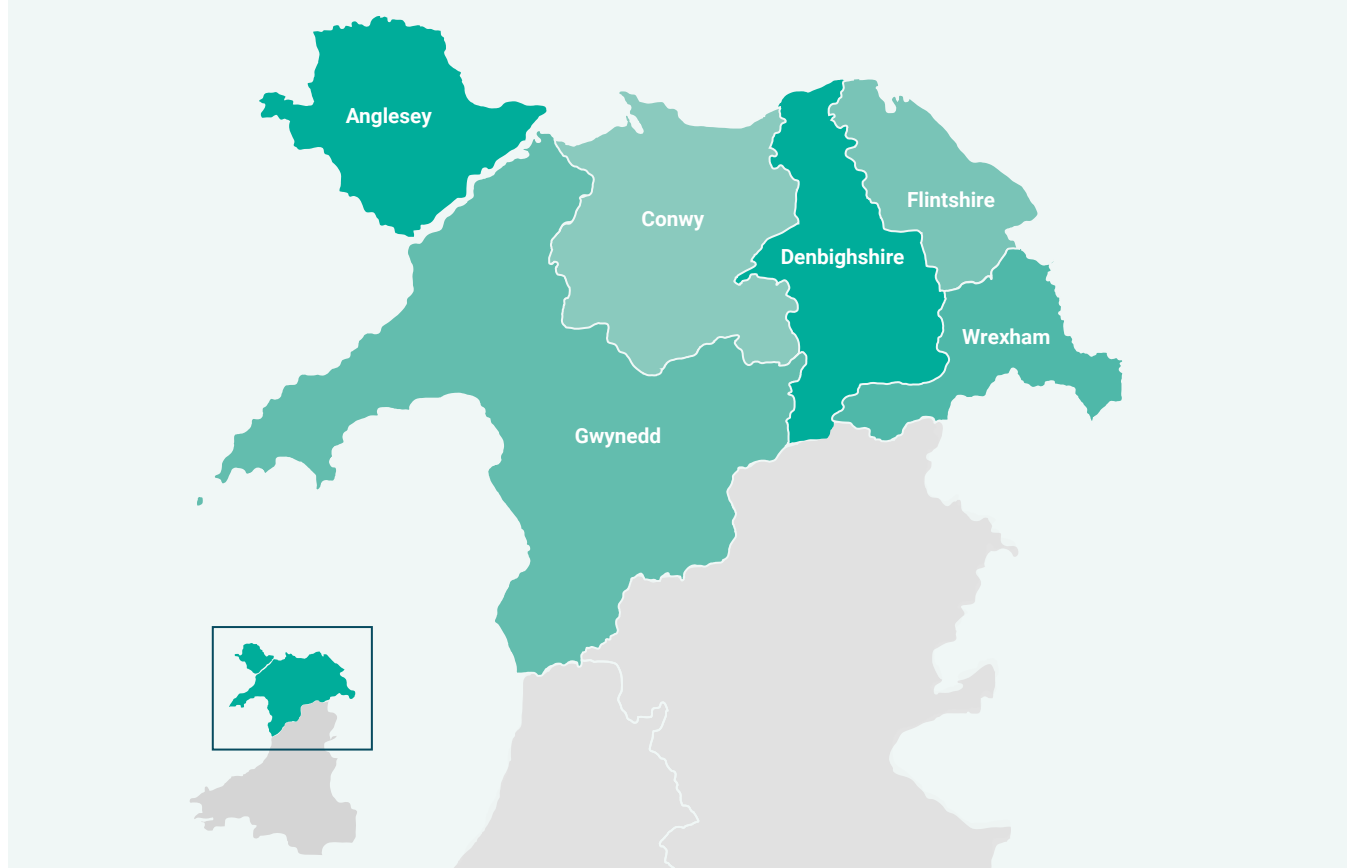
In addition to the direct economic impact, patients also benefited from reduced travel costs, lower disruption to daily life, and fewer demands on family members or carers who may otherwise need to accompany them to appointments. Consequently, the POCT-enabled pathway has the potential to generate meaningful value not only for the healthcare system but also for patients, employers, and the wider local economy through improved efficiency, convenience, and preservation of productive time.

4.4.3.3 Considerations of scalability within BCUHB

A key consideration for the scale-up of the POCT service across the Betsi Cadwaladr University Health Board (BCUHB) region is the size and growing demand of the diabetes population. During the period of the evaluation, it is estimated by Public Health Wales that approximately 48,000 people in North Wales are registered with their GP as living with diabetes highlighting the need for sustainable approaches to prevention, early intervention and long term condition management. (Public Health Wales, 2026)

Based on modelling undertaken as part of this evaluation, delivery of the POCT Hub model across the eligible diabetes population would require an

Figure 8. Map of the BCUHB regions



estimated annual investment of approximately £12 million. The modelling further indicated the potential for substantial efficiency gains when compared with traditional diabetes review pathways, with estimated benefits of up to £9.5 million per annum across Betsi Cadwaladr University Health Board (BCUHB).

However, these figures should be interpreted with caution, as they represent modelled estimates derived from a range of assumptions relating to service activity, staffing costs, patient throughput, clinic utilisation, and pathway design. While the findings suggest a compelling economic case for the POCT Hub approach, further detailed financial evaluation would be required to validate these projections and determine the extent to which the anticipated efficiencies could be realised in practice and translated into recurrent or cash-releasing savings.

In addition, there is a need to consider the geography and how this would be delivered. In the current model the professional involved

in delivering the clinic runs the clinic 1 day per week (seeing up to 12 patients a day). If a specialist(s) or team were delivering the clinic on a weekly basis that would result in potentially 3120 having their diabetes annual review delivered each year by one clinic. This would mean to cover the whole of the BCUHB region there would need to be around 16 clinics. In the east the regions Flintshire, Wrexham and Denbighshire account for around 56% of the population (296,000 people and 28,000 people with diabetes), therefore 10 hubs spread around these 3 regions would be able to cover the annual requirements. Additionally, individual GP practices and clusters could host Annual diabetes review clinics, although this would require a larger investment in the number of POC devices required. For the other three regions: Conwy, Gwynedd and Anglesey (392,000 people and 28,000 people with diabetes) due to the rural approach a mixture of local hubs near high population density areas and mobile hubs (utilising the POC technology) would likely best serve the population.

5. Discussion

5.1 Challenges

The findings of this report detail several key challenges moving forward.

5.1.1 Outdated and End of Life POCT Equipment

It is important to note that one of the analysers utilised during this project, the Siemens DCA Vantage, was provided to the POCT team by Siemens for the purposes of the pilot. However, this platform is based on technology that is more than 15 years old and does not reflect the capabilities of contemporary point-of-care testing systems. Since its introduction, significant technological advances have been made in POCT instrumentation. Newer platforms, including the Siemens Atellica DCA, Abbott Afinion 2, and Roche Cobas b 101, offer enhanced analytical performance, improved usability, advanced quality management features, and seamless digital connectivity. These developments support greater interoperability with clinical information systems, strengthen governance and quality assurance processes, and improve compliance with current regulatory and operational standards. Consequently, future implementation of a scaled POCT model would be expected to benefit from the use of modern analyser platforms that provide improved functionality, reliability, and integration within NHS digital infrastructures.

During the project, EQA performance and patient result trends required close monitoring. The use of ageing analyser platforms highlighted the challenges associated with supporting older technology and reinforced the need for equipment modernisation to improve analytical performance, connectivity and long-term service sustainability. This highlights the urgent need to modernise the current service in the Health Board. At the time of writing, BCUHB was developing a replacement programme for all analysers with DCA Vantage analysers, as the existing equipment is no longer appropriate for contemporary POCT requirements. These analysers were used as they are already in the Health Board in Outpatient settings.

The introduction of digital connectivity significantly strengthens the safety and efficiency of POCT services by enabling the POCT team to monitor results and quality performance in real time. This enhanced visibility supports rapid investigation of analyser issues, ensures timely intervention, and reinforces robust clinical governance across all testing sites.

5.1.2 Limited Digital Connectivity

The absence of integrated digital connectivity within current analysers reduces the ability of the POCT team to ensure safe and effective practice. Without real time data transfer, critical information such as quality control results, error logs, and patient test outcomes cannot be monitored promptly, increasing the risk of undetected performance issues.

Inadequate connectivity compromises both patient safety and operational efficiency. Delays in identifying analyser faults or quality concerns hinder timely escalation and resolution, while limited oversight reduces the strength of clinical governance processes. Enhanced digital integration would support safer clinical decision making, standardisation across primary care, and improved oversight of POCT services.

Current POCT devices within primary care operate as standalone systems, meaning results must be transcribed manually into clinical notes. This increases the risk of transcription errors and creates additional administrative burden for clinicians.

5.1.3 Workforce Capability and Scope

Diabetes care extends far beyond the annual review and glucose monitoring; it requires personalised care planning, risk reduction, and effective signposting to self management resources. Practitioners undertaking recall activities need a high level of clinical competence to manage complexity. Where these skills are insufficient, additional tasks are generated within practices, reducing efficiency and impacting service capacity.

5.2. What went well?

Despite these challenges, the project model demonstrates that POCT in primary care can:

- Improve patient experience
- Standardise care with a POCT team centrally focused to support operational processes
- Reduce appointments
- Improve patient flow
- Reduce complications through earlier intervention
- Increase efficiency
- Reduce unnecessary appointments
- Strengthen governance and auditability
- Demonstrated highly reliable, cyber secure connectivity infrastructure (CMExtender) with positive feedback from POCT staff and GP users

5.3 Scale and spread

The following key considerations were identified as critical to the successful scale-up and wider adoption of the POCT programme across primary care settings.

5.3.1 Implementation Considerations

- The POCT department would provide governance oversight, analyser evaluation, quality assurance, training, competency management and deployment support, subject to appropriate workforce and resource provision
- A centralised ordering and monitoring system would be required to manage usage
- Budget virements will be needed, with departments transferring funds to POCT for consumables, staffing, QC, EQA, and connectivity licences

5.3.2 Additional resource

To enable expansion of POCT into primary care settings, additional resource would be required within both POCT services, local IT departments and Digital Health and Care Wales (DHCW).

Table 4. National Implementation – Staffing requirements

National implementation - Staffing requirements
Each health board would require a POCT Team to support primary and secondary care:
POCT Clinical Lead
POCT Service Manager
POCT Lead/s
POCT Coordinator/s
POCT Associate Practitioner/s
Each community hub/GP practice:
Practice nurse and/or equivalent allied health professional with a high level of clinical competence to manage complexity
Information Governance
Initial integration with the Welsh Clinical Portal will ensure that results are automatically uploaded to the patient record, enabling clinicians to access POCT results seamlessly and in real time.
Digital
DHCW & BCUHB Digital team support to include project management

Table 4: National Implementation – Staffing requirements

The evaluation demonstrated that the efficiencies associated with connected POCT models, including reduced appointments, improved patient flow, earlier intervention, and enhanced patient experience, are dependent on robust pathology-led governance and operational support. Expansion into primary care therefore requires recognition of POCT services as critical diagnostic infrastructure, with appropriate investment in workforce capacity, middleware licensing, digital integration, training, competency oversight, and quality assurance processes to support safe largescale deployment.

5.3.3 All Wales Managed Service Contract

Transitioning to an All Wales Managed Service Contract model for the POCT tests required for this POCT Hub would provide a sustainable, scalable, and governance-compliant service model.

5.3.4 POCT middleware

POCT middleware was already well established and routinely used within secondary care to provide secure connectivity, result management, and robust governance across point of care testing services. This investment would support the increase in device licences and configuration capacity within the existing middleware platform, ensuring that new primary care based POCT devices can be fully integrated, monitored, and governed to the same high standards as those in secondary care.

5.4. Anticipated Benefits

The evaluation identified several key benefits associated with the implementation of this innovative model of diabetes care:

5.4.1 Financial and commercial

- If a more national approach was delivered it would include recovery of 20% VAT, delivering cost savings
- Predictable and manageable costs through fixed-price contracts, enabling accurate budgeting and IFRS compliance

- Competitive pricing on consumables, reagents, and maintenance via volume-based agreements
- Flexibility to replace or expand devices without requiring new capital bids

5.4.2 Quality, Governance and Patient Safety

- Modern, high-performance analysers with improved accuracy and reliability
- Full connectivity to WPOCT, enabling:
 1. Real-time IQC and EQA monitoring
 2. User access restricted to trained and competent staff
 3. Seamless integration with the Welsh Clinical Portal for clinician access
 4. Robust audit trails and business intelligence reporting
- Alignment with governance standards and mitigation of clinical risk

5.4.3 Service Efficiency and Sustainability

- Reduction in repeat appointments and improved patient flow
- Service agreements with defined KPIs, ensuring rapid repair or replacement of faulty analysers
- Standardised, centrally supported processes to minimise operational disruption
- Future-proofed, scalable model allowing POCT services to evolve in line with clinical need

5.4.4. Potential wider benefits beyond diabetes

The CMExtender platform is reportedly already being extended to community pharmacies, ambulance and paramedic services, hospital at home and virtual ward models, and can scale from local to national deployment, indicating wider applicability of the connectivity approach beyond diabetes hubs.

6. Conclusions

The diabetes transformation project represents a significant advancement in the delivery of planned diabetes care within Betsi Cadwaladr University Health Board (BCUHB). Developed in response to increasing diabetes prevalence, persistent health inequalities, workforce pressures, and the ongoing recovery of services following the COVID-19 pandemic, the model demonstrates a sustainable and patient-centred approach to the management of long-term conditions within primary care.

By integrating point-of-care testing (POCT) into a streamlined, cluster-based care pathway, the model reconfigured a process that traditionally required multiple appointments into a coordinated, single-visit review. This approach improved the patient experience through greater convenience, more timely access to results, and immediate clinical decision-making, while also supporting delivery of recommended diabetes care processes and reducing variation in service provision.

A key enabler of the model was the strong partnership between pathology POCT services, primary care teams, and industry partners, including Siemens and Cain Medical. The introduction of secure digital connectivity through Atellica Connect enabled the transfer of POCT results into clinical systems, strengthening governance, improving auditability, and enhancing the ability of clinicians to act on results in real time. The project demonstrated the feasibility of delivering a connected POCT service within primary care and highlighted the critical role of digital interoperability in supporting future models of community-based diagnostics.

Welsh Government investment through the MedTech Accelerator Fund enabled both implementation and independent evaluation of the model, providing valuable evidence regarding its clinical, operational, economic, and environmental impacts. Findings indicate that the model has the potential to improve service efficiency, increase patient throughput, reduce unnecessary appointments, enhance patient satisfaction, and support more proactive management of diabetes. The evaluation also identified potential cost and productivity

benefits, alongside reductions in patient travel and associated carbon emissions, aligning with the principles of prudent healthcare and NHS Wales sustainability objectives.

The evaluation also highlighted several challenges that must be addressed to support wider adoption. These included workforce capacity constraints, the need for ongoing training and competency assessment, complex digital integration requirements, and the importance of maintaining robust governance and quality assurance arrangements. Successful implementation was dependent not only on technology, but also on organisational readiness, effective leadership, collaborative working, and access to specialist POCT, digital, and information governance expertise.

As healthcare continues to shift towards community based diagnostics, prevention, virtual care models, and care closer to home, pathology led POCT services are likely to become an increasingly important component of healthcare delivery. The evaluation demonstrates that such services provide the governance, connectivity, quality assurance, and clinical oversight necessary to support safe, effective, and scalable diagnostic testing outside traditional laboratory settings.

Looking forward, there is significant opportunity to expand this model across Wales. Wider implementation, supported by increased POCT workforce capacity, standardised digital connectivity solutions, and sustained investment in infrastructure and governance, could facilitate the development of community diagnostic hubs capable of delivering accessible, high-quality care closer to patients' homes.

Collectively, these developments have the potential to transform the management of long-term conditions, improve health outcomes, reduce inequalities in access to care, and contribute to a more sustainable and resilient healthcare system. The findings from this evaluation suggest that POCT enabled models of care represent a promising approach to supporting the future delivery of diabetes services and community diagnostics across NHS Wales.

6.1. Recommendations

Recommendation 1: Strengthen early digital readiness and governance planning to enable full integration

To support effective scale up of connected POCT models, future implementation should prioritise early engagement with digital, cyber security, and Information Governance teams to ensure that essential approvals, configuration tasks, and integration activities can be completed ahead of operational deployment. The pilot demonstrated that compressed timelines and limited capacity within enabling teams constrained progress, resulting in incomplete connectivity, reliance on manual transcription, and reduced efficiency. Establishing a structured digital readiness process including advance notice of implementation timelines, early initiation of cyber security and IG assessments, and coordinated technical planning across stakeholders would reduce pressure on teams and support more complete integration. Investing in this preparatory phase with dedicated project management is likely to minimise administrative burden during delivery, ensure safe data flows, and enable the full benefits of the model to be realised.

Recommendation 2: Replace and modernise analyser fleet across Wales

Modernising the analyser fleet across Wales is essential to ensure consistent analytical performance, digital connectivity, and compliance with current POCT standards. Replacing ageing devices with modern, fully connected analysers will reduce the risk of EQA failures, support real time governance, and ensure that POCT services remain safe, reliable, and fit for purpose. This investment will also standardise equipment across Health Boards, improving training, quality assurance, and long term service sustainability.

Recommendation 3: Support the progression of approved POCT connectivity solutions that enable secure, real-time transfer of results into EMIS and the Welsh Clinical Portal.

Digital Health and Care Wales (DHCW) to support POCT connectivity in primary care. Full middleware integration is critical for delivering a safe and efficient POCT service across primary care. Real time connectivity

to EMIS and the Welsh Clinical Portal enables immediate access to results, automated QC/EQA monitoring, and robust auditability. This reduces transcription errors, strengthens clinical governance, and provides the POCT team with continuous oversight of device performance and testing activity across all sites.

Recommendation 4: Strengthen the POCT workforce within each health board

Expanding the POCT workforce is necessary to support the growing demand for primary care based POCT services. Each Health Board requires dedicated POCT staff including a Clinical Lead, Manager, Coordinator, and Associate Practitioner & support worker to manage deployment, training, quality assurance, and ongoing monitoring. Investing in workforce capacity will ensure that services remain safe, responsive, and able to support largescale implementation across community settings.

Existing workforce limitations have already been recognised through formal Health Board risk management processes. As healthcare delivery continues to shift from acute hospital settings into primary care, community services and virtual models of care, the demand placed upon pathology-led POCT services will continue to increase. Without additional investment in POCT staffing, digital infrastructure and governance support, Health Boards may be unable to safely deliver the level of community diagnostic expansion envisaged within national policy. Sustainable growth of community-based diagnostics will therefore require proportional investment in the POCT workforce and supporting infrastructure.

Recommendation 5: Scale the diabetes one stop hub model regionally and nationally

The diabetes one stop hub model has demonstrated substantial benefits in efficiency, patient experience, and clinical outcomes, and now requires coordinated regional and national scale up.

Expanding this model will deliver consistent, streamlined diabetes reviews, reduce GP workload, and provide earlier intervention for patients at risk of cardiovascular, renal and metabolic complications. National implementation

will also help reduce unwarranted variation in diabetes care across Wales.

The Primary Care workforce model would be strengthened. Changing from an individually reliant model to a sustainable team model. Dynamic and responsive to support sudden gaps in capacity due changes in practice staffing, education and training.

Importantly, this approach has scope and potential to broaden the remit for other long term condition care.

Recommendation 6: Adopt an All Wales managed service contract for POCT devices

Transitioning to an all Wales managed service contract will provide a sustainable and cost-effective framework for POCT provision. This approach offers predictable pricing, VAT recovery, and standardised access to high quality devices, consumables, and maintenance. A unified contract model also strengthens governance, simplifies procurement, and supports scalable deployment across primary and secondary care settings.

Recommendation 7: Enhance governance, QA, and risk management processes

Strengthening governance and quality assurance processes is vital to ensuring safe and consistent POCT delivery. Enhanced oversight, including real time QC/EQA review, user competency controls, and standardised operational procedures will reduce clinical risk and support rapid resolution of analyser or testing issues. A robust governance framework will underpin the safe expansion of POCT across community settings.

Recommendation 8: Align financial models to ensure sustainability and reinvest efficiency savings

Long-term sustainability will depend on embedding POCT within broader primary care transformation programmes. Funding should be supported through efficiencies achieved from reduced pathology laboratory activity, collaborative federated and cluster models, alongside Health Board investment in proactive population health and risk reduction initiatives. This approach provides a more stable basis for meeting ongoing operational costs while supporting future service development and scale-up.

Recommendation 9: Prioritise service access in areas of deprivation to improve equity

Scaling the POCT model presents an important opportunity to reduce health inequalities by prioritising implementation in areas of high deprivation. Establishing community based POCT hubs in underserved populations will improve access to timely diagnostics, support earlier intervention, and enhance chronic disease management for those most at risk. This targeted approach will help deliver a more equitable and prevention focused health system.

Recommendation 10: Strengthen Change Control & Digital Governance.

Future community POCT deployments should be supported by formal change control processes for middleware, connectivity platforms and digital interfaces. Software upgrades, system configuration changes and interface developments should undergo documented risk assessment, testing, validation and post-implementation review to minimise service disruption, maintain patient safety and support reliable community diagnostic services.

Recommendation 11: Explore Information-Led Models of Long-Term Condition Management

The evaluation should be used to inform future service design for long-term conditions across primary care. The findings suggest that immediate access to diagnostic information can improve the quality of consultations, support timely clinical decision-making and enhance patient experience.

Future models should consider how information-led care, enabled through integrated diagnostics and shared clinical capability, could complement traditional appointment-based systems. Federated and cluster-based approaches should be explored as potential mechanisms for supporting practices to deliver existing care differently whilst retaining clinical ownership within GMS. These improvements reflect the ethos of Community by Design. Where future models are designed around the principles of person-centred care, equitable access, efficient use of resources, robust data assurance and the long-term sustainability of primary care services.

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Appendix 1

Policy context

The Wellbeing of Future Generations (Wales) Act

The Well-being of Future Generations (Wales) Act provides a statutory framework that embeds long-term sustainability at the heart of public service delivery in Wales (Welsh Government, 2015). It establishes a legally binding common purpose for designated public bodies, including local health boards requiring them to work collaboratively to improve the social, economic, environmental, and cultural well-being of the nation. This shared purpose is articulated through seven national well-being goals, which collectively envision a more prosperous and resilient Wales, improved population health, greater equality, cohesive communities, a vibrant culture supported by the Welsh language, and a globally responsible approach to public policy.

Progress toward these ambitions is monitored through a suite of national indicators, several of which are directly relevant to diabetes prevention and management. These include indicators relating to healthy lifestyle behaviours (such as physical activity and healthy eating), the prevalence of chronic conditions, access to timely and preventative healthcare, and the reduction of health inequalities, each of which aligns closely with the strategic priorities for improving diabetes outcomes in Wales.

A Healthier Wales: Our plan for health and social care

A Healthier Wales (2018) constitutes the Welsh Government's official response to the Parliamentary Review and articulates a strategic vision for a "whole-system approach" to health and social care. Central to this vision is an emphasis on promoting population health and wellbeing, alongside the prevention of both physical and mental illness. Prioritising the development of integrated, community-based services and advances a shift from reactive, illness-focused models of care toward preventative, person-centred approaches that enable individuals to maintain good health and adopt healthier lifestyles. (Welsh Government, 2018)

National Welsh strategy

The diabetes strategic network, established on 1 April 2023 within NHS Wales performance and improvement and funded by Welsh Government, leads the implementation of the national diabetes delivery plan. It brings together healthcare professionals, third sector partners and people living with diabetes to strengthen focus on diabetes as a major chronic condition and improve care quality and outcomes in Wales. (NHS Wales Performance and Improvement, 2026)

Promote, Prevent and Prepare for Planned Care (24 August 2023) was developed in response to increasing demand and long waiting times.

The policy sets out a whole pathway approach focused on:

- Promote: encouraging healthier behaviours.
- Prevent: reducing deterioration and complications, including those related to diabetes and other long term conditions.
- Prepare: ensuring individuals are ready for treatment and recovery to optimise outcomes.

This approach aligns with the Wales Diabetes Update (ABCD Diabetes Care, 2024), which confirms four NHS Wales priority areas supported by a five year implementation plan delivered through the Wales Diabetes Strategic Network:

- Prevention of diabetes (primary and secondary)

- Education, empowerment and self management, including remission services
- Improvement of the 8 essential care processes and 3 treatment targets
- Technology for type 1 diabetes, particularly implementing NICE TA108 on hybrid closed loop systems

Quality Statement

A quality statement on diabetes, released by the Senedd in June 2023 sets out the Welsh Government's expectations for delivering high-quality, consistent, and person-centred diabetes care across Wales. It emphasises early detection and prevention, timely access to diagnosis and treatment, and the delivery of the eight essential care processes to reduce complications.

The quality statement highlights the importance of supporting people to self-manage their condition, ensuring equitable access to diabetes education, and improving outcomes through integrated, multidisciplinary care. It also reinforces the need for strong clinical governance, high-quality data, and the use of digital tools and technology to enhance care. Overall, it provides a national framework to guide NHS Wales in improving diabetes services and reducing unwarranted variation. (Government, 2023)

It is proposed that this project will support Welsh Government policy in achieving its national aims and objectives on diabetes.

Table A1: How the diabetes transformation project supports national priorities

National Priority (Wales Diabetes Strategic Network / NICE TA108)	How the Diabetes Transformation Project Supports It
Prevention of diabetes (primary & secondary)	Improves early detection through POCT, enabling timely intervention and reducing risk of complications.
Education, empowerment & self-management (including remission)	Provides consistent, standardised lifestyle advice and clearer pathways that support patient understanding and engagement.
Improvement in the 8 care processes & 3 treatment targets	Delivers same-day testing and review, increasing completion rates and reducing unwarranted variation across practices.
Technology in Type 1 diabetes (NICE TA108: hybrid closed-loop systems)	Builds the digital and workflow foundations needed for future HCL adoption by improving data flow, clinical efficiency, and technology readiness in primary care.
Reducing health inequalities	Cluster-based delivery ensures equitable access to high-quality reviews across all practices.
Sustainable long-term condition management	Creates a scalable, person-centred model that reduces pressure on hospitals and supports preventative care.

Appendix 2

Figure A2: Data connectivity diagram

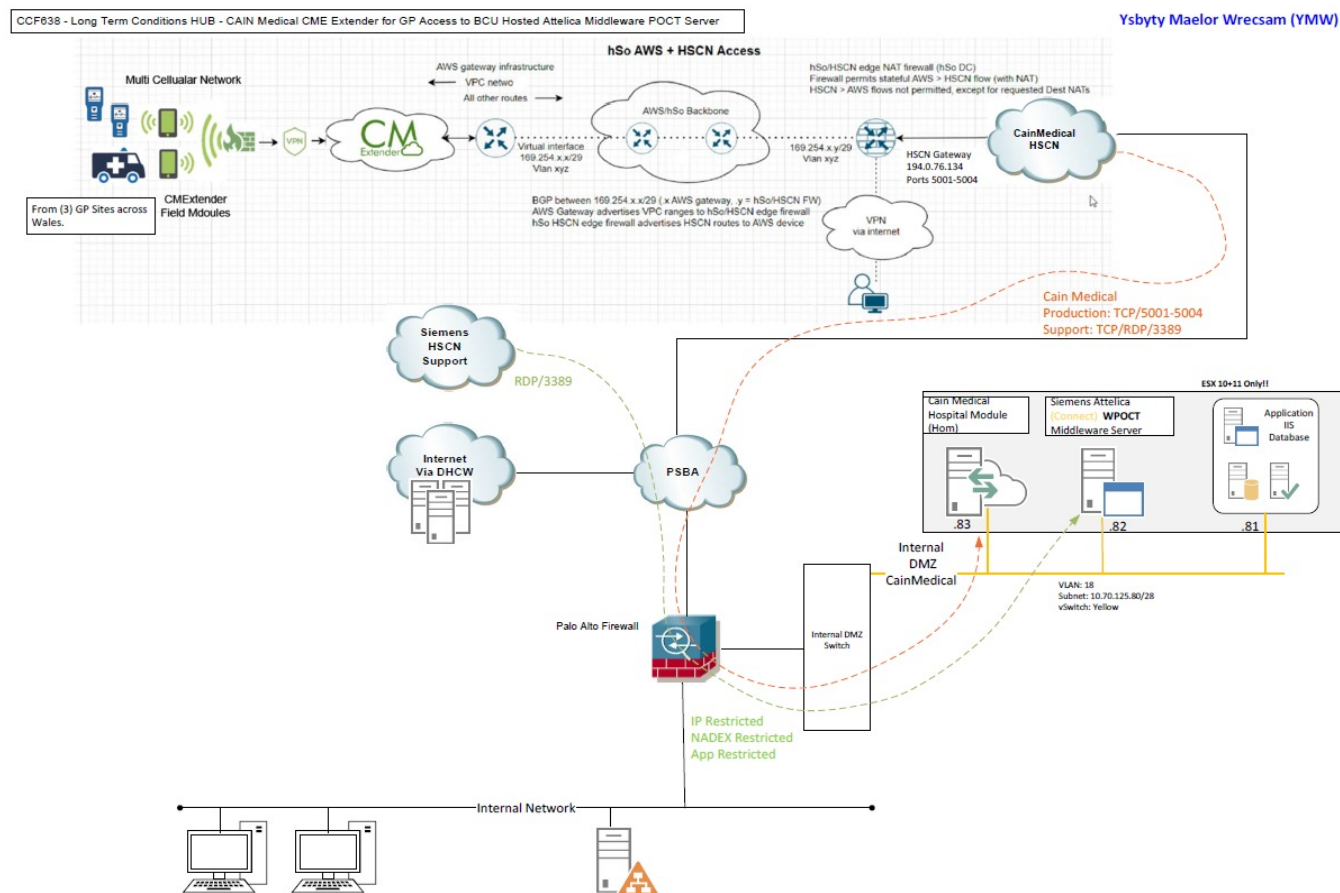


Figure A2: In this model, patient data were stored only on the POCT analyser and within Atellica Connect; CMExtender enabled secure, dual redundant transport but did not retain patient data.



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