

Evaluation of Cheshire and Merseyside BP Optimisation Programme

Final Report

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January 2024

Prepared for:

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Cheshire and Merseyside Advancing Cardiovascular Disease Prevention Group
Cheshire and Merseyside Integrated Care System



Acknowledgements

The evaluation team would like to acknowledge the time, expertise, and contribution of all the people and organisations who contributed to the Evaluation of Cheshire and Merseyside's BP Optimisation Programme Evaluation. Special thanks to our Evaluation Working Group members listed below and colleagues at the Health Innovation North West Coast (NWC), previously named Innovation Agency for the North West Coast, who have worked extremely closely with Aqua and actively supported access to both stakeholders and data:

- Theun van Veen, Michelle Coleiro, Mandy Townsend (and formerly Jane Briers and Julia Reynolds), Health Innovation NWC
- Melanie Roche, Champs Public Health Collaborative/ Wirral Council
- Eduard Shantsila, University of Liverpool
- James Boyes, NHS England

We are extremely grateful to all the patient representatives and lived experience partners at both the Health Innovation NWC and Aqua for their time and expertise in developing the GP patient survey. Thanks to all the participating stakeholders, GP practices and patients who spared the time to share their views and perspectives. We would also like to acknowledge the advice and support provided to our analysts by the CIPHA team.

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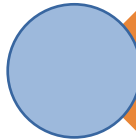
List of Abbreviations


ARRS	Additional Roles Reimbursement
Aqua	Advancing Quality Alliance
BHF	British Heart Foundation
BP	Blood Pressure
BP TTT	Blood Pressure Tilt Table Test
BPQI	Blood Pressure Quality Improvement
CCG	Clinical Commissioning Group
CIPHA	Combined Intelligence for Population Health Action
C&M	Cheshire and Merseyside
COVID	Coronavirus disease
CQC	Care Quality Commission
CVD	Cardiovascular disease
EMIS	Egton Medical Information Systems
GP	General Practitioner
HCA	Health Care Assistant
HBPM	Home Blood Pressure Monitor
HT	Hypertension
HWB	Health and Wellbeing Coach
ICB	Integrated Care Board
ICS	Integrated Care System
IIF	Investment and Impact Fund
ITT	Invitation To Tender
NCVIN	National Cardiovascular Intelligence Network
NHS	National Health Service
NHSE	National Health Service England
NICE	The National Institute Health and Care Excellence
PCN	Primary Care Network
QOF	Quality and Outcomes Framework
UK	United Kingdom
WHO	World Health Organisation


Key findings from this evaluation:


Advancing Quality Alliance (Aqua) were funded by Cheshire and Merseyside Integrated Care System in October 2022 to deliver an evaluation of their Blood Pressure (BP) Optimisation Programme. Key findings from the evaluation are:


- 

The programme was designed to be of sufficient scale to have impact; monitors distributed = 5% of those with known hypertension in C&M.
- 


There was limited evidence that the BP monitors had been distributed at the levels intended in the design of the programme and a significant number of respondents had purchased their own BP monitor device.
- 

The evaluation was challenged by the fact that this was not a single cohesive programme, with clear descriptions of interventions and implementation. Instead, it was a set of distinct, local and national projects, with a variety of approaches, objectives, timelines and funders, often linked by a common focus on finding and optimising the treatment of people with known hypertension.
- 

There was evidence of improvement in the levels of BP monitoring over the period, but patterns were similar to those seen elsewhere post-Covid.
- 

The three hypertension accelerator sites did not show a materially different pattern to that seen for the ICB overall
- 

The data available did not allow us to draw quantitative conclusions about the impact of the blood pressure optimisation interventions undertaken by health inequalities.
- 

There was little evidence of established best practice to onboard new patients participating in home monitoring of BP to ensure they have what they need to successfully initiate and maintain their participation, or the extent to which the effectiveness of differing methods and educational materials have been tested.
- 

Findings indicate the need to review and consider options to optimise digital enablers to realise anticipated benefits at scale.

Executive Summary

The NHS Long Term Plan identified CVD as the single biggest area where the NHS can save lives over the next 10 years (NHS England, 2019). High blood pressure (hypertension) is one of the most significant, modifiable risk factors for CVD. Prevention, early detection, and optimisation of BP treatment are key to delivering the ambitions set out by local and national NHS plans. However, health and care services are operating within challenging contexts in the wake of the Covid-19 pandemic, responding to unprecedented pressures, demand, and workforce challenges. The need for new ways of working, particularly digital and remote monitoring have been recognised, such as NHS England’s BP@ home initiative. These have been implemented at pace during the pandemic to support transformation of care. This is a key opportunity for review system learning about opportunities to build upon and improve.

Increasing high BP detection and control are national (NHSE) and sub-regional (C&M ICS) prevention and inequalities priorities, with significant scope to improve population level health outcomes and equity across C&M. The C&M BP Optimisation Programme includes interventions aimed at improving the **identification** and **management** of high BP and reducing coronary vascular events implemented within complex adaptive systems, with varying levels of alignment, co-ordination, and cohesion.

The objectives of this evaluation as set out in the ITT were to:

- Deliver a summative and where possible formative evaluation of the programme and the team(s) activities within the C&M region.
- Provide insights for the team(s) about what works well, where and for who – including reducing health inequalities.
- Consider several initiatives ongoing in C&M aimed at improving blood pressure management.
- Capture impact of this work on patients and workforce at regional and place level.
- Focus on two aspects: 1. utilisation and impact using existing quantitative data (and if appropriate qualitative approaches), and 2. staff and patient perceptions of the barriers and enablers that influence the implementation and adoption of remote BP monitoring and digital solutions which may support.
- Use a range of qualitative and quantitative approaches to address specific evaluation questions and help identify the key activities to amplify.

Aqua adopted a mixed-methods, retrospective evaluation of the BP Optimisation Programme to understand (i) the utilisation and impact and (ii) workforce and service user perspectives.

The evaluation took a flexible approach to adapt and flex in response to emergent requirements, complex context, and lack of available data to quantify the implementation of the programme. This was done in the following ways:

- I. To better understand implementation of the BP Optimisation programme, the evaluation proposed and developed a retrospective data collection for key stakeholders to record an agreed, limited set of programme components implemented within each GP Practice across the system (Supplementary File B). Further discussions with stakeholders, however, indicated this would not prove feasible at scale due to lack of supporting data. This is important system learning which supports our recommendation to lay foundations for future evaluation work

by including prospective and systematic capture of implementation to better understand scale and relative contribution to outcomes.

2. Rescoping of evaluation questions with the Evaluation Working group following a series of data gap analyses presented by the evaluation team (Appendix 3: Data Gap Analyses and Rescoped Evaluation Questions).
3. With agreement of the Evaluation working Group, the evaluation pivoted to a more, pragmatic, qualitative approach to describe and compare interventions implemented in a purposive sub-sample of ten GP practices across Cheshire and Merseyside. Two broad categories were used to identify and recruit a proportionate range of GPs across the system based on performance and improvement on the BP treatment to target measure comparing most recent CVD Prevent data at that time (Sept 22) to the pre-COVID QOF 19/20 baseline.

Utilisation and Impact of the Programme

The issue of sufficient scale is an important system consideration in relation to theory of change and potential impact of the programme at the current scale. If all 19,500 BP@home monitors were delivered and used as intended, just under 5% of those with known hypertension in C&M would have ‘received the intervention’ to monitor BP at home. The BP Optimisation Programme in C&M is a set of complex interventions (rather than one intervention) implemented within complex adaptive systems, with varying levels of alignment, co-ordination, and cohesion. Measuring impact of the programme is challenging due to the complexity of the intervention(s) and available data to measure implementation and the relative contribution of key components. Overall BP control across C&M GP practices declined markedly during the COVID-19 pandemic. Levels have improved but are still below pre-COVID performance. The improving trend in BP control is in similar proportion to that seen nationally. Data emphasised both the significant improvement still required to achieve the March 2024 target and the limitations of being able to attribute the observed recent improvement to local initiatives within C&M. Improvements in BP control seen in C&M are similar to those seen for other ICBs nationally.

The level of data available did not allow us to draw quantitative conclusions about the impact of the BP optimisation interventions undertaken on health inequalities.

Stakeholder Perspectives about the Programme

Workforce and service user stakeholders described key components, benefits, and a range of positive experiences from the programme. Aspects working well for patients included raising awareness of BP, saving time visiting GPs, convenience, ease, supporting their care and BP medication management and reducing anxiety about health.

GP stakeholders highlight, and identify extended roles, PCN support, additional capacity funded through NHSE ARRS scheme, and digital enablers as facilitators to implementation.

Variation in implementation is reported across GP practices, with common themes of insufficient numbers (or access to) BP monitors to address demand and generate impact. Cost of monitors was often cited as a barrier, particularly for those patients on low incomes. Engagement issues were also identified with some hypertension patients not having

been offered to take part in home BP monitoring, and some practices highlighting the challenges of delivering programmes of this nature with populations living in deprived circumstances, who have complex needs.

Learning and Future Considerations

The evaluation has experienced a number of challenges, particularly around access and quality of data and engagement of stakeholders. Working closely with partners, the evaluation approach was adapted. A flexible and pragmatic design was used to produce useful, actionable intelligence to better understand the implementation, impact, improvement opportunities. This is intended to support and inform decision making in relation to clinical and digital elements of BP management in a post-Covid, ICS-era in C&M.

A summary of future considerations is provided in Table I, organised by evaluation question.

Table I: Summary of Evaluation Future Considerations by focus area and audience

No.	Evaluation future considerations	Focus Area	Key Audience
1	To support future programme evaluation with key information about scope and scale of programme and associated projects.	Evaluation	Commissioners System
2	To consider targeted communications about the BP optimisation programme across Cheshire and Merseyside workforce to foster a shared understanding and more co-ordinated approach.	Comms	System
Evaluation Question 1: What are the trajectories and combined impacts of BP optimisation initiatives on BP control?			
3	To consider exercise to retrospectively quantify the extent of the blood pressure optimisation interventions undertaken (e.g., number of BP monitors issued to patients, and number of individual patients submitting home BP readings).	Data Intervention Implementation	System Place
4	To consider work with GP practices and PCNs to encourage the consistent recording of home blood pressure readings on practice systems, and the agreement on, and recording of, a single set of SNOMED codes for this activity.	Data Coding HBPM	Place GP
Evaluation Question 2: What insights does current data provide in relation to inequalities in access to, and effectiveness of, BP optimisation care (and implications for Core20PLUS5 priority groups)?			
5	To consider the current scale of home BP monitoring and other components of the BP Optimisation programme in relation to its potential to reach Core20Plus priority groups at sufficient scale and numbers with which to generate anticipated impact.	Scale Reach Inequalities	System Place
6	To review opportunities to establish an 'optimal' best practice process of access to monitors, support for priority groups to enable effective engagement, and optimisation of digital enablers. An improvement approach using data to identify and subsequently address unwarranted variation could support improved access and effectiveness of BP optimisation care.	Process Implementation Improvement Impact	System Place
7	To consider opportunities to support 'activated patients' in scaling-up purchasing or loaning of monitors	Scale Reach	System Place

	and addressing cohort of patients' reported interest in adopting more digital options to support their BP care.	Impact	GP
8	To consider bespoke local data collection to examine the social and demographic characteristics of patients on the hypertension register by practice, along with corresponding data for those patients receiving BP optimisation interventions (such as those patients submitting home blood pressure readings).	Data Implementation Inequalities Equity- access	Place GP
Evaluation Question 3: Which GP practices are outliers in high, low (or improved) performance on BP 'treatment to target' metric? (To support qualitative sampling)			
9	To consider additional work with the highest performing/most improved and lowest performing/least improved practices to identify potential best practice and key learnings.	Scale Reach Improvement	System Place
10	To consider opportunities to establish a targeted measurement for improvement approach, to understand, identify and address unwarranted variation. This could be supported by improvement collaboratives etc. to spread learning and focus on activity at scale likely to drive greatest improvement and impact.	Data Improvement Impact	System Place
11	To explore and address reported issues of persistent non-engagement by some lower-performing GP practices.	Engagement Scale Reach Impact	System Place
Evaluation Question 4: What are the key components of BP Optimisation initiatives in place in sub-sample of GP practices with lower BP TTT/ least improved and higher BP TTT/ most improved?			
12	To consider additional work be carried out to quantify the key components of blood pressure optimisation initiatives across GP practices.	Data	System Place GP
13	To consider review of best practice in optimising and reducing unwarranted variation in components perceived to deliver greatest relative impact, such as risk stratification approaches, access to home BP monitors, extended roles, and uptake of ARRS scheme, use of digital services.	Data Process Implementation	System Place GP
14	To review approaches to accessing and recording home BP monitoring to increase the scale, develop robust processes and supporting data, and extend the reach to priority groups, recognising the reported challenge of non-returned monitors.	Data Process Scale Reach	Place GP
15	To review and address reported challenges in accessing community pharmacy services for home BP monitoring.	Process Reach	Place GP
16	To consider stakeholders' concerns about functionality and readiness of digital services to support BP optimisation as part of procurement and commissioning decision making.	Digital	System Place
Evaluation Question 5: What are the workforce and patient perspectives on BP Optimisation initiatives in sub-sample of GP practices?			

17	To work with patient groups and stakeholders to communicate and share patients reported positive experiences and benefits to promote greater uptake and sustainability of the initiative.	Comms Reach	System Place GP
18	To consider developing and establishing robust process and guidance to support equitable access to HBPM for patients who are unable to purchase.	Reach Process Scale Inequalities	System Place GP
19	To review and optimise HBPM onboarding process and access to monitors to capitalise on patient interest and extend the reach and scale of the initiative.	Process Reach Scale	Place GP
20	To review, improve and reduce unwarranted variation in the access, information and support that patients receive in relation to HBPM to ensure it adheres to best practice and addresses the requirements of the target population, including the use of digital services.	Process Data	Place System
21	To work with patient groups to establish best practice around the information and support required to use digital solutions at scale and address potential barriers at GP practice and system level.	Comms	Place GP
22	To establish best practice in relation to alternative opportunities for those digitally excluded to ensure patients have the support they need.	Reach Scale Process	System Place GP

1. Evaluation – Detailed Final Report

1.1. Context and Origins of Evaluation

The evaluation was designed to deliver on specific requirements set out in the ITT to provide the following:

1. a better understanding of the impact of local implementation of the BP@home programme (including Digital First and other quality improvement innovations) on Blood pressure (BP) outcomes and inequalities.
2. learning which would inform future ICS-wide strategic decision making in relation to clinical and digital elements of BP management in a post-Covid, ICS-era in C&M.

The evaluation aimed to bring together the expertise of key partners and organisations across the system within a monthly Evaluation Working Group. This has supported codesign of the evaluation, navigation of emergent challenges, governance, reporting structures, and facilitating access to data. We have also benefited from input various system leaders at different times. This Evaluation was funded by ICS transformation funding, involving the ICS transformation board.¹

The scale of the challenge and opportunity

CVD is responsible for a quarter of all deaths in the UK (British Heart Foundation, 2018) and is the largest cause of premature mortality in deprived areas.

High blood pressure (hypertension) is one of the most important, modifiable risk factors for CVD (World Health Organisation, 2023). Both detection and treatment optimisation are important. The 2021 UK census estimated almost one third (32%)² of adults living in private households in England had high blood pressure, and 3 in 10 of those (29%) were undiagnosed; this equates to approximately 4.2 million adults with undiagnosed hypertension. The National Institute for Clinical Excellence (NICE) guidelines highlighted the scale of hypertension in terms of numbers, with 12.5 million people diagnosed, but also the health service burden, which in 2015 accounted for 12% of visits to primary care, up to £2.1 billion of healthcare expenditure and considerable resource implications of managing cardiovascular events.

The CVD goals in the NHS Long Term Plan include an ambition to prevent 150,000 strokes, heart attacks and dementia cases over 10 years by improving the detection and treatment of ‘ABC’ - atrial fibrillation, high blood pressure and high cholesterol (NHS England 2019).

Opportunities for CVD intervention exist at a local, system and national level – from reducing the risk of a person developing CVD (primary prevention) to early detection and slowing disease progression among those who do develop it (secondary prevention) as well as timely access to emergency, specialist, and long-term care services (Raleigh et al, 2022).

The national policy context

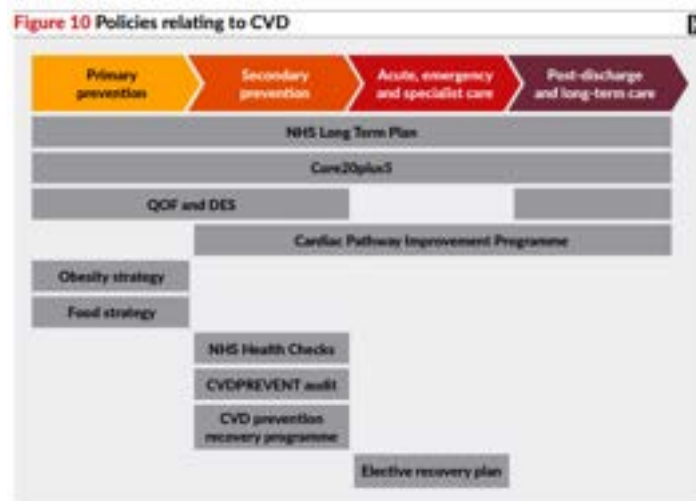
The C&M BP Optimisation Programme is situated within the broader national CVD and hypertension policies and programmes taking place. The Kings Fund have mapped these across the Prevention and Management continuum (Appendix 7). Their consultation with

¹ Reporting for the evaluation was to the Hypertension Steering Group, who report to the CVD Prevention Group, who report to the Cardiac Board, who report to the ICS Transformation Board. The report was to be addressed to CVD prevention group but provided to the Hypertension Steering Group.

² ONS data clarification: In 2019, official statistics from NHS Digital showed that 28% of adults had hypertension, which is lower than the estimate presented in Census article (32%). This is due to differences in the way hypertension is defined.

stakeholders indicated that while these national policies and initiatives were facilitating a positive, national focus on CVD, there were persistent challenges of fragmentation, silos, integration and alignment between initiatives and links with other conditions. Similar issues were raised in relation to funding and impact on progress being made on CVD.

Figure 1: National UK CVD Policies and Programmes (source: Raleigh et al, 2022)



Primary and secondary care context post-pandemic

The challenge remains in prevention, early identification and optimisation of BP treatment and outcomes. Unprecedented pressures, missed routine checks, backlogs of care, record number of appointments and significant shortage of GPs, impacts on primary care’s key role in secondary prevention (Raleigh et al, 2022).

NHS England’s BP @home programme was established at pace, in 2020, during the first year of the Covid-19 pandemic as part of a range of initiatives developed by the NHS to ‘transform health and care services so that people are supported to keep well, recover and manage their health and wellbeing at home’. Key components of the programme included:

- BP monitors distributed around England (via primary care networks) to enable patients to self-record their blood pressure and send their readings to their GP practice to review, by telephone, email or via a remote monitoring platform (220,000 monitors are reported to have been distributed since October 2020).
- Patients who already owned a BP monitor were encouraged to discuss with their GP how to monitor their BP at home.
- A suite of resources³ was made available to NHS staff via the Future NHS staff to support implementation of home blood pressure monitoring in their local area.
- Support for patients were provided by The British Heart Foundation (BHF) in the form of tools and information to learn about their high blood pressure accessed via their ‘Manage your blood pressure at home hub’ which was created to help patients measure and manage blood pressure at home during the pandemic.

³ BP@home implementation resources included - Standard Operating Procedure, Implementation guidance pack, FAQs, Webinars and staff training videos, Patient identification tools, Patient leaflets and videos, Digital solution showcases, GP resources and guidance, Case studies.

This evaluation was designed to deliver on specific requirements set out in the Invitation to Tender to provide:

- a better understanding of the **impact of local implementation** of the BP@home programme (including Digital First and other quality improvement innovations) on **BP outcomes and inequalities**.
- learning which would inform future ICS-wide strategic decision making in relation to **clinical and digital elements of BP management in a post-Covid, ICS-era** in C&M.

1.2.Aims/Objective

The specific requirements of the evaluation set out in the ITT were to:

- deliver a summative and where possible formative evaluation of the programme and the team(s) activities within the C&M region.
- provide insights for the team(s) about what works well, where and for who – including reducing health inequalities.
- consider several initiatives ongoing in C&M aimed at improving blood pressure management.
- capture impact of this work on patients and workforce at regional and place level.
- focus on two aspects: 1. utilisation and impact using existing quantitative data (and if appropriate qualitative approaches), and 2. staff and patient perceptions of the barriers and enablers that influence the implementation and adoption of remote BP monitoring and digital solutions which may support.
- use a range of qualitative and quantitative approaches to address specific evaluation questions and help identify the key activities to amplify.

Original evaluation questions included:

1. What is the continuing impact of COVID-19 on **BP management and control** across C&M and what factors influence our programme?
2. What has been the combined impact of C&M strategies to **strengthen BP care** in practices and **supporting remote BP** management (BPQI, BP@home, Digital Accelerator Sites/ Digital First Primary Care programme)
3. Where have these **strategies worked best and why?**
4. What are the **workforce implications** of remote monitoring?
5. What is the **impact of the programme on health inequalities?**
6. What are the patient and **workforce perspectives on experience** of the programme, the **barriers and enablers to uptake and potential impact**.

2. Evaluation Approach

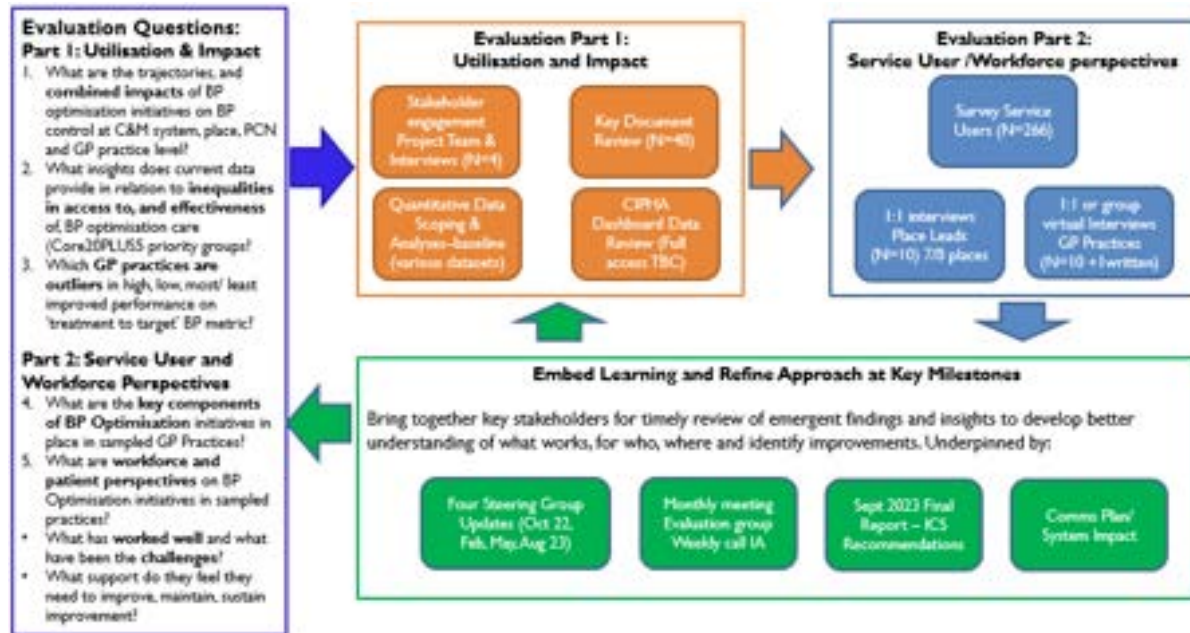
2.1. Design/Methods

Aqua adopted a mixed-methods, retrospective evaluation of the BP Optimisation Programme across C&M to understand two key aspects:

1. Utilisation and impact of the programme.
2. Workforce and service user perspectives about the programme.

Aqua’s evaluation approach and methodology (Figure 2) was codesigned with the Evaluation Working Group⁴ in consultation with system stakeholders.⁵ The GP hypertension patient survey was developed with expertise provided by patient representatives and lived experience partners within the Health Innovation NWC and Aqua’s Lived Experience Panel.

Figure 2: Evaluation Approach Overview



A document review was undertaken in the scoping phase of the evaluation to better understand the scope and components of the key initiatives being evaluated. A total of 48 documents were shared with the evaluation team and key insights were extracted using a structured approach (Appendix 2: Key Document Review).

Early scoping work identified the following challenges to successful evaluation, highlighting the benefits of adopting a flexible, and responsive evaluation approach to navigate issues:

Defining the BP Optimisation interventions and implementation

Understanding the utilisation and impact of the BP Optimisation Programme in C&M requires a clear definition of the programme, it’s aims and progress on implementation. A number of key challenges emerged which required evaluation adaptation.

Defining the BP Optimisation Programme

- Stakeholder interviews, key document reviews and discussions within the evaluation working group indicated that this was not a single cohesive programme, with clear descriptions of interventions and implementation. Instead, it was a set of distinct, local, and national projects, with a range (and variation) of approaches, objectives,

⁴ A monthly Evaluation Working Group was set up to support the evaluation, with agreed terms of reference and stakeholder membership, in addition to weekly meetings with Aqua and the IA met between March-August 2023.

⁵ Quarterly updates were provided to key system groups including the CVD Prevention Group.

timelines, and funders, often linked by a common focus on finding and optimizing the treatment of people with known hypertension.

- Scoping work indicated that stakeholders reported the history of CVD and BP work within C&M, with strong collaboration and system relationships. However, their views and documents shared with the evaluation team emphasised common challenges in defining the BP Optimisation ‘programme’ in C&M and therefore the scope of evaluation.

Figure 3: Quote from scoping interview

“I know **there's no single answer to it..** It is a programme that has been **difficult to manage** because its origin... stemmed from **BP at home** which was a national programme around getting BP machines out ...and that came out in the middle of **COVID** ...We've got a **batch of monitors - can you get these out?** And so it sort of **gradually morphed** into. ...So in terms of trying to set up a PID and go through the steps that you would take in terms of a good quality program...we've not really been able to do that because just of the way it's sort of naturally morphed. I think now it's got **really strong organisation behind it and strong leadership** from the **national team**. But it's **taken a while** for it to get to where it is.” **Evaluation Scoping Interview (Nov, 2022)**

- The BP optimisation programme was described as a complex set of national and local initiatives which fell under the broad ‘umbrella’ of *finding* and *optimising* the treatment for people with *known hypertension*. Reported lack of traditional project initiation documents and underpinning theory of change may relate to implementation during the pandemic. Specific challenges in understanding the programme and impacts outlined below required unplanned evaluation time and resource to agree scope:
 - Limited supporting documentation on scale and progress of implementation
 - Different views of level of co-ordination of projects and programme.
 - Reported programme focus on treating people with known hypertension whereas national and primary care levers focussed on finding new people.
 - Challenging context and rapid pace of implementation during pandemic and widespread system change (e.g., development of ICS and move from CCG to Place), with changing personnel and reported uncertainties around governance.
 - Digital enablers reported to be key to successful BP optimisation, however concerns raised by some about the potential change of provider of digital primary care services during evaluation scoping with perceived risks of variation in commissioning and impact on the programme.
 - For the purposes of this evaluation, a pragmatic working definition was proposed by the evaluation team and agreed within the Evaluation Working Group as follows:

The BP Optimisation Programme includes a set of projects implemented across C&M aimed at delivering on C&M ICS commitment to achieving 10-year national ambitions:

- 80% of expected number of people with high BP are diagnosed by 2029.
- 80%* of total number of people diagnosed with high BP are treated to target as per NICE guidelines by 2029.

*Since the start of the evaluation NHSE has accelerated targets of 77% TTT by 2024.

BP Optimisation Projects have been initiated at different times, in different places, with different funding streams, led by range of partners at national, ICS and place level including BP@home, Hypertension Accelerator Programmes, and BPQI tool.

The Programme was underpinned by national and local drives to reduce health inequalities.

Governance and co-ordination of the Programme is provided at ICS level by CVD Prevent Steering Group. Arrangements have developed during the period of evaluation.

- Further work was undertaken with the Evaluation Working Group to define projects within scope for the evaluation of the BP Optimisation Programme. Three key projects confirmed in scope are outlined in Table 2. Our key document review identified where possible, the aims and expected scale and spread (Appendix 2: Key Document Review). This was a pragmatic approach, not intended to be an exhaustive list; many related projects including Digital First, and local community referral pathways were identified. Evaluation activity to retrospectively define and understand the scale of implementation provides learning for the system to build upon.

Table 2: Summary of BP Optimisation projects considered to be within scope of the evaluation (Jan 2023)

	Defined Aim	Cheshire East/West	Wirral	Liverpool	Knowsley	Warrington	St Helens	Sefton	Halton	Southport & Ormskirk
Hypertension Accelerator Programme	To inform the approach for at-home/remote BP monitoring to become business as usual for GPs across the Cheshire and Merseyside Integrated Care System (MLCSU Case study).									
BP@Home	To improve the control of high blood pressure of at-risk patients, reduce the time pressures on general practice, and prevent avoidable heart attacks and strokes.									
BPQI	BPQI Toolkit is a collaboratively & locally developed QI package that embeds into EMIS and System One and supports GP teams to deliver best practice inc. through dashboards, consultation templates.									

- A pragmatic evaluation approach was adopted which focussed on digital and remote monitoring of BP initiatives within primary care.

Availability, access to, and quality of data to fully deliver evaluation requirements.

- The evaluation team analysed available data from multiple sources (Appendix I) and presented insights to the Evaluation Working Group at three key time points.
- Bespoke data capture tools were developed by the evaluation team to assist in retrospective capture of implementation data (Supplementary File A) and demonstration of outcomes and impact (Supplementary File B). The former did not prove possible to complete and partial responses to the latter are discussed in the Findings section of this report.
- Lack of reliable coding of HBPM machines and components of the interventions implemented in general practices presents challenges in attributing a link between implementation and outcomes, similarly in understanding the extent of any impact on health inequalities.
- Following several gap-analyses, a final set of evaluation questions and methods were agreed in Feb 2023 which reflect a shared, pragmatic approach for delivering ongoing, useful, actionable insights and recommendations to inform the ICS - CVD Prevention work.
- The original ITT and early scoping work with stakeholders indicated potential benefits of accessing data from C&M's [CIPHA](#) – Combined Intelligence for Population Health Action. A detailed CIPHA data request was made by the Health Innovation NWC Agency (in 2023), supported by Aqua, followed by attendance at the CIPHA committee and follow up on series of committee recommendations. Access to the CIPHA dashboard was provided to the evaluation team in late July 2023; a snapshot in time of key CVD metrics, not trends over time. Unfortunately access to the full CIPHA dataset (with times series data) has not proved possible within the timeline of this evaluation. There is potential system learning around how to balance process and timely access for commissioned system work such as evaluations. In respect of this evaluation, however, it is our view that more timely availability of access to the full CIPHA dataset would only have had a marginal impact on addressing the gaps we observed between the available data and the ambitions described in the evaluation questions.
- On the basis of the gap analyses undertaken (Appendix 3: Data Gap Analyses and Rescoped Evaluation Questions), and the difficulties we observed in addressing these gaps through additional data collection, we modified our approach, using the available datasets to identify a cohort of higher and lower performing GP practices for structured qualitative assessment. This also faced challenges of stakeholder engagement but did yield some useful insights in relation to the differences in implementation of the intervention between practices.

Engagement and capacity of stakeholders across the system to take part

- The programme and its later evaluation took place during a period of considerable turbulence and change as ICS's emerged, Covid-19 pandemic pressures and workforce challenges.
- It was often difficult to identify who were the key stakeholders to include and how to contact them. There was no centrally held list of GP leads and with transition from CCGs to ICBs, some Place leads across the system were not confirmed in post yet. Support was sought and obtained from the Health Innovation NWC and system stakeholders. Approximately half of the place stakeholders, and one third of GP practices contacted took part.
- Key members of the Evaluation Working Group left in the early stages, with new members subsequently joining and getting up to speed.

Emergent ICS governance structures

- Stakeholders often reported uncertainty about lines of accountability and steering groups being paused or re-started, with emergent membership and Terms of Reference.

2.2. Evaluation Questions

Aqua's analysis plan was formulated in relation to the initial evaluation questions set out in our response to the ITT. Subsequent appraisal of the available quantitative data was carried out on three separate occasions as summarised in Appendix 8: Analysis Plan. During February 2023, some further refinement of the evaluation questions took place. The final version of our assessment of the available quantitative data against these re-scoped evaluation questions is shown in Table 3.

The availability of additional data through CIPHA in late July 2023 did not materially change this assessment, since the dataset is sourced from the same underlying GP practice systems, and therefore subject to the same limitations on completeness and consistency. In our view, the main advantage of the CIPHA tool in this context is that it allows access to more up-to-date data in relation to BP control than the nationally published QOF and CVD Prevent data.

Table 3: Final appraisal of data availability to address rescoped evaluation questions (Feb 2023)

Re-scoped Evaluation Questions	Assessment of Data Coverage	Notes on Data Availability
1. What are the trajectories, (trends/variation) and combined impacts of BP optimisation initiatives on BP control at C&M system, place, PCN and GP practice level?	Partial	CVD Prevent and QOF datasets provide good coverage of patterns of BP control over time by practice. Currently available data doesn't allow us to attribute changes in these metrics to BP control initiatives. Local practice-level data requested through the BP Evaluation Template (such as through quantifying levels of home BP readings, distribution of monitors, etc.) intended to help improve this shows significant omissions and was supplied with commentary suggesting that this reflects limitations in the available source data.
2. What insights does current data provide in relation to inequalities in access to, and effectiveness of, BP optimisation care (and implications for Core20PLUS5 priority groups)?	Minor	While CVD Prevent data allows for the performance against the key hypertension control metrics to be split by deprivation quintile, this is only at sub-ICB (CCG) level, and therefore does not allow us to identify variation across GP practices or PCNs. The same dataset provides splits by age band, sex, and ethnicity at PCN level (not GP practice), but is subject to rounding, data suppression processes, and data omissions that limit its value for low patient number measures, such as the number of BP controlled hypertensive patients by ethnic group. Within the CVD prevent dataset nationally, >20% of patients have no ethnicity recorded. Additional demographic data requested through the BP Evaluation Template was mostly returned blank and was subject to issues of data accuracy and consistency for those practices where data was provided. The level of quantitative insight available for this question was therefore limited.
3. Which GP practices are outliers in high, low (or improved) performance on 'treatment to target' metric?	Full	Good data coverage in relation to this question.
4. What are the key components of BP Optimisation initiatives in place in top 10 high, low (or improved) performing GP practices on BP 'treatment to target'?	None	No quantitative data available. We would therefore aim to address this through qualitative data collection.
5. What are workforce and patient perspectives on BP Optimisation initiatives in place in top 10 high, lower (or improved) performing GP practices on BP 'treatment to target'? •What has worked well and what have been the challenges? •What support do they feel they need to improve, maintain, sustain improvement?	None	No quantitative data available. We would therefore aim to address this through qualitative data collection.

2.2.1. Quantitative Data Analyses

The quantitative component of the evaluation involved identifying, appraising, analysing, and generating insights from multiple datasets, while also waiting on full access to CIPHA data. Datasets included are listed below with further details provided in Appendix I: Quantitative Data Sources:

- Quality and Outcomes Framework (QOF) Dataset (2019/20, 2021/22),
- CVD Prevent (12-month data extracts - to Mar 2021, Mar 2022, Sep 2022, and Mar 2023).
- Organisation Data Service GP Practice list (EPRACCUR) (August 2022)
- Fingertips CVD profiles (Feb 2021)
- Fingertips National General Practice Profiles (April 2022)
- NCVIN estimated hypertension prevalence (2020)
- CIPHA Dashboard CVD Metrics (Dashboard updated daily)
- Wirral Hypertension Metrics (Jan 2023)
- C&M Hypertension Data Tracker and Baseline Measures spreadsheets
- Cheshire, Liverpool, and Wirral Hypertension Reporting spreadsheet
- BP Evaluation Template (Feb 2023)

While waiting on access to full CIPHA data, Aqua’s evaluation team conducted a review of the CIPHA dashboard (made available late July 2023). This was intended to explore the twelve available (BP-relevant) CVD metrics at a more granular level, focusing on the ten GP practices who took part in qualitative interviews to help provide more nuanced local context. The GP-level metrics and key demographics were compared at PCN, Place, system level. Our review highlighted questions and limitations in relation to definitions, availability and quality of data. For example, it was not possible to explore trends over time as time-series data is not available. There were also some discrepancies between dashboard data and other data sources. Available data has been visualised in a summary slide-deck and provide useful narrative on data quality issues to inform stakeholders and any future work (Supplementary File A).

Selection of Baseline Period for Data Analysis

To help support the qualitative data collection needed to inform the evaluation questions, we undertook a baseline analysis. This fulfilled two functions:

- a. To identify a suitable baseline time-period against which to assess the relative levels of improvement in blood pressure control by practice.
- b. To guide the selection of GP practices for the qualitative phase of the analysis.

One of the key data metrics for the programme is the combined proportion of hypertension patients with controlled BP, defined as: “The percentage of adult patients with recorded hypertension, in whom the last blood pressure reading (measured in the preceding 12 months) is below the age-appropriate treatment threshold”.

Assessing the extent of improvement against this measure over time, requires the selection of an appropriate baseline period, against which we can compare the most recent dataset. Two potentially suitable published datasets for this baseline were identified as:

- a. QOF data for 2019/20
- b. CVD Prevent Audit data for the 12 months to March 21.

There are different advantages to these potential baselines. Since they are calculated similarly, there is no significant difference in method associated with which dataset is used, and the substantive difference is therefore the time period covered, and the non-participation of a small number of GP practices in the CVD Prevent Audit during that period (14 practices out of 350 in C&M). Table 4 below summarises the relative merits of these two options:

Table 4: Advantages and disadvantages of baseline dataset options

Dataset	Advantages	Disadvantages
2019/20 QOF (12 months to March 2020)	Provides most recent pre-COVID dataset. Does not overlap with the intervention period for the programme.	COVID-19 saw performance deteriorate after this period.
March 2021 CVD Prevent (12 months to March 2021)	Represents the COVID-19 affected low point in performance.	May be distorted by impact of COVID-19, and therefore may not be representative of wider performance. Includes some of the period over which the programme was in operation. Excludes a small number of non-participating practices.

Exploring these options in more detail, we examined the extent to which each might represent a suitable baseline.

When using the 2019/20 QOF dataset as the baseline position, and comparing to the most recent published data (which at the time of the baseline analysis was CVD Prevent for the 12 months to Sep 2022) we found a good match between the GP practices with the most improvement over the time period, and those with the best performance overall, and also a similar picture for practices that were the least improved, and those with the lowest overall reported performance against the BP control measure:

- Of the 20 most improved practices between 2019/20 and Sept 2022, 7 were also in the 20 best performing practices in C&M overall in the Sept 2022 dataset.
- Of the 20 least improved practices over the same period, 8 were also in the 20 lowest performing practices in C&M overall.

Figure 4: 2019/20 Baseline - Overlap between categories



When using the CVD Prevent dataset for the 12 months to March 2021 as the baseline however, the position is quite different:

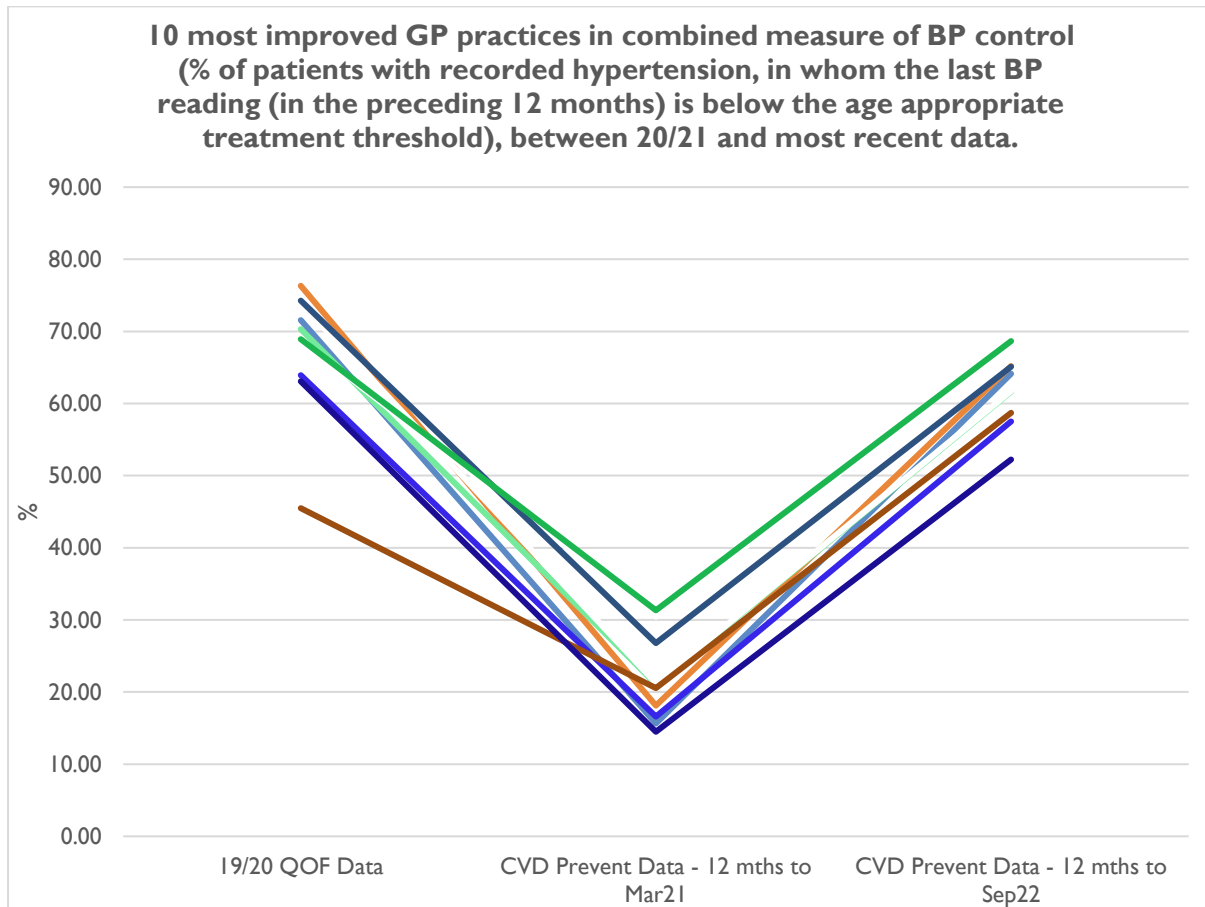
- Of the 20 most improved practices, none were also in the 20 best performing practices in C&M overall.
- Of the 20 least improved practices, only 2 were also in the 20 lowest performing practices in C&M overall, and 1 was in the 20 best performing practices.

Figure 5: 2020/21 Baseline - Overlap between categories



This can perhaps be explained by the impact of COVID-19, and the extent of the dip in performance seen during 2020, and the subsequent recovery thereafter. The following chart shows the 10 most improved GP practices for the overall measure of BP control between 2021 and 2022, alongside their pre-COVID performance:

Figure 6: 10 most improved GP practices in combined measure of BP control between 20/21 and most recent data



For the 10 most improved practices, this was largely recovery of their post-COVID dip in performance. In all except 1 case, the recovery fell short of the 19/20 position.

Expanding this further to the 20 most improved practices, in all except 2 cases, the 20 practices that saw the largest percentage improvement between 20/21 and 21/22 were still below their 19/20 starting position. 7 were still below the C&M average for all practices.

This therefore suggests that the most improved practices during this period may not be a good indicator of better than average sustained performance overall.

Taking into account the relative advantages and disadvantages, our recommendations were therefore:

- To use the 2019/20 QOF data as the baseline dataset, against which to measure improvement during the programme intervention period.
- Carry out further qualitative analysis for the most improved practices compared to this baseline, to identify any contributing factors and enablers in their improvement.
- Explore further qualitative analysis for the least improved practices, to identify any barriers to improvement.

- Gather qualitative insights for a sample of the best performing (and lowest performing) practices overall, examining the extent of any differences in process that could be applied more widely.

This was accepted by the project team, and two lists produced of the most improved and best performing practices (i.e. those practices that featured in both the 20 best performing and the 20 most improved during the analysis period), and the least improved and lowest performing practices (those practices that appeared in both the 20 lowest performing and the 20 least improved) for the key metric of BP control. This provided a sample of 15 practices to form the basis of further qualitative investigation, to establish the extent of the BP control interventions implemented in each case, the barriers and enablers to improved BP control performance, and any other key factors that may have contributed to each practices relative level of performance. The analysis showing this sample of GP practices is shown in section 3.3.

2.2.2. Qualitative Data Analyses

The evaluation sampling strategy was designed to recruit a purposive sample of workforce stakeholders across the nine Places in C&M⁶ and a range of General Practices and patients who had experienced hypertension. Recruitment involved:

- Stakeholders with leadership roles (managerial and/or clinical) at Place-level and those known to have specialist knowledge of specific BP initiatives across C&M were identified and contacted. This relied on excellent local intelligence and networks provided by members of the Evaluation Working Group and System Groups.
- A purposive sample of General Practices were invited to interview, identified through comparative analyses of GP performance on the BP treatment to target measure from most recent CVD Prevent data (12 months to September 2022 initially, subsequently refreshed to include data for the 12 months to March 2023 to the pre-COVID QOF 19/20 baseline). As described earlier in this report, challenges in accessing quantitative implementation data prompted this more qualitative, pragmatic approach to describe and compare interventions implemented in potentially ‘outlier’ GP practices – higher performing/most improved and lower performing/least improved. A total of ten GP practices (16 participants) out of the 31 contacted took part in interviews.⁷ One additional GP practice reported capacity pressures and provided written feedback instead.
- An e-survey of GP patients on the hypertension register⁸ from the purposive sample of GP practices who also opted to distribute the survey link to their patients by text. Accessibility, inclusion, and relevance of patient survey was optimised through development and testing with patient representatives from the Health Innovation NWC, lived experience panel member within Aqua, and the evaluation working

⁶ Cheshire East/West, Halton, Knowsley, Liverpool, Sefton, Southport & Formby, St.Helen’s, Warrington and Wirral. Stakeholders noted some changes since transition from CCG.

⁷ It is important to note the additional time and resource expended by Aqua and the Health Innovation NWC in identifying relevant contacts and securing engagement; local stakeholders reported persistent challenges of non-engagement of some GP practices, several of which were in lower performing/least improved category.

⁸ The project team agreed the e-survey would ideally be distributed to all GP patients on the Hypertension register. One practice opted to send it to a limited number of patients who had received a BP monitor (n=5)

group. 266 GP patients consented to take part across five practices. The vast majority (92%) of patient responses were from one practice (an estimated response rate of approximately 35% of those on the practice hypertension register). Notably, this practice that had not received monitors as part of the BP@home programme.

An adapted Framework approach (Gale et al, 2013) was used to rapidly identify common themes and patterns within and between stakeholder perspectives. This analytical framework provides a structured, proportionate, and transparent approach to generate insights on both a priori questions and more emergent lines of enquiry. Ongoing updates and timely insights were provided to the monthly Evaluation Working Group and quarterly Steering Group.

3. Evaluation Findings

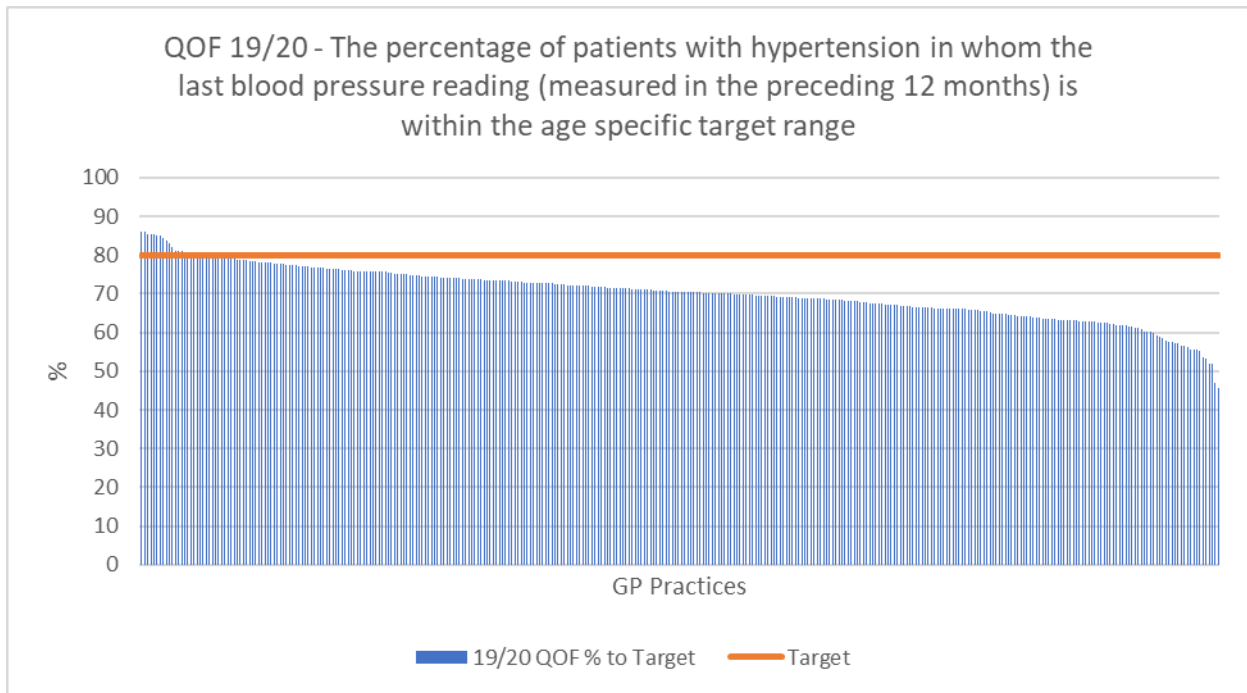
3.1. Evaluation Q1. What are the trajectories and combined impacts of BP optimisation initiatives on BP control at C&M system, place, PCN and GP practice level?

Our data analysis indicates that the combined impact of the BP optimisation initiatives across C&M is difficult to gauge. GP Practice improvement since their post-COVID drop in performance against the BP treatment to target metric has mirrored that seen regionally and nationally, while most practices remain below their pre-COVID baseline. Lack of data to describe the extent of the intervention undertaken by GP practice limits our ability to assess what contribution this made to those with the greatest improvement or the quickest recovery.

Trends in levels of BP control for hypertensive patients have been positive since 2021, with significant improvement seen across most GP practices. Most remain below their pre-COVID baseline however, and only 10% of practices within the ICB were achieving the 77% March 2024 target in the most recent published CVD Prevent data for the 12 months to March 2023. Understanding the perceived success factors within these practices was a key driver within the qualitative evaluation component.

Published QOF and CVD Prevent data shows how levels of BP control varied between 19/20 and 21/22. Based on 19/20 QOF data, before COVID-19, 6% of C&M GP practices were achieving the long-term ambition of 80% of hypertensive patients having a recent BP reading within the target range. Almost half of all practices (170) were between 70% and 80%.

Figure 7: QOF 19/20 percentage of patients with hypertension in whom the last BP reading is within the age specific target range



In the published QOF data for 21/22, this had fallen to just 0.9% of practices achieving the ambition, and only a further 39 practices (11%) in the 70%-80% range:

Figure 8: QOF 21/22 percentage of patients with hypertension in whom the last BP reading is within the age specific target range

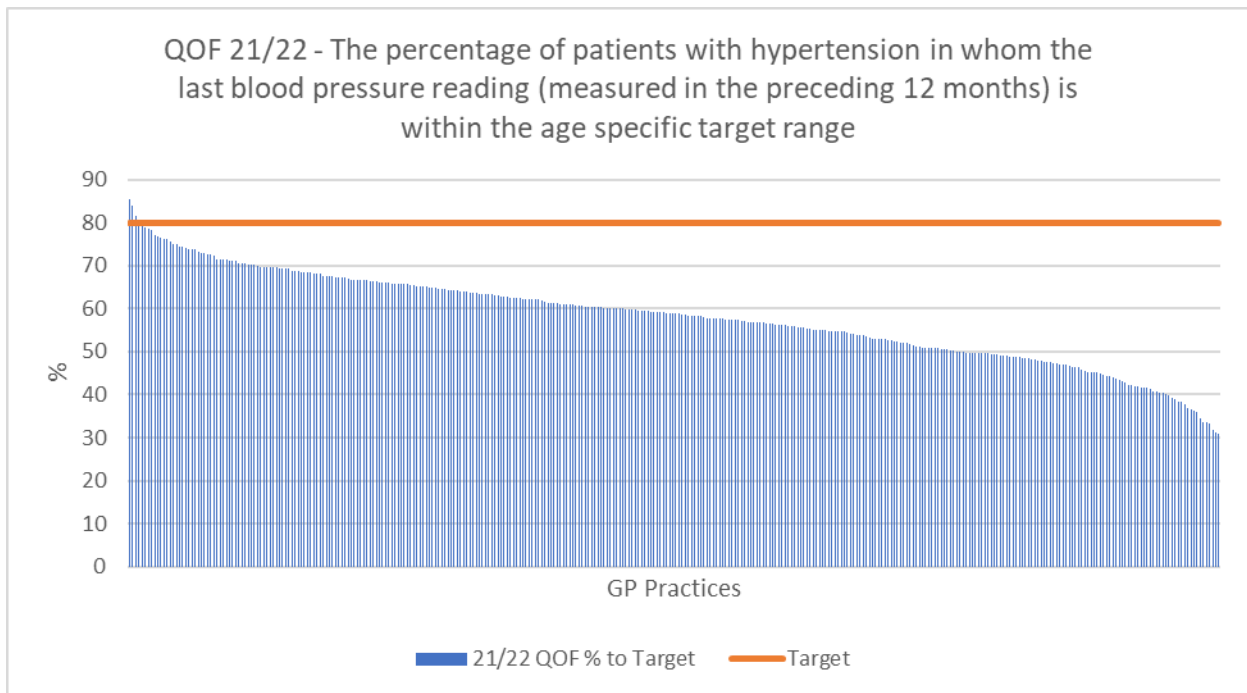
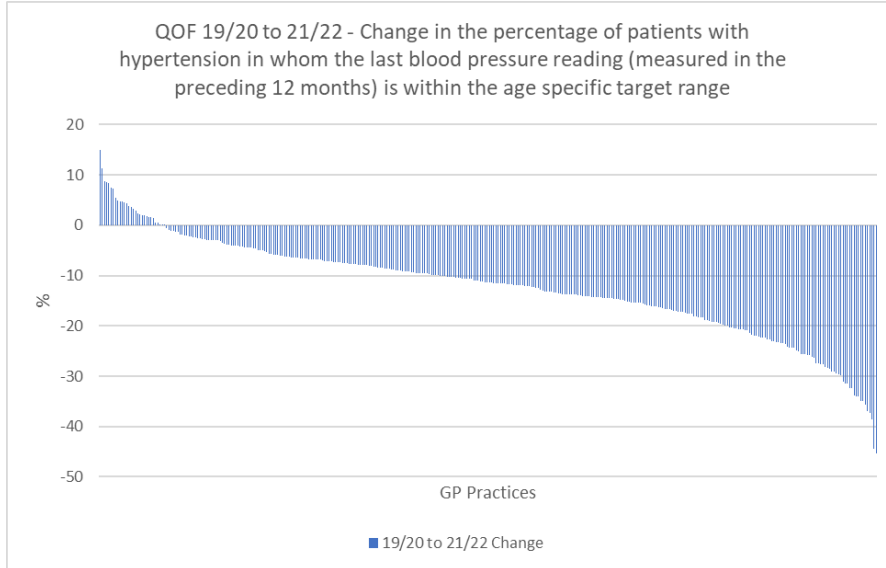


Figure 9 shows the deterioration in performance against the BP control ambition by GP practice for Cheshire & Merseyside.

Figure 9: QOF 19/20 to 21/22 - Change in percentage of patients with hypertension in whom the last BP reading is within the age specific target range



While 30 practices improved their performance against this measure between 19/20 and 21/22, 320 saw worse results.

More than half of all practices saw their performance reduce by more than 10%.

The three hypertension accelerator sites did not show a materially different pattern to that seen for the ICB overall. In each area a minority of practices saw an improvement in performance, with the majority seeing a deterioration:

Figure 10: QOF 19/20 to 21/22 - Change in percentage of patients with hypertension in whom the last BP reading is within the age specific target range - Cheshire

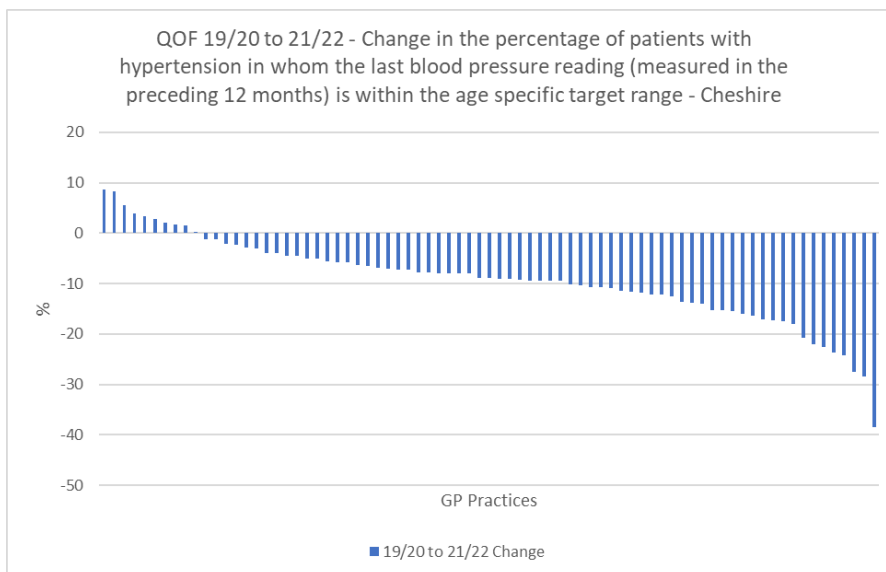


Figure 11: QOF 19/20 to 21/22 - Change in percentage of patients with hypertension in whom the last BP reading is within the age specific target range - Liverpool

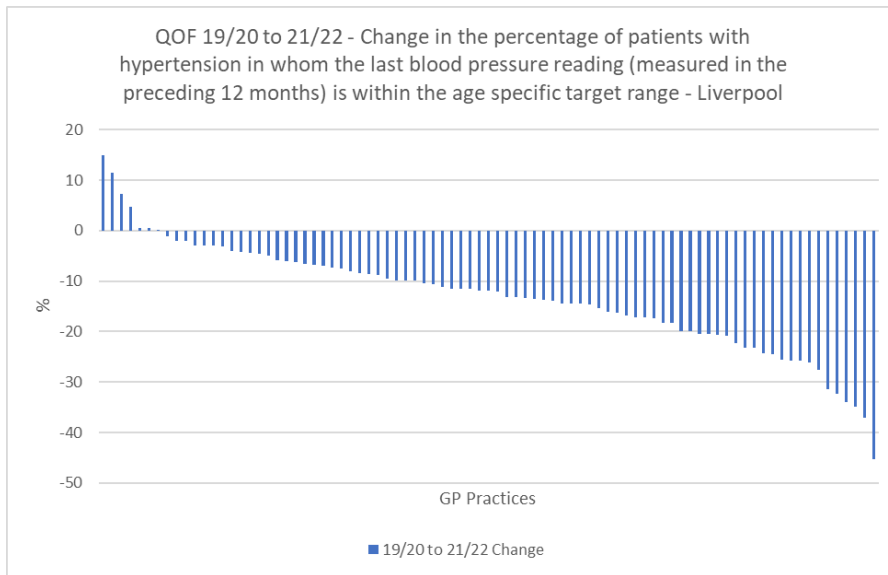
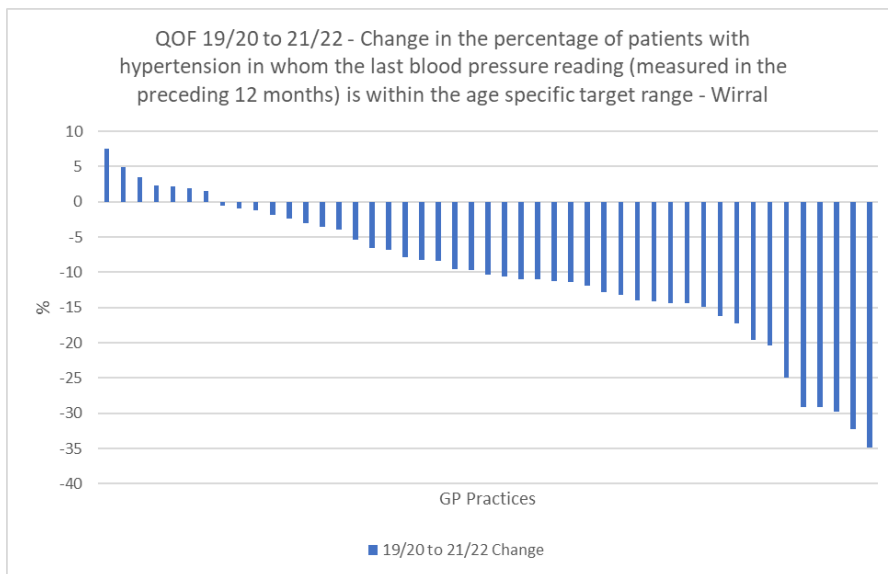


Figure 12: QOF 19/20 to 21/22 - Change in percentage of patients with hypertension in whom the last BP reading is within the age specific target range - Wirral



To explore what factors might be behind this variation, we adapted our qualitative approach, to attempt to better understand the interventions being undertaken at practice-level, and how processes and resources differ, and how that might translate to improved levels of BP control.

National ICB Comparison

Using QOF data allowed us to compare Cheshire & Merseyside to other ICB areas, highlighting the extent to which the lower levels of BP control seen since COVID-19 were also replicated elsewhere:

Figure 13: QOF 21/22 - Percentage of patients with hypertension in whom the last BP reading is within the age specific target range - National ICB comparison

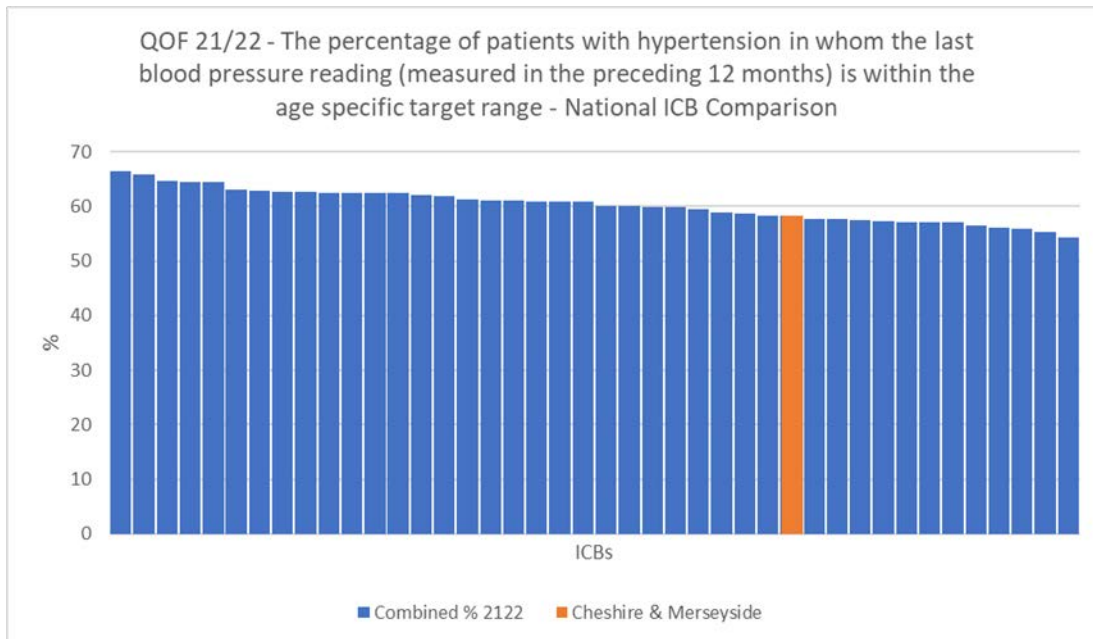
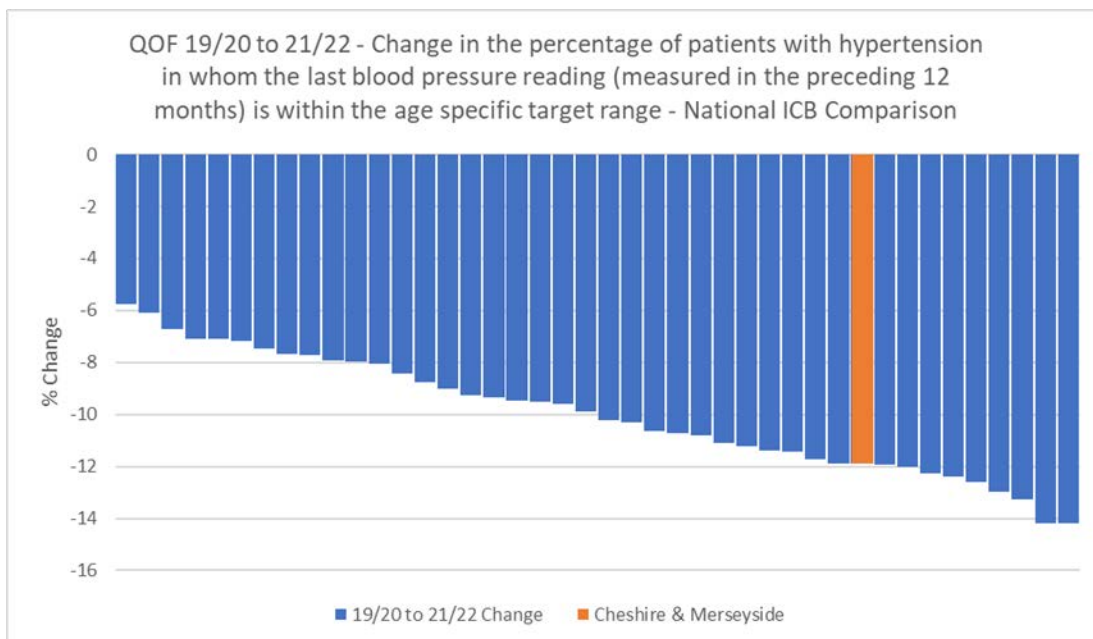


Figure 14: QOF 19/20 to 21/22 - Change in percentage of patients with hypertension in whom the last BP reading is within the age specific target range - National ICB comparison



The 2021/22 QOF dataset showed that Cheshire & Merseyside ranked 30th out of 42 ICB areas nationally for the percentage of hypertensive patients with BP readings in the target range (58%). This represents a 12% deterioration on the performance seen in the 2019/20 QOF data. This was also the pattern seen nationally, with every ICB area seeing a significant reduction in performance against this metric, ranging from 5.8% (Lincolnshire ICB) to 14.2% (The Black Country ICB and North & Central London ICB). Cheshire & Merseyside ranked 33rd out of 42 for the extent to which the previous level of performance was maintained. This was very similar to Greater Manchester, Staffordshire & Stoke-on-Trent, Surrey, and North East London.

Other Data insights – Case finding and estimated prevalence versus management to target

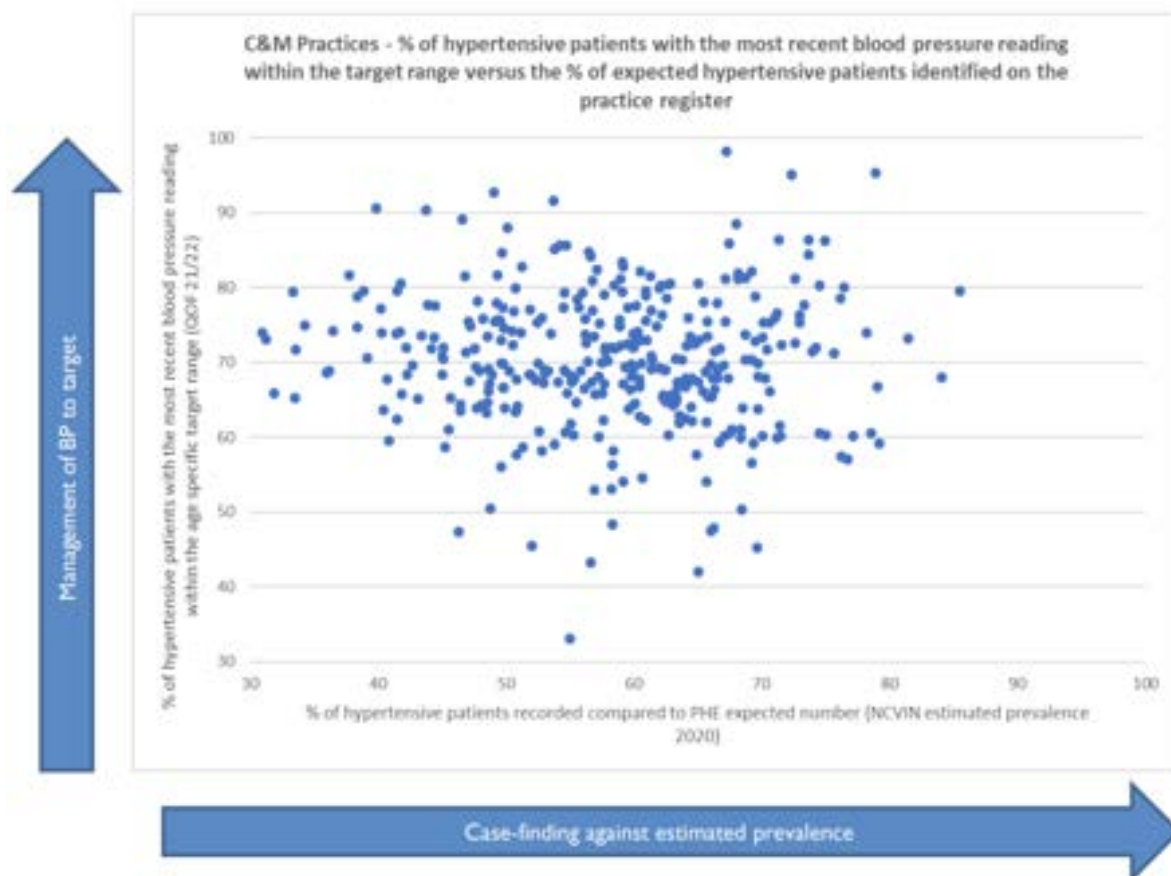
When analysing the nationally published QOF data we explored the extent to which improved case finding and diagnosis rates for hypertension might be related to improved management of BP control to target.

We examined the extent to which GP practices’ relative performance in the management of hypertensive patients within their target BP range was related to their relative performance in identifying hypertensive patients (i.e. the extent to which the practice register reflected the NCVIN estimated prevalence for the population served, sourced from:

<https://www.gov.uk/government/publications/hypertension-prevalence-estimates-for-local-populations>).

Figure 15 shows this comparison:

Figure 15: Cheshire and Merseyside practices – Percentage of hypertensive patients with the most recent BP reading within the target range vs. percentage of expected hypertensive patients identified on the practice register



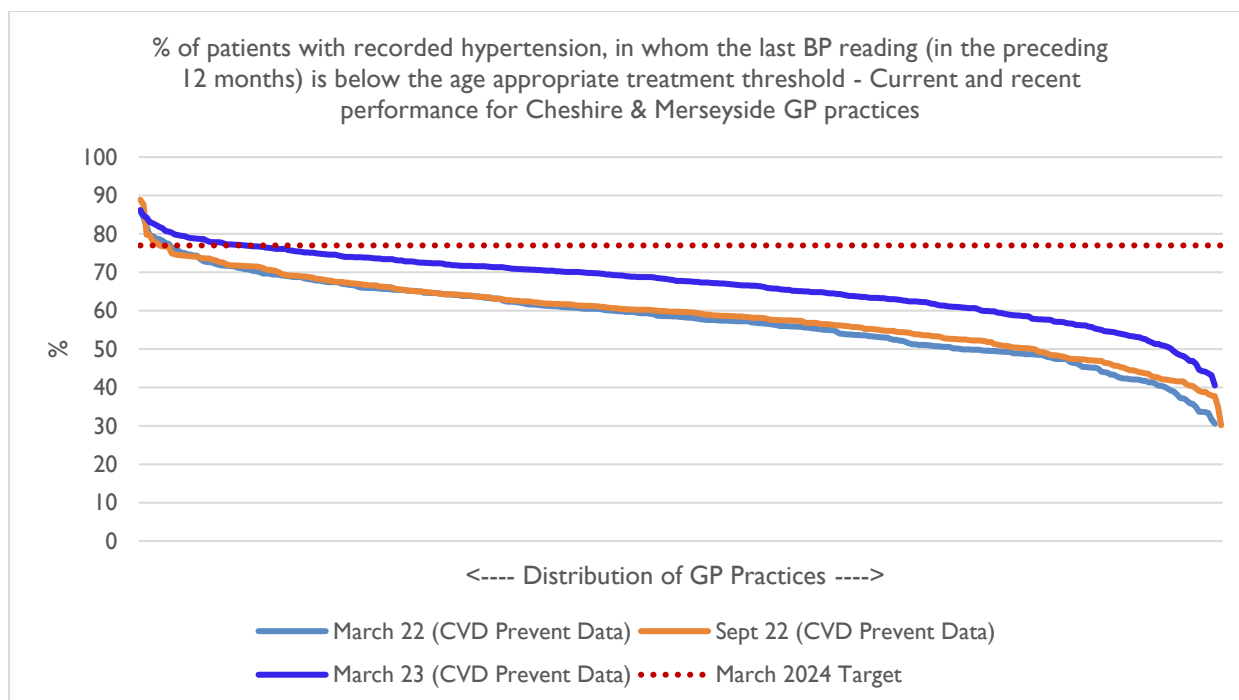
The two datasets show no meaningful correlation. This suggests no significant relationship between practices with higher diagnosis and case-finding rates, and those with higher levels of BP control of hypertensive patients during the period we examined. This helped to inform our qualitative data collection, we focused our collation of data from practices on

how they had attempted to directly influence levels of BP control, rather than interventions to boost levels of case finding.

Improvement in Levels of Blood Pressure Control and Achievement of the March 2024 NHS Planning Target for Improved Management of Hypertension:

NHS planning and operational guidance for 2023/24 (NHS England 2022 | PR00021) reaffirmed the importance of achieving the long-term ambition of 80% of patients on the hypertension register having a recent blood pressure reading within the age-appropriate target threshold and set an interim target of achieving 77% by March 2024. We have examined the extent to which GP practices within Cheshire & Merseyside are progressing towards this March 2024 target. Figure 16 shows the distribution by GP practice for the ICB, comparing the most recent published data (CVD Prevent dataset for the year to March 2023), with previous values, and with the March 2024 target:

Figure 16: Current and recent performance for Cheshire and Merseyside GP practices on percentage of patients with recorded hypertension in whom the last BP reading is below the age appropriate treatment threshold



In the March 2023 published data, 34 GP practices (or 10% of practices within the ICB) were achieving the March 2024 77% target. A further 107 practices (31% of the total) were between 70% and 77%.

As shown from the distribution lines for March 2022 and Sept 2022, this represents a significant improvement on the previous reported performance. Between the March 2022 and March 2023 datasets, the number of practices achieving the March 2024 target improved from 10 to 34, while the average percentage of hypertensive patients whose blood pressure was within the age-appropriate threshold across the practices improved by 8.9%. This reflects the pattern seen nationally, where the average across all practices participating in the CVD Prevent audit improved by 8.1% between the same two points. While this improvement is therefore encouraging, this data emphasises both the significant

improvement still required to achieve the March 2024 target, and also the limitations of being able to attribute the observed recent improvement to local initiatives within Cheshire & Merseyside, when the pattern observed is broadly similar to the national trend.

Place level

The only Place where we were supplied with significant levels of data by GP practice for the number of home blood pressure readings being carried out was the Wirral, where summary data was provided for 46 practices between January 2022 and January 2023. There were limitations associated with this data, the most important of which was that the figures supplied related to the number of blood pressure readings from home testing, and not to the number of patients supplying readings. It therefore was not possible to say whether, for example, 10 home blood pressure readings supplied during a given month were for all for 1 patient, or for 10 different patients providing one reading each.

Table 5 shows a summary of the data that was supplied:

Table 5: Number of home BP readings carried out in 46 Wirral GP Practices between January 2022 and January 2023

Code	GP Practice	PCN	No. home BPs done per month	
			Jan-22	Jan-23
N85003	Allport Surgery	Healthier South Wirral	3	12
N85648	Blackheath Medical Centre	North Coast Alliance PCN	23	14
N85017	Cavendish Medical Centre	Arno Primary Care Alliance PCN	5	18
N85027	Central Park Medical Centre	Wallasey Wellness PCN	0	5
N85633	Church Road Medical Practice	Arno Primary Care Alliance PCN	0	7
N85006	Civic Medical Centre	Healthier South Wirral	42	46
N85009	Commonfield Road Surgery	Healthier West Wirral PCN	5	27
N85015	Devaney Medical Centre	Brighter Birkenhead PCN	8	30
N85005	Eastham Group Practice	Healthier South Wirral	63	82
N85629	Egremont Medical Centre	North Coast Alliance PCN	4	0
N85031	Gladstone Medical Centre	Arno Primary Care Alliance PCN	0	0
N85032	Greasby Group Practice	Healthier West Wirral PCN	1	1
N85052	Grove Road Surgery	North Coast Alliance PCN	0	2
N85021	Hamilton Medical Centre	Brighter Birkenhead PCN	1	0
N85037	Heatherlands Medical Centre	Arno Primary Care Alliance PCN	7	10
N85007	Heswall & Pensby Group Practice	Healthier West Wirral PCN	8	439
N85022	Holmlands Medical Centre	Arno Primary Care Alliance PCN	0	13
N85059	Hoylake & Meols Medical Centre	Moreton & Meols PCN	13	38
N85046	Hoylake Road Medical Centre	Moreton & Meols PCN	3	19
N85054	Kings Lane Medical Practice	Arno Primary Care Alliance PCN	27	67
N85640	Leasowe Medical Practice	North Coast Alliance PCN	0	0
N85616	Liscard Group Practice	Wallasey Wellness PCN	0	3

Code	GP Practice	PCN	No. home BPs done per month	
			Jan-22	Jan-23
N85023	Manor Health Centre	Wallasey Wellness PCN	1	5
N85002	Marine Lake Medical Practice	Healthier West Wirral PCN	12	17
N85625	Miriam Medical Group	Arno Primary Care Alliance PCN	23	32
N85028	Moreton Group Practice	Moreton & Meols PCN	16	71
N85048	Moreton Medical Centre	Moreton & Meols PCN	22	31
N85044	Paxton Medical Centre	Brighter Birkenhead PCN	5	15
N85643	Prenton Medical Centre	Arno Primary Care Alliance PCN	1	5
N85016	Riverside Medical Centre	Brighter Birkenhead PCN	5	2
N85024	Somerville Medical Centre	Wallasey Wellness PCN	19	70
N85617	Spital Surgery	Healthier South Wirral	7	55
N85020	St Catherine's Surgery	Brighter Birkenhead PCN	3	29
N85012	St Georges Medical Centre	Wallasey Wellness PCN	4	5
N85025	St Hilary Group Practice	North Coast Alliance PCN	0	7
N85051	Sunlight Group Practice	Healthier South Wirral	2	25
N85057	Teehey Lane Medical Centre	Arno Primary Care Alliance PCN	1	0
N85047	The Orchard Surgery	Healthier South Wirral	5	13
N85620	The Village Medical Centre	Wallasey Wellness PCN	6	5
N85014	Townfield Medical Centre	Arno Primary Care Alliance PCN	0	3
N85013	Upton Group Practice	Healthier West Wirral PCN	8	31
N85018	Villa Medical Centre	Brighter Birkenhead PCN	30	75
N85038	Vittoria Medical Centre (G)	Arno Primary Care Alliance PCN	0	0
N85634	Vittoria Medical Centre (K)	Arno Primary Care Alliance PCN	0	0
N85008	West Wirral Group Practice	Healthier West Wirral PCN	8	37
N85019	Whetstone Medical Centre	Brighter Birkenhead PCN	6	8
	Total		397	1374

The level of home blood pressure readings therefore increased substantially between January 2022 and January 2023. CVD Prevent data for the 12 months to March 2022, and the 12 months to March 2023 shows that levels of blood pressure control to target for these practices also improved significantly during this period, from an average of 58.5% of patients with recorded hypertension for whom the last BP reading (in the preceding 12 months) is below the age-appropriate treatment threshold, to 66.0% in the year to March 2023. While this appears to suggest some association between increasing levels of home blood pressure testing and the proportion of patients on the hypertension register being treated to target, there are a number of reasons for caution:

Firstly, as discussed above, we cannot say how many patients the number of home blood pressure readings relates to. This is a key caveat, as the treatment to target metric relates to the number of patients with improved BP control.

Secondly, despite the significant increase in home blood pressure readings, even if we were to assume that each reading was for a unique patient, the level of monthly readings still represents a relatively modest proportion of the overall number of patients on the hypertension register for most practices. As shown in Table 6, even if every home blood pressure reading in Jan 2023 represented an individual patient, and in each case resulted in improved BP control, this would contribute a maximum of 2.6% to the overall treatment to target percentage, and a maximum of 1.9% of the difference between the performance observed for the year to March 2023 compared to the year to March 2022.

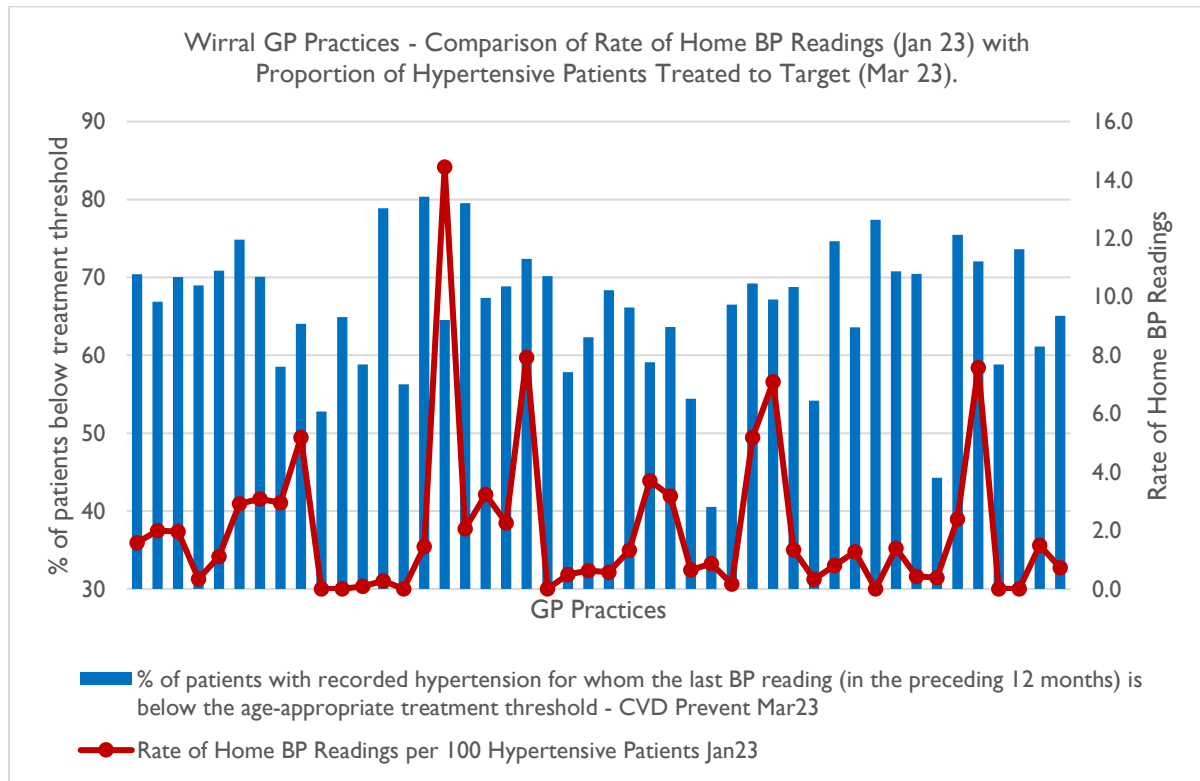
Table 6: Change in percentage rate of home BP readings per 100 patients from January 2022 to January 2023

Practice	Patients on the Hypertension Register Mar23 (CVD Prevent Dataset)	Rate of Home BP Readings in Jan 2022, per 100 Patients on the Hypertension Register	Rate of Home BP Readings in Jan 2023, per 100 Patients on the Hypertension Register	Change in Rate per 100 Patients
Allport Surgery	760	0.4	1.6	1.2
Blackheath Medical Centre	700	3.3	2.0	-1.3
Cavendish Medical Centre	915	0.5	2.0	1.4
Central Park Medical Centre	1450	0.0	0.3	0.3
Church Road Medical Practice	630	0.0	1.1	1.1
Civic Medical Centre	1575	2.7	2.9	0.3
Commonfield Road Surgery	875	0.6	3.1	2.5
Devaney Medical Centre	1015	0.8	3.0	2.2
Eastham Group Practice	1580	4.0	5.2	1.2
Egremont Medical Centre	525	0.8	0.0	-0.8
Gladstone Medical Centre	560	0.0	0.0	0.0
Greasby Group Practice	1105	0.1	0.1	0.0
Grove Road Surgery	710	0.0	0.3	0.3
Hamilton Medical Centre	455	0.2	0.0	-0.2
Heatherlands Medical Centre	690	1.0	1.4	0.4
Heswall & Pensby Group Practice	3040	0.3	14.4	14.2
Holmlands Medical Centre	630	0.0	2.1	2.1
Hoyle & Meols Medical Centre	1175	1.1	3.2	2.1
Hoyle Road Medical Centre	840	0.4	2.3	1.9
Kings Lane Medical Practice	845	3.2	7.9	4.7
Leasowe Medical Practice	210	0.0	0.0	0.0
Liscard Group Practice	605	0.0	0.5	0.5
Manor Health Centre	795	0.1	0.6	0.5
Marine Lake Medical Practice	2945	0.4	0.6	0.2
Miriam Medical Group	2410	1.0	1.3	0.4
Moreton Group Practice	1915	0.8	3.7	2.9
Moreton Medical Centre	975	2.3	3.2	0.9
Paxton Medical Centre	2315	0.2	0.6	0.4
Prenton Medical Centre	575	0.2	0.9	0.7
Riverside Medical Centre	1235	0.4	0.2	-0.2
Somerville Medical Centre	1350	1.4	5.2	3.8

Practice	Patients on the Hypertension Register Mar23 (CVD Prevent Dataset)	Rate of Home BP Readings in Jan 2022, per 100 Patients on the Hypertension Register	Rate of Home BP Readings in Jan 2023, per 100 Patients on the Hypertension Register	Change in Rate per 100 Patients
Spital Surgery	775	0.9	7.1	6.2
St Catherine's Surgery	2160	0.1	1.3	1.2
St Georges Medical Centre	1515	0.3	0.3	0.1
St Hilary Group Practice	875	0.0	0.8	0.8
Sunlight Group Practice	1955	0.1	1.3	1.2
Teehey Lane Medical Centre	390	0.3	0.0	-0.3
The Orchard Surgery	935	0.5	1.4	0.9
The Village Medical Centre	1150	0.5	0.4	-0.1
Townfield Medical Centre	770	0.0	0.4	0.4
Upton Group Practice	1295	0.6	2.4	1.8
Villa Medical Centre	990	3.0	7.6	4.5
Vittoria Medical Centre (G)	620	0.0	0.0	0.0
Vittoria Medical Centre (K)	270	0.0	0.0	0.0
West Wirral Group Practice	2470	0.3	1.5	1.2
Whetstone Medical Centre	1095	0.5	0.7	0.2
Total	52670	0.8	2.6	1.9

Figure 17 compares the rate of home blood pressure readings to the proportion of patients treated to target (i.e., the % of hypertensive patients for whom the last BP reading is below the age-appropriate treatment threshold, from CVD Prevent data for the 12 months to March 2023):

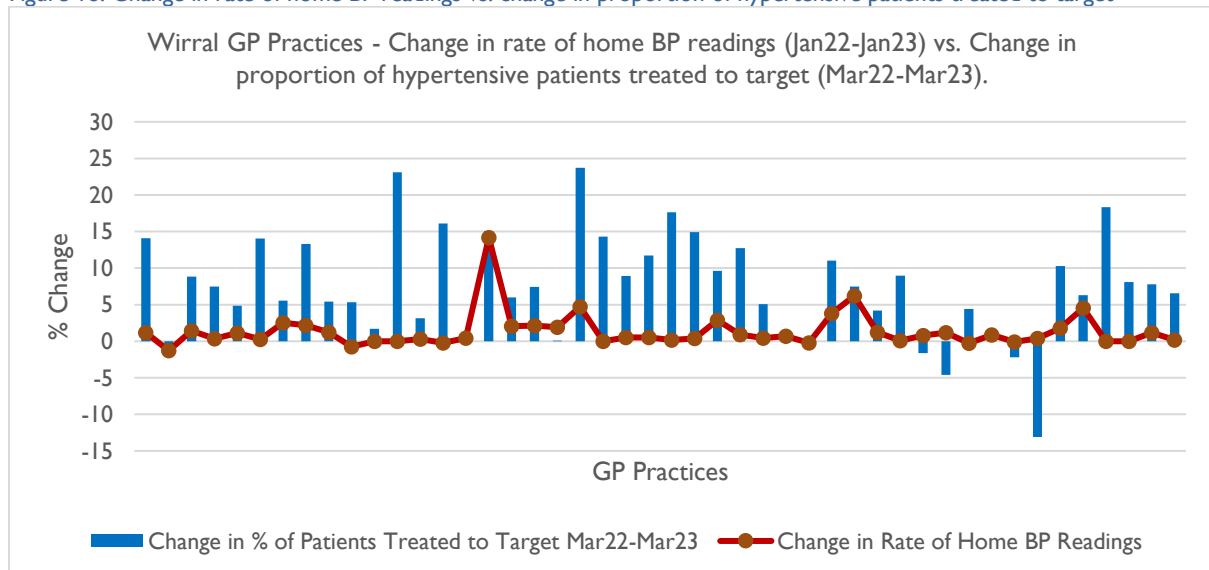
Figure 17: Comparison of rate of home BP readings in January 2023 with proportion of hypertensive patients treated to target in March 2023



No significant association is evident. The five best performing GP practices in terms of treatment to target all had below average rates of home blood pressure readings, while of the 6 practices with the highest rates of home blood pressure readings (accounting for 57% of all home BP readings in Jan 2023), only two were in the upper quartile for their performance against the BP control target.

Figure 18 compares the rate of change in the level of home BP readings between 2022 and 2023 with the change in the percentage of hypertensive patients treated to target between the year to March 2022 and the year to March 2023:

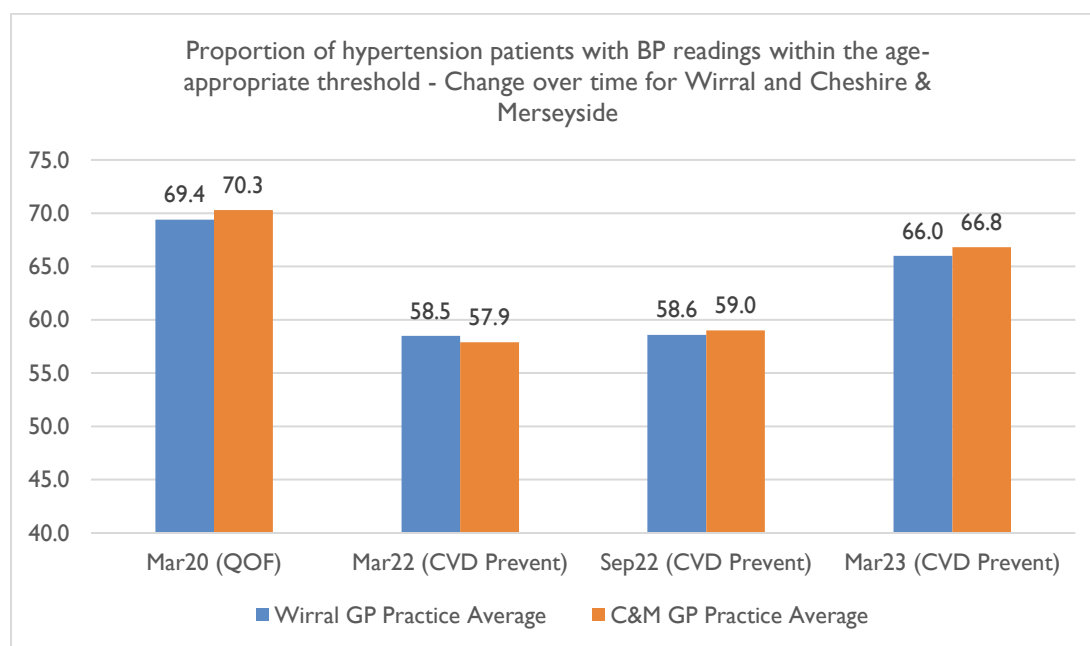
Figure 18: Change in rate of home BP readings vs. change in proportion of hypertensive patients treated to target



There is no direct relationship evident. Of the ten practices with the largest improvement in the proportion of patients treated to target, only two had seen a significant increase in the rate of home blood pressure readings.

Conclusions in relation to how the rate of home blood pressure readings might be reflected in improved levels of BP control are also complicated by wider trends in post-COVID performance. As discussed elsewhere in this report, levels of blood pressure control for hypertensive patients decreased markedly between 2020 and 2021, and have subsequently improved from this lower base position, both across Cheshire & Merseyside, and nationally. A comparison of the performance improvement observed for the Wirral GP practices vs. the performance for the wider ICB area is shown by Figure 19:

Figure 19: Proportion of hypertensive patients with BP readings within the age-appropriate threshold - change over time for Wirral and Cheshire and Merseyside



The level of improvement seen for the Wirral GP practices since the year to March 2022 is therefore relatively similar to the wider picture across Cheshire & Merseyside. For the ICB as a whole, the proportion of patients treated to target improved by 8.9%, while for the Wirral practices the corresponding figure was 7.5%. The ten Wirral practices with the highest rates of home blood pressure readings in Jan 2023 saw their performance improve by an average of 10.4%, and therefore improved slightly more than the ICB overall. However, six of these ten practices were still below their pre-COVID March 2020 baseline performance. Given the limitations of the available data outlined above, we would therefore recommend additional data collection and further analysis to establish whether the increase in home blood pressure readings across practices in the Wirral can be said to have contributed to improved levels of blood pressure control.

Key findings:

- **Good data coverage of BP Control:** CVD Prevent and QOF datasets provided good coverage of patterns of BP control over time by practice. The numbers of BP monitors supplied was sufficient to make an impact but not deliver the 77% target.

- **Overall levels of BP control have improved but still below pre-COVID levels.** Our analyses indicated that BP control declined markedly during the COVID-19 pandemic. For the year ending March 2023 (CVD Prevent), 10% of Cheshire & Merseyside GP practices were achieving the 77% March 2024 planning target, compared to just 3% for the year to March 2022. However, most practices were still below the level of performance seen pre-COVID.
- **The improving trend in BP control is in similar proportion to that seen nationally.** The average percentage of hypertensive patients whose blood pressure was within the age-appropriate threshold across the GP practices in C&M improved by 8.9% between 2022 and 2023. The average across all practices participating nationally in the CVD Prevent audit improved by 8.1% during the same period.

Data Limitations:

- Currently available data doesn't allow us to attribute changes in BP TTT metrics to the BP optimisation programme or associated projects.
- Local practice level implementation data was requested through our retrospective BP Evaluation outcomes data capture Template (Supplementary File C). This included basic information to quantify levels of home BP readings, distribution of monitors, etc. It was intended to help improve our understanding of relative contribution of interventions but was supplied with significant omissions and commentary suggesting this reflects limitations in the available source data.
- We were unable to gain permission to access CIPHA full dataset during the time-period of the evaluation. Our unplanned CIPHA dashboard review of 12 CVD metrics and demographics did not significantly add to our ability to answer this evaluation question due to data limitations.
- Limited availability of data was a key constraint in this evaluation and offers potential improvement opportunities for Cheshire and Merseyside ICS to consider.

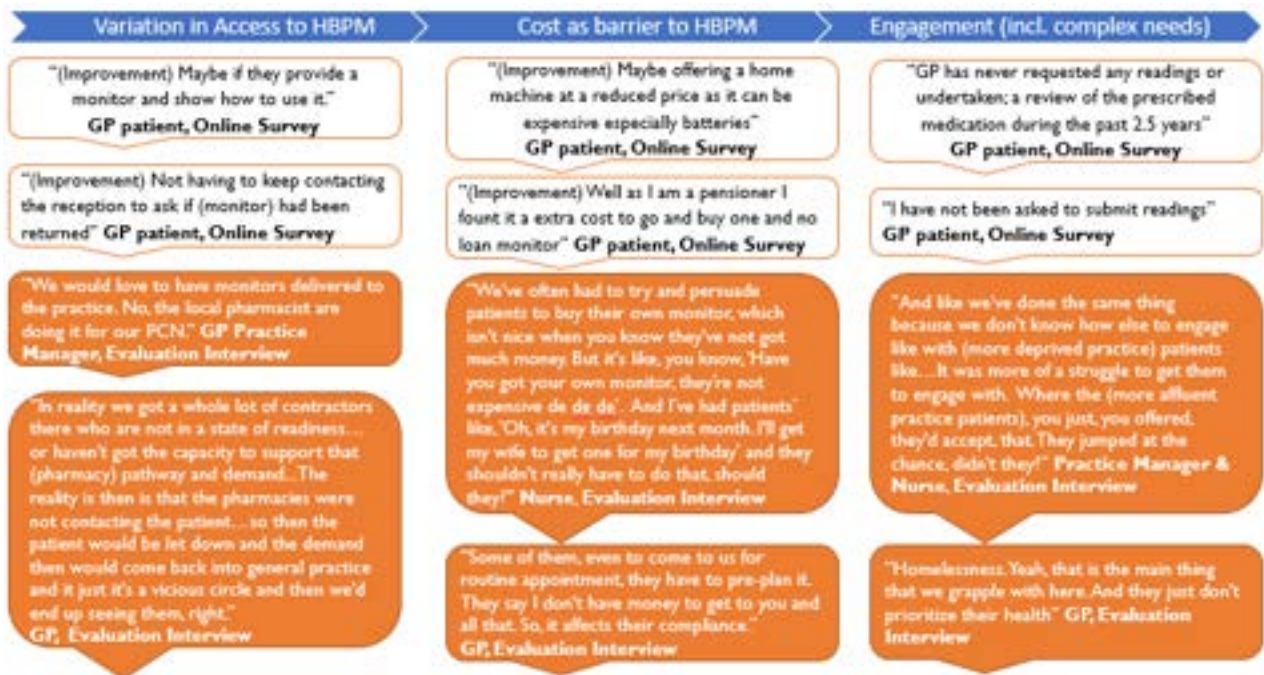
3.2.Evaluation Q2: What insights does current data provide in relation to inequalities in access to, and effectiveness of, BP optimisation care (and implications for Core20PLUS5 priority groups)?

The level of data available did not allow us to draw quantitative conclusions about the impact of the blood pressure optimisation interventions undertaken on health inequalities. This was mainly due to a lack of sufficient granularity in the data to distinguish between patient populations, and a lack of detail in relation to the interventions carried out at practice level. Our qualitative data collection, however, did provide some useful insight, with survey and interview responses highlighting issues of equity of access. GP interviews undertaken by our team highlighted the impact of deprivation with issues such as the scale of BP monitors being insufficient to meet demand, the cost of BP monitors for many people, and particular challenges of engagement for non-English speaking patients, including access to, and quality of, foreign language interpretation and resources.

Key Findings:

- **Lack of quantitative data on inequalities:** The data available lacked sufficient granularity to allow us carry out detailed quantitative analysis of this question. The evaluation was unable to access detailed source data through CIPHA which precluded its use for health inequalities analyses. We did carry out profiling for a range of GP practices using the CIPHA dashboard and CVD metrics, but this was limited by data quality issues and lack of access to source data.
- **Reliance on qualitative data in relation to inequalities:** Insights we were able to generate were more qualitative in nature and obtained through online survey and interviews with key stakeholders.
- **Potential scale of home BP monitoring to generate impact at system level:** It is important to consider evaluation findings within the context of scale of the key components of the intervention delivered, such as home BP monitoring:
 - Recent census data indicates an estimated 32% of adults living in private households in England had high blood pressure (hypertension) and 3 in 10 of those (29%) were undiagnosed (ONS, April 2023).
 - NHS England reported that 220,000 home BP monitors were distributed across England through the BP@home programme initiated during the pandemic (NHS England website).
 - Approximately 8.5 million people in the UK and 400,000 people in Cheshire and Merseyside have diagnosed hypertension (CVD Prevent, March 2023).
 - Although not possible to access data, stakeholder reports estimate Cheshire and Merseyside's total allocation of BP@home monitors to be in the region of 19,500; subsequent decisions about allocation were reported to be taken at Place level.
 - At best, if all 19,500 BP@home monitors were delivered and used as intended, just under 5% of those with known hypertension in Cheshire and Merseyside would have 'received the intervention' and monitoring BP at home. Although augmented by patients purchasing their own monitor or accessing community alternatives, this issue of sufficient scale of monitors important in relation to theory of change and impact.
- **Access to monitors and engagement with Programme** in practices with high levels of reported deprivation. GP interviews highlight the prohibitive cost of BP monitors for many, the scale of BP monitors needed to meet demand, and particular challenges of engagement, including access and quality of resources available for non-English speaking patients in one practice.
- **Variation in Implementation:** workforce and service user stakeholders highlight a range of approaches across GP practices (Figure 20).

Figure 20: Access to home BP monitoring - illustrative quotations from workforce and service users



Variation included access to home BP monitors across GP practices, with some receiving between 50-100 monitors in total, while others reported not receiving any, instead community referral pathways were set up on EMIS. Most GP practice interviewees reported insufficient numbers of BP monitors to address demand. Cost of monitors was often cited as a barrier, particularly for those on low incomes. Engagement issues were identified with some hypertension patients not offered to take part in home BP monitoring, and some practices highlighting the challenges of delivering programmes with populations who have complex needs.

- Complex needs and different models of care.** GP stakeholders reported a variety of models in operation, and responses to challenges in engagement including drop-in, outreach, and one-stop clinics involving a range of staff. Variation in reported information and guidance to support BP patients was reported, with some practices identifying this as a gap and requesting resource packs. One practice reported the challenge of effective engagement with a significant number of their practice population where English was not their first language. Delays in accessing and extended time needed for appointments were noted as was the lack of translated materials to support programmes such as BP optimisation.
- Opportunities for supporting patient ‘activation’ and optimising digital enablers.** 87% of patients who responded to the online survey question (153) reported having purchased their own BP monitor on own initiative (65%), or on advice of GP (22%). These patients were from practice reporting significant deprivation and comorbidities. This suggests an important opportunity to learn and scale appetite for home monitoring. It fits well with optimising digital enablers to support BP care, with a considerable number of survey respondents who responded

to question on future methods of submitting readings (211) reporting an interest in using more text (154 patients), website (74 patients), or app (49 patients) solutions to submit BP readings in the future.

- **Recognition of value in face-to-face consultations.** Both GP practice interviewees and patients responding to surveys indicate the preference and needs of some patients to see their clinician and be supported with BP monitoring in person.

Data Limitations:

- While CVD Prevent data allows for the performance against the key hypertension control metrics to be split by deprivation quintile, this is only at sub-ICB (CCG) level, and therefore does not allow us to identify variation across GP practices or PCNs. The same dataset provides splits by age band, sex, and ethnicity at PCN level (not GP practice), but is subject to rounding, data suppression processes, and data omissions that limit its value for low patient number measures, such as the number of BP controlled hypertensive patients by ethnic group. Within the CVD prevent dataset nationally, >20% of patients have no ethnicity recorded.
- Additional demographic data requested through the BP Evaluation outcomes Template (Supplementary File C) was mostly returned blank and was subject to issues of data accuracy and consistency for those practices where data was provided.

3.3.Evaluation Q3: Which GP practices are outliers in high, low (or improved) performance on BP ‘treatment to target’ metric? (To support qualitative sampling)

Trend data was used to identify ‘outlier’ practices – those combining higher BP treatment to target performance and greatest rate of improvement, compared to the pre-COVID baseline, and those combining lower performance and the lowest rate of improvement (19/20 CVD Prevent data). This formed the basis of the qualitative sampling strategy, with these practices identified for additional data collection, structured interviews, and patient survey to understand potential drivers for these outcomes. Challenges in practice engagement resulted in this exercise being repeated, the sample widened and further activity by the evaluation team. While this provided valuable qualitative insights and learning about the approaches they had adopted, practices weren’t able to provide data on interventions that allowed us to accurately assess their contribution to the observed performance.

Table 7: Best Performing GP Practices in Cheshire & Merseyside – 12 months to September 2022 (CVD Prevent data)

Org Code	Name	C&M Place/Sub ICB	Combined Treatment to Target BP Percentage			Flag	Also in 20 Most Improved List?
			19/20 QOF % to Target	CVD Prevent Comb % to Target Mar21	CVD Prevent Comb % to Target Sep22		
N83043	LONGVIEW MEDICAL CENTRE	Knowsley	85.52	61.29	87.65	Highest 20	20 Most Improved
N82003	DOVECOT HEALTH CENTRE	Liverpool	85.01	77.42	79.79	Highest 20	No
N81127	THE WEAVER VALE SURGERY	Cheshire	76.88	67.07	79.73	Highest 20	20 Most Improved
N84625	THE FAMILY SURGERY	Southport & Formby	74.43	70.53	78.08	Highest 20	20 Most Improved
N81123	WILLOW WOOD SURGERY	Cheshire	78.84	66.85	77.88	Highest 20	No
N82033	DINGLE PARK PRACTICE	Liverpool	85.45	77.06	77.04	Highest 20	No
N83018	STOCKBRIDGE VILLAGE HC	Knowsley	79.38	66.39	76.78	Highest 20	No
N81125	NESTON MEDICAL CENTRE	Cheshire	75.40	63.16	76.76	Highest 20	20 Most Improved
N81071	GREENMOSS MEDICAL CENTRE	Cheshire	80.19	64.68	76.69	Highest 20	No
N85025	ST HILARY GROUP PRACTICE	Wirral	71.30	66.45	74.94	Highest 20	20 Most Improved
N82664	ROCKY LANE MEDICAL CENTRE	Liverpool	73.46	80.90	74.69	Highest 20	No
N85037	HEATHERLANDS MED CTR	Wirral	77.14	47.01	74.48	Highest 20	No
N81038	LAUREL BANK SURGERY	Cheshire	76.15	63.92	74.46	Highest 20	No
N81030	PRINCEWAY SURGERIES	Cheshire	72.73	53.76	74.39	Highest 20	20 Most Improved
N81113	MIDDLEWICH ROAD SURGERY	Cheshire	80.60	75.92	74.23	Highest 20	No
N82048	WALTON MEDICAL CENTRE	Liverpool	80.31	50.00	74.19	Highest 20	No
N82655	MOSS WAY	Liverpool	69.48	72.41	74.09	Highest 20	20 Most Improved
N84614	THE MARSHSIDE SURGERY	Southport & Formby	79.83	76.67	74.07	Highest 20	No
N81111	MEREPARK MEDICAL CENTRE	Cheshire	79.29	65.14	73.73	Highest 20	No
N81069	CHELFORD SURGERY	Cheshire	74.76	69.44	73.67	Highest 20	No

Table 8: Lower Performing GP Practices in Cheshire & Merseyside – 12 months to September 2022 (CVD Prevent data):

Org Code	Name	C&M Place/Sub ICB	Combined Treatment to Target BP Percentage			Flag	Also in 20 Least Improved List?
			19/20 QOF % to Target	CVD Prevent Comb % to Target Mar21	CVD Prevent Comb % to Target Sep22		
Y00446	MAGHULL PRACTICE	South Sefton	62.69	46.55	42.59	Lowest 20	No
N85021	HAMILTON MED CTR	Wirral	72.56	NULL	42.14	Lowest 20	20 Least Improved
N82676	FIR TREE	Liverpool	57.17	22.95	42.11	Lowest 20	No
N84011	EASTVIEW SURGERY	South Sefton	61.84	NULL	42.02	Lowest 20	No
N81623	STRETTON MEDICAL CENTRE	Warrington	66.42	29.30	41.81	Lowest 20	No
N82668	WALTON VILLAGE MEDICAL CENTRE	Liverpool	64.97	34.29	41.78	Lowest 20	No
N83031	ROSEHEATH SURGERY	Knowsley	69.92	38.36	41.62	Lowest 20	20 Least Improved
N84035	15 SEFTON ROAD	South Sefton	55.36	35.68	41.61	Lowest 20	No
N81068	GROSVENOR MEDICAL CENTRE	Cheshire	72.15	18.27	41.56	Lowest 20	20 Least Improved
N83610	COLBY MEDICAL CENTRE	Knowsley	67.01	30.26	40.82	Lowest 20	No
N85643	PRENTON MEDICAL CENTRE_MURUGESH V	Wirral	69.79	32.20	40.48	Lowest 20	20 Least Improved
N84015	BOOTLE VILLAGE SURGERY	South Sefton	61.50	48.84	40.45	Lowest 20	No
N85629	EGREMONT MED CTR	Wirral	51.87	37.76	39.76	Lowest 20	No
N83045	NEWTON MEDICAL CENTRE	St Helens	78.21	29.41	39.12	Lowest 20	20 Least Improved
N83025	CORNERWAYS MEDICAL CENTRE	Knowsley	63.11	28.26	38.81	Lowest 20	No
N83028	ASTON HEALTHCARE LIMITED	Knowsley	70.31	30.93	38.81	Lowest 20	20 Least Improved
N82107	EDGE HILL HEALTH @ MOSSLEY HILL SURGERY	Liverpool	68.90	23.64	38.25	Lowest 20	20 Least Improved
N84010	MAGHULL FAMILY SURGERY	South Sefton	46.91	20.10	37.90	Lowest 20	No
N83609	CEDAR CROSS MEDICAL CENTRE	Knowsley	63.34	22.14	37.78	Lowest 20	No
N82004	GARSTON FAMILY HEALTH CENTRE	Liverpool	62.44	37.50	34.94	Lowest 20	20 Least Improved

This analysis was conducted using CVD Prevent data for the 12 months to September 2022. The analysis was also subsequently repeated using CVD Prevent data for the 12 months to March 2023, in order to update the sample, and widen the list of GP practices in an attempt to improve the response rate to our requests for interviews. The extent to which we observed qualitative differences in approach to BP optimisation between the higher and lower performing practices (based on this single BP control metric) is discussed elsewhere in this report (see section 3.5).

The corresponding analysis based on the 12 months to March 2023 is shown below:

Table 9: Best Performing GP Practices in Cheshire & Merseyside – 12 months to March 2023 (CVD Prevent data):

Org Code	Name	C&M Place/Sub ICB	Combined Treatment to Target BP Percentage				Flag	Also in 20 Most Improved List?
			19/20 QOF % to Target	CVD Prevent Comb % to Target Mar21	CVD Prevent Comb % to Target Sep22	CVD Prevent Comb % to Target Mar23		
N82086	ABINGDON FAMILY HEALTH CARE CENTRE	Liverpool	85.20	20.75	55.99	86.22	Highest 20	No
N82003	DOVECOT HEALTH CENTRE	Liverpool	85.01	77.42	79.79	84.81	Highest 20	No
N84037	LINCOLN HOUSE SURGERY	Southport & Formby	81.11	No Data	66.58	84.29	Highest 20	No
N81072	MURDISHAW	Halton	76.33	52.85	69.13	83.08	Highest 20	No
N82655	MOSS WAY	Liverpool	69.48	72.41	74.09	82.80	Highest 20	20 Most Improved
N81120	KELSALL MEDICAL CENTRE	Cheshire	66.08	40.29	69.51	82.35	Highest 20	20 Most Improved
N82678	STOPGATE LANE MEDICAL CTR	Liverpool	78.87	23.29	50.28	81.82	Highest 20	No
N81018	TARPORLEY HEALTH CENTRE	Cheshire	81.89	56.32	67.95	81.51	Highest 20	No
N82033	DINGLE PARK PRACTICE	Liverpool	85.45	77.06	77.04	80.80	Highest 20	No
N81043	HASLINGTON SURGERY	Cheshire	73.44	No Data	71.83	80.59	Highest 20	No
N85037	HEATHERLANDS MED CTR	Wirral	77.14	47.01	74.48	80.35	Highest 20	No
N81123	WILLOW WOOD SURGERY	Cheshire	78.84	66.85	77.88	79.87	Highest 20	No
N81006	BUNBURY MEDICAL PRACTICE	Cheshire	79.04	58.71	58.57	79.68	Highest 20	No
N85022	HOLMLANDS MED CTR	Wirral	66.18	69.49	73.58	79.52	Highest 20	20 Most Improved
N81118	MEADOWSIDE MEDICAL CENTRE	Cheshire	69.02	67.69	69.10	79.43	Highest 20	20 Most Improved
N81113	MIDDLEWICH ROAD SURGERY	Cheshire	80.60	75.92	74.23	79.06	Highest 20	No
N81102	FOUNTAINS MEDICAL PRACTICE	Cheshire	65.91	63.57	68.62	78.91	Highest 20	20 Most Improved
N85052	GROVE RD SURGERY	Wirral	73.78	72.50	73.62	78.87	Highest 20	No
N83003	ORMSKIRK HOUSE SURGERY	St Helens	83.56	55.60	60.68	78.74	Highest 20	No

N83054	BETHANY MEDICAL CENTRE	St Helens	79.77	57.81	67.76	78.71	Highest 20	No
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Table 10: Lower Performing GP Practices in Cheshire & Merseyside – 12 months to March 2023 (CVD Prevent data)

Org Code	Name	C&M Place/Sub ICB	Combined Treatment to Target BP Percentage				Flag	Also in 20 Least Improved List?
			19/20 QOF % to Target	CVD Prevent Comb % to Target Mar21	CVD Prevent Comb % to Target Sep22	CVD Prevent Comb % to Target Mar23		
N82054	ABERCROMBY FAMILY PRACTICE	Liverpool	64.61	41.13	49.36	51.37	Lowest 20	No
N81619	OAKS PLACE SURGERY	Halton	65.32	26.32	50.27	51.30	Lowest 20	No
N83608	DR MAASSARANI & PARTNERS	Knowsley	66.54	20.82	44.53	51.03	Lowest 20	No
N82036	NETHERLEY HEALTH CENTRE	Liverpool	66.17	39.57	52.28	50.84	Lowest 20	No
N81122	WESTBROOK MEDICAL CENTRE	Warrington	59.89	38.06	57.49	50.61	Lowest 20	No
N83610	COLBY MEDICAL CENTRE	Knowsley	67.01	30.26	40.82	50.14	Lowest 20	20 Least Improved
N83015	BLUEBELL LANE SURGERY	Knowsley	74.74	31.62	43.84	49.45	Lowest 20	20 Least Improved
N82113	FAIRFIELD MEDICAL CENTRE	Liverpool	62.56	49.42	49.89	48.86	Lowest 20	No
N84035	15 SEFTON ROAD	South Sefton	55.36	35.68	41.61	48.42	Lowest 20	No
N83028	ASTON HEALTHCARE LIMITED	Knowsley	70.31	30.93	38.81	48.21	Lowest 20	20 Least Improved
Y02510	MARSHALLS CROSS MEDICAL CENTRE	St Helens	74.87	40.82	47.00	47.71	Lowest 20	20 Least Improved
N84002	AINTREE ROAD MEDICAL CENTRE	South Sefton	56.68	25.29	56.16	46.95	Lowest 20	No
N81064	NEWTOWN SURGERY	Halton	64.21	30.59	44.52	46.93	Lowest 20	20 Least Improved
N84010	MAGHULL FAMILY SURGERY	South Sefton	46.91	20.10	37.90	46.16	Lowest 20	No
N81044	HUNGERFORD MEDICAL CENTRE	Cheshire	53.19	No Data	47.43	44.57	Lowest 20	No
N85014	TOWNFIELD HEALTH CENTRE	Wirral	60.20	45.89	50.64	44.29	Lowest 20	No
N84015	BOOTLE VILLAGE SURGERY	South Sefton	61.50	48.84	40.45	44.05	Lowest 20	20 Least Improved
N84019	NORTH PARK HEALTH CENTRE	South Sefton	63.61	33.82	42.73	43.70	Lowest 20	20 Least Improved
N83025	CORNERWAYS MEDICAL CENTRE	Knowsley	63.11	28.26	38.81	43.18	Lowest 20	20 Least Improved
N85643	PRENTON MEDICAL CENTRE_MURUGESH V	Wirral	69.79	32.20	40.48	40.52	Lowest 20	20 Least Improved

A reconciliation showing the movement between the two lists is included in Appendix 9: Reconciliation of Highest, Lowest and Most/Least Improved Practice Sample Lists.

Key Findings:

- **The CVD Prevent and QOF datasets provided good data coverage** for this question.
- We were able to analyse the data to identify lists of GP practices based on their level of **performance against the treatment to target metric, and the level of improvement** relative to the pre-COVID 2019/20 baseline.
- These lists provided a **targeted sample of ten GP practices for further qualitative analysis**, including semi-structured interviews and e-survey of patients to explore the extent to which practices with similar performance might share common factors, markers of success or barriers to implementation. Stakeholders identified persistent issues of **non-engagement** of lower performing practices. This presents an opportunity to explore and address.

Data Limitations:

- The evaluation used available data to identify GP practices that scored relatively high or low against the treatment to target metric, alongside improvement in ranking from baseline to latest data-period. However, lack of implementation data limits our ability to conclude that specific factors directly influenced that metric, nor their relative contribution.
- The selection criteria related only to a single metric, we therefore would not conclude that this reflected better or worse management of hypertension patients overall. It simply provided a pragmatic, purposive qualitative sampling strategy to explore whether practices with similar reported values shared common elements of BP optimisation interventions.

3.4. Evaluation Q4: What are the key components of BP Optimisation initiatives in place in a sub-sample of GP practices with lower BP TTT/ least improved and higher BP TTT/ most improved? (Qualitative data)

We used the available datasets to identify a sample of GP practices that combined both a high level of performance against the key ‘treatment to target’ BP control metric and the greatest level of improvement compared to their 2019/20 baseline. We also produced a corresponding sample of the GP practices with lower levels of performance for BP control, where there had also been the least improvement in this metric compared to the baseline period.

This provided us with an overall sample of practices to approach for more qualitative data collection, to understand the extent of any BP optimisation intervention undertaken, and to understand any barriers and facilitators to successful implementation in each case. The sample list of practices was as shown in Section 3.3.

GP Practice Sample Characteristics:

Ten GP practices were pragmatically categorised within ‘lower’ and ‘higher’ performance on BP treatment to target and improvement ranking by comparing baseline 2019/20 with September 2022 CVD Prevent data. Improvement in BP TTT was noted for some practices when March 2023 CVD Prevent data was released. The characteristics of practices and key components of the optimisation initiatives are summarised in Table 11:

Table 11: Practice Characteristics

GP	BP TTT %	CQC rating	BP roles/leads	Identification/Stratification	No of HBPM	Additional Roles	ARRS reported	BP reading submission	Patient Resources
1	< 40%	Overall good	Practice Manager/ GP	Ardens	0	Nurse prescriber Receptionist Care co-ordinators	Yes	either in paper format, bring them in, email	BHF Diaries
2	< 40%	Overall good	Practice Manager/ Nurse led	QoF searches	70/100 Loaned (not returned)	GPs, Pharmacy HCA, Admin	Yes	a lot still like the pen and paper – some email	Non-English speaking interpreting services – delays/ “we have the basics, but you know if there’s a specialized, BP clinic, if you could send a text, that actually explains what it’s all about.”
3	< 45%	Overall good	GP Nurse led	Opportunistic EMIS	Don’t know Doubt loaned	Receptionist		Mostly paper	BP machine with diary recording sheet - tells them what to do.
4	< 40%	Overall good	GP Practice nurse	Ardens	Don’t know Loaned (not returned)	Care co-ordinators (HCAs) Training clinical	Yes	For those that don’t have digital...SMS, email, letter	C&M blood pressure website Electronic and a hard copy version instructions
5	< 45%	Overall good	Nurse/ GP Lead	Ardens	0	Part time HCA	Yes	most email or bring paper with readings in	Verbally tell them what to do...No specific resource Resource ‘would be helpful’
6	>75%	Overall good	Nurse led	Q risk tools	100 approx. Single use	Care Co-ordinators team	Yes	text message or paper bring into building	BP@home instructions
7	>75%	Overall good	Nurse/ HCA led Pharmacist	BP@Home Possibly BPQJ	Don’t know	GP Assistants PCN Pharmacist (searches)	Yes	scraps of paper or spreadsheets ...often into reception or email.	Resources (not specified) questionnaire template for patients to return their blood pressure readings
8	>75%	Overall good	Practice Manager/ Nurse led Nurses (clinical) Admin (recalls)	IIF – QoF	50 approx. Loaned	Additional capacity part-time nurses		They come in on paper or odd one e-mail.	Bespoke Protocol –shown how to use BHF Website
9	>70%	Overall good	Pharmacy led HCA protocol EMIS pop ups	BP@home search – not sure which	Don’t know Loaned (not returned)	Care-co-ordinators (search)	Yes	Accur-x or printed form paper (HCA preference) Some email reception	Bespoke Protocol –shown how to use HCA supply BP monitors, kits, leaflets
10	>70%	Overall good	Practice Manager/ Nurse led	Ardens	100 approx. Loaned	Community pharmacy HWB Coach	Yes	weekly BP sheet paper- no uptake of digital	HCAs provide a leaflet

The sampling characteristics of practices and key components of the optimisation initiatives are summarised in Table 11 and 12 GP practices were pragmatically categorised within ‘lower’ and ‘higher’ performance on BP treatment to target and improvement ranking by comparing baseline 2019/20 with September 2022 CVD Prevent data. More practices (4/5)

in the ‘lower’ performing’ category). Improvement in BP TTT was noted for some practices when March 2023 CVD Prevent data was released.

Table 12: Summary characteristics of sub-sample of GP practices participating in qualitative interviews.

Sampling Characteristic	Lower performing/ Least improved practices	Higher performing/ Most improved practices
BP TTT	< 45%	>70%
CQC Rating	Overall: good. One practice requires improvement LTC	Overall: good. One practice requires improvement LTC
No of Hypertension Patients (CIPHA)	6,000 patients approx. across five practices	14,000 patients approx. across five practices
Local context	All five practices noted deprivation, engagement challenges comorbidities. 1 practice non-english speaking populations, 1 practice homeless population	1/5 practices noted significant deprivation and long-term conditions
Participants	GPs, nurses, practice managers	GPs, nurses, practice managers, pharmacist

Key Components

GP practice stakeholders described a range BP optimisation models and variation of components implemented within their local context (Table 12). Given the limited sample and reported variation in implementation of key components of the intervention it is not possible to identify clear patterns between practices with ‘high’ and ‘low’ performance on BP TTT

There is, broader learning about the context, scale, process and reach of the programme when the commonly reported components of the programme are reviewed. It raises important questions about what constitutes best practice and the extent to which the intervention’s active components are delivered with sufficient fidelity to generate expected outcomes and impact.

Qualitative findings raise questions about the relative contribution of the home BP monitor component of the intervention at the scale reported by GP practices. CIPHA dashboard data suggested that approximately 20,000 patients would be included on the Hypertension Register across the ten sampled practices. The issue of sufficient scale is an important system consideration in relation to theory of change and potential impact of the programme at the current scale. Interviews suggest that, at best, a few hundred BP monitors had been allocated and distributed across these practices. Numbers may be augmented by patients purchasing their own BP monitor or able to access community referral pathways but this is difficult to quantify.

BP Roles/Lead: Practices described a range of leadership arrangements and key roles:

- Most practices reported a combination of practice manager/nurse-led approach, with GP optimising BP treatment. Three interviewees noted GPs with special interest in BP/CVD.
- Three of the ‘higher’ performing practices made specific reference to pharmacy roles (one was pharmacy led), and one of the ‘lower’ performing practices reported pharmacy input.

- Variation in supporting roles and capacity was reported with some practices deploying teams of care co-ordinators, while another practice (lower performing) reported challenges in only having part-time HCA to support searches and clinics.
- A range of staff were reported to support BP optimisation in most practices including HCAs, pharmacists, care co-ordinators and receptionists, involved in searches, recalls and clinics.

BP Optimisation Model: Practices described a range of approaches:

- Some practices reported dedicated BP clinics whilst others combined BP with routine clinics for health checks and/or long-term conditions.
- Some practices described drop-in, outreach and one-stop clinics in response to complex needs and engagement challenges.

Identification and Risk Stratification: Variation in approaches were reported:

- Four out of ten recruited GP practices reported using Ardens search strategy to identify patients (3 lower performing/1 higher performing).
- Two practices reported using QoF/IIF searches (1 in each higher/ lower performing).
- Two of the higher performing practices reported BP@home searches but were unsure of the detail.
- One higher performing practice reported basing their searches on QRISK3 tool, a model to estimate 10 year risk of cardiovascular disease (Hippisley-Cox J, Coupland C, Brindle P 2017).
- One lower performing practice was not aware of specific tools, describing an 'opportunistic' approach when the patient was flagged on EMIS during routine appointments.

Access to BP monitors: Variation in allocation of BP monitors was reported across the ten GP practices, with most perceiving insufficient numbers to meet demand. Inconsistent coding of home BP monitoring was also reported.

- In the five lower performing practices, two reported not receiving any BP monitors, two were not sure how many received or distributed, and one had distributed 70/100 monitors allocated.
- One practice noted the benefits of a BP machine located at reception for patients.
- Three of the lower performing practices reported challenges of capacity in community pharmacy referrals for home BP monitoring, resulting in patients coming back to the surgery.
- In the higher performing practices, two had distributed 100 BP monitors, one had distributed 50 monitors and two did not know how many.
- Cost was commonly reported as barrier for patients living in deprived circumstances.
- One practice reported single-use distribution of monitors that in hindsight they may have approached differently. Several practices reported operating a loan scheme, but none had been returned raising questions about sustainability of this approach and future availability of monitors.
- Future approaches to accessing BP monitors were not clear for most interviewees.

- The need for scheduled calibration of monitors was also raised by some.

Additional/Extended roles: All practices talked about upskilling their workforce in BP optimisation, from administration staff to HCAs, and the wider clinical team.

- Eight practices (four in each of higher and lower performing category) reported using the NHSE Additional Roles Reimbursement Scheme (ARRS) to employ a range of roles including care co-ordinators. The important role of PCNs in supporting ARRS was noted, but two interviewees in lower performing practices raised that current pro-rata allocation disadvantaged small practices when allocation of support staff was based on list size.
- One practice identified significant opportunities with ARRS funding but also perceived financial risks for practices in taking on responsibility for these staff, resulting in what they believed to be many practices not taking up ARRS funding. The utilisation and optimisation of ARRS funding across Cheshire and Merseyside is an important aspect to explore.

Digital Enablers: The role and value of digital services, such as AccurX in supporting home monitoring was reported, with one interviewee describing it as a “game-changer”:

- Potential benefits reported included the usefulness of the BP questionnaire, Floreys, engagement opportunities, targeted mass texts, recent use of self-booking, supporting BP reading requests and submissions, saving time and activity.
- Some practices expressed concern about potential de-commissioning of AccurX and move to Patches, perceived to lack readiness with functionality. PCNs were reportedly involved in decision-making. Risks were also raised by Place leads and during stakeholder scoping interviews around variation in commissioning arrangements across the system.
- Despite reported benefits of AccurX, most of the ten practices reported that the majority of BP reading submissions were still being submitted by paper, requiring manual addition to records.
- A range of digital services, including BlinX, were being tested by several practices.

Patient Engagement and standardised resources: Variation was reported in approaches and use of patient-focussed resources to support home BP monitoring:

- Two practices reported not having specific resources and would find this helpful.
- The challenge of translation was noted by one practice; they could supply the basics but needed text translation to optimise engagement and impact from specialist clinics.

Key Findings:

- The **lack of available data** to address this question required a **switch to qualitative** data collection methods.
- This was intended to **describe and learn about the components** of the BP optimisation intervention implemented and explore extent to which practices with similar performance might share **common factors, markers of success or barriers to implementation**.
- A sub-sample of ten GP practices were invited to identify relevant BP leads within their practice to take part in short qualitative semi-structured interviews. Interviews were conducted flexibly according to preference for individual or group interviews.
- Given the limited sample and **reported variation in implementation** of key components of the intervention it is not possible to identify clear patterns between practices with ‘high’ and ‘low’ performance on BP TTT. Further detail is provided in Section 3 of the detailed report.
- There is, however, broader learning about the **context, scale, process and reach** of the programme when the commonly reported components of the programme are reviewed. It raises important questions about what constitutes best practice and the extent to which the intervention’s active components are delivered with sufficient fidelity to generate expected outcomes and impact.
- **Optimising Scale and Reach:** Qualitative findings raise questions about the relative contribution of the home BP monitor component of the intervention at the scale reported by GP practices. CIPHA dashboard data suggested that approximately 20,000 patients would be included on the Hypertension Register across the ten sampled practices. The issue of sufficient scale is important system consideration in relation to theory of change and potential impact of the programme at the current scale. Interviews suggest that, at best, a few hundred BP monitors had been allocated and distributed across these practices. Numbers may be augmented by patients purchasing their own BP monitor or able to access community referral pathways but difficult to quantify.

Data Limitations:

- No quantitative data available was available to address this evaluation question. Efforts to retrospectively capture quantitative data did not prove feasible. The evaluation therefore adapted to address this through enhanced qualitative data collection.

3.5. Stakeholder Perspectives

The qualitative component of the evaluation focussed on providing a range of workforce and service users’ experiences of the Cheshire and Merseyside BP Optimisation Programme. Between October 2022 and August 2023, a total of 29 workforce stakeholders (from 57 invited) took part in interviews (Table 13).

Table 13: BP Optimisation Evaluation Stakeholder Interviews

C&M Stakeholder Group	Method	Number Conducted	Total Number of Participants	Roles and Representation
BP Optimisation key stakeholders	Semi-structured, virtual 1:1 interview	4 (from 7 invited)	4	Identified as having key knowledge of BP Optimisation in C&M
Place/ Clinical leads	Semi-structured, virtual 1:1 interview	9 (from 19 invited)	9	Range of clinical and managerial roles - 8 out of 9 C&M Places.
General Practice with higher/most Improved or lower/ least Improved performance (baseline analyses)	Semi-structured, virtual 1:1 or group interviews	10 (from 31 invited) + 1 written feedback	16	Range of roles - GP, Practice Manager, Nurses from practices with higher/most Improved or lower/ least Improved performance (baseline analyses)
Totals	-	23	29	-

Workforce: What has worked well? What have been the challenges? What support needed?

Interviewees from the qualitative subsample of GP practices identified a number of areas that have worked well including local bespoke protocols, a wider team approach, access to BP monitors, PCN support and shared approach, additional capacity and roles, additional roles through ARRS funding, raised awareness, and digital enablers (Table 14).

While most stakeholders report positive aspects of the Cheshire and Merseyside BP Optimisation programme, they also report common themes at both place and GP level about the “ad-hoc” and disjointed nature of implementation. Perceived lack of cohesion and sufficient resource often led to a less than optimal experience. This is illustrated in Figure 21 with quotes from stakeholders with leadership roles at Place and within two GP practices:

Figure 21: Quotes from stakeholders



Common challenges reported include engagement and compliance (some practices mentioned difficulty with engaging younger people), capacity and demand, primary care pressures, impact of pandemic, complex needs of some patient groups, language barriers, lack of resourcing, digital services not fully utilised and non-return of loaned BP monitors. Several practices noted challenges with community referrals for pharmacy support due to reported lack of capacity and lack of BP monitors within pharmacies.

Support needs tended to mirror these challenges. Resolving capacity issues within the local pharmacy model was identified by practices affected. Opportunities to access extend capacity with additional support roles for BP optimisation was also noted by two practices. Access to BP monitors and uncertainty about future options was expressed by many of the practices. Defined resource and more systematised, less ad hoc implementation was noted, as was interpretation support by one practice.

Table 14: GP practice perspectives on worked well, challenges and support needs.

Practice	Worked Well	Challenges	Support needs
1	<p>Patients buying monitor: Some patients purchasing.</p> <p>Patient engagement: compliant if ask them to home monitor.</p> <p>ARRS role: part time HCA</p>	<p>BP monitors: None received – community referral pathway – lack of machines at pharmacy.</p> <p>Capacity: staff sickness turnover, new staff training – impact on searches</p> <p>Covid impact: workload increased, trying to catch up</p>	<p>BP monitors: would like to have received.</p> <p>Community referral: resolve pharmacy issues not able to respond – lack of BP monitors.</p> <p>Capacity: searches once per month on BP readings and optimization, HCA to do BP checks.</p>
2	<p>Approach: drop-in clinics (unemployed)</p> <p>BP Monitors: some patients excited- want to take care of themselves.</p> <p>PCN: HCAs – drop-in clinics, home visits. Helpful, pharmacist, extra appointments</p>	<p>Language service: Dr having to use interpreter – longer appointment, slows clinic, delays (telephone better than in person)</p> <p>Engagement: challenges, frustrations with patients not attending appointments, complying with medication or being able to make lifestyle changes, – deflating for staff. Queues and delays disengage patients. Engagement of younger people</p>	<p>Interpretation tool: to explain it or to send to patients that could explain process</p>
3	<p>Key roles: Dedicated GP to optimise treatment.</p> <p>Team approach: Clinical meetings – HT</p> <p>Upskill nurses and staff.</p> <p>Raised awareness: importance of hypertension.</p>	<p>Engagement: Non-compliant patients - younger people. Homeless population not prioritising health</p> <p>Training needs: GP trainees on management of HT.</p>	<p>Additional resources beyond monitors to help GP engagement</p>
4	<p>PCN: agreed local protocol – shared approach to implementation, outcomes at scale.</p> <p>Raised awareness: training & upskilling of admin team on</p>	<p>BP monitors: need large amount.</p> <p>Community referral: pharmacy for BP – lack capacity, impact on patient experience and GP activity.</p>	<p>Bp monitors:</p> <p>Community referral: Pharmacy - need to resolve capacity issues.</p>

Practice	Worked Well	Challenges	Support needs
	<p>searching led by practice manager.</p> <p>Patient engagement: Cheshire and Merseyside BP website to support home BP monitoring.</p> <p>Digital: AccurX BP readings request</p>	<p>Variation in clinical practice: and optimisation</p> <p>Impact of Covid: worsened TTT, obesity and fitness of patients</p>	<p>Lack of 24-hour monitors - delays</p>
5	<p>BP Monitor: automated machine at the practice.</p> <p>Additional capacity: Care coordinators – searches, coding - saved a lot of work, upskilling receptionist, nurse prescriber monitoring HT patients.</p> <p>Engagement: receptionist supporting patients on BP monitor</p>	<p>BP monitors: lack of access</p> <p>Community referral: Pharmacies – short staff, lacking capacity for HBPM</p>	<p>BP monitors: more access needed.</p> <p>Community Referral: Pharmacy – need to resolve capacity issues</p>
6	<p>Key roles: designated lead in each practice</p> <p>Team approach: care coordinators – appropriate people – appropriate jobs, Collective team working.</p> <p>PCN: shared approach, teamwork across</p> <p>ARRS: using all of roles.</p> <p>Protocol: care co-ordinator used set template that went out</p> <p>Digital: use of AccurX</p> <p>Multiple options BP submissions:</p> <p>Saving GP time: care-coordinator and non-medical staff working out average BP readings</p>	<p>BP monitors: patients who can't afford and no more monitors to give out. Under impression would get what need – hasn't happened – would have rationed sooner.</p>	<p>BP monitors: lack of access</p>
7	<p>Digital: AccurX functionality</p> <p>Raised Awareness: Increased clinician awareness & priority. Checking BP more</p> <p>Local approach: Prompted systematic approach to identification - less ad-hoc</p> <p>Additional roles: Use of pharmacist</p>	<p>Coding: Inconsistent SNOMED coding</p> <p>Capacity & demand: Pressure on GP or clinical, admin time.</p> <p>Lack of resource: none given</p> <p>Primary care pressures: extra pressures through COVID.</p>	<p>Implementation: systematizing</p> <p>Resource: clinical admin support to identify patients, bring them in, recall them, relieve pressure on practice staff.</p> <p>Alternative approaches: Wider options non-clinical options, every contact counts – not just in GP</p>
8	<p>Team: excellent teamwork</p> <p>Approach: bespoke protocol, continuous improvement</p> <p>Engagement: relationship with patients/trust</p> <p>Digital Functionality: Self-book texts – reduces phone.</p>		<p>BP monitors</p>

Practice	Worked Well	Challenges	Support needs
	Saves GP time. Coding: Improved HT coding through identifying those patients had been coded as 'raised blood pressure' rather than 'hypertensive'		
9	BP Monitors: Access to monitors. Increased Capacity: HCAs to perform reviews. Approach: Changed recall for HT patients Digital functionality: being able to send self-book links through Accur-X/ BlinX, save time patient & staff. EMIS pop-ups and protocol for follow up. ARRS: care coordinators	BP Monitors: -Non-return of home BP readings – Digital not optimised: easier to track gaps on AccurX but not paper submissions. - accuracy/ calibration issues	BP monitors
10	Key Roles: Practice level dedicated lead – accountable Monitoring data PCN: funding searches, BlinX ARRS roles	Engagement: and education about BP False diagnoses of HT resolved (data)	

Patients: What has worked well? What have been the challenges? What support needed?

A key requirement of the BP Optimisation evaluation was capturing service user perspectives about the programme and its associated initiatives. The commissioners were interested in capturing a range of views and experiences about what is perceived to be working well, challenges experienced, and opportunities to build upon and/or improve.

To our knowledge, no prior evaluation of patient experience of BP optimisation initiatives had been specifically undertaken in Cheshire and Merseyside. Early scoping with the Evaluation Working Group raised important factors to be considered within recruitment and design. Service users in Cheshire and Merseyside were reported to be:

- unlikely to be familiar with the terminology of the programme
- likely to have limited direct involvement in the programme
- and may only be aware if they had been participated in specific initiatives

One key initiative in Cheshire and Merseyside was the NHSE-funded [BP@home](#) programme, initiated during the pandemic, which involved distribution of blood pressure monitors across England, so that patients could record their blood pressure and send their readings to their GP practice to review by telephone, email or via a remote monitoring platform.

Our evaluation approach was informed by the recent patient survey conducted by Healthwatch (Healthwatch, 2022) as part of national evaluation of the remote blood pressure monitoring pilot BP@Home. This online survey was designed to understand peoples' experiences of remote blood pressure monitoring and how GPs use their readings.

It generated 468 survey responses across five local Healthwatch areas (Hampshire, Oxfordshire and Buckinghamshire, Gloucestershire, Darlington and Hammersmith and Fulham). Twenty-six interviews were also conducted, five of which were with people directly involved in the BP@ home programme. Key findings included:

- Patient appetite for remote monitoring and willingness to use digital options to submit blood pressure readings but requirement for adequate processes to be put in place, including the provision of information, guidance, feedback, and advice.
- Reported benefits to blood pressure monitoring at home, including peace of mind, feeling in control, and convenience.
- Questions about extent to which anticipated benefits of better health outcomes were currently being realised.
- Potential gaps in GP processes that may negatively impact patients' experiences, with potential to miss opportunities to address blood pressure problems.

Healthwatch findings, alongside the views and perspectives of patient representatives and members of the evaluation working group, informed our approach and subsequent survey design.

Patient survey approach

A short e-survey was developed by Aqua and the Evaluation Working Group to address key evaluation questions and lines of enquiry identified through scoping (Supplementary File D).

Commissioners of the evaluation were keen to capture a range of service users' perspectives, including those who may have been involved in the initiatives and those who may have been eligible, but may not have been invited, or had declined to take part. Given the challenges of service users not perhaps knowing about BP optimisation initiatives, a pragmatic decision was taken to focus on those with known hypertension, although it was acknowledged that there are considerable numbers of people who may not yet be diagnosed. The evaluation working group agreed the benefits of having an anonymous survey that enabled participants to respond openly about their views and experience. It was also agreed to limit the number of questions through a prioritisation exercise, to reduce the time for respondents to complete, avoiding burden, and promoting inclusion with accessible language and formatting. A variety of sampling and survey distribution approaches were scoped with a range of stakeholders. A pragmatic consensus was adopted to invite the sample of GP practices involved in the qualitative evaluation work to share the survey links with patients on their Hypertension Register via their existing digital platform, which tended to be AccurX.⁹

Survey questions, responses, participant information and formatting were developed with key input from the Health Innovation NWC's patient reference group during a facilitated session with the evaluation lead and separate feedback from member of Aqua's Lived experience Panel on two occasions. Questions, responses, and demographics were also

⁹ One GP practice informed the evaluation team that they had distributed to a small sample of patients they had identified as being specifically involved in the BP@home project (N=5).

cross-referenced with Healthwatch report and NHS GP survey to support comparison of findings. Multiple iterations of the survey were tested, improved, and piloted with final sign-off from the Evaluation Working Group in August 2023. Stakeholder engagement and codesign took considerable time and resource but the benefits in relevance, accessibility and usefulness of the findings are indicated by the subsequent number of responses.

The process for survey recruitment, response and analyses was as follows:

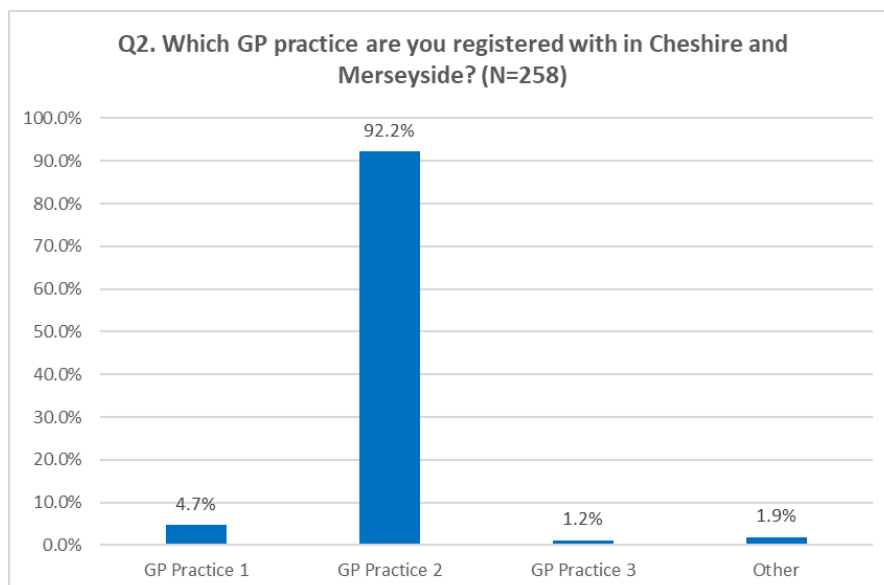
- GP leads who had indicated they were willing to support recruitment were invited to send the e-survey link alongside standard information explaining the purpose of the evaluation and survey to their patients on the Hypertension Register, via AccurX.
- Participants who responded were then able to open the survey in Aqua’s provider platform (Survey Hero) and were provided with further participant information and an option to consent to participate. Their responses were anonymous.
- Aqua then directly accessed and analysed participant responses to avoid placing any additional burden on GP practices.

Patient Survey Findings

Survey Respondents

295 GP patients responded to the survey, of which 268 (90%) opted to complete the survey. The vast majority, 238 (92%) reported themselves to be patients of one GP practice (Practice 2) (Figure 22). It suggests an estimated response of 35% from patients on this GP Practice’s Hypertension Register. Qualitative work with practice stakeholders indicated the practice had not received BP monitors.

Figure 22: Survey respondents’ reported GP practice



60% of overall survey respondents reported to be female, and while there was a spread of reported ages, the majority (70%) were aged 45 and over. Most respondents (70%)

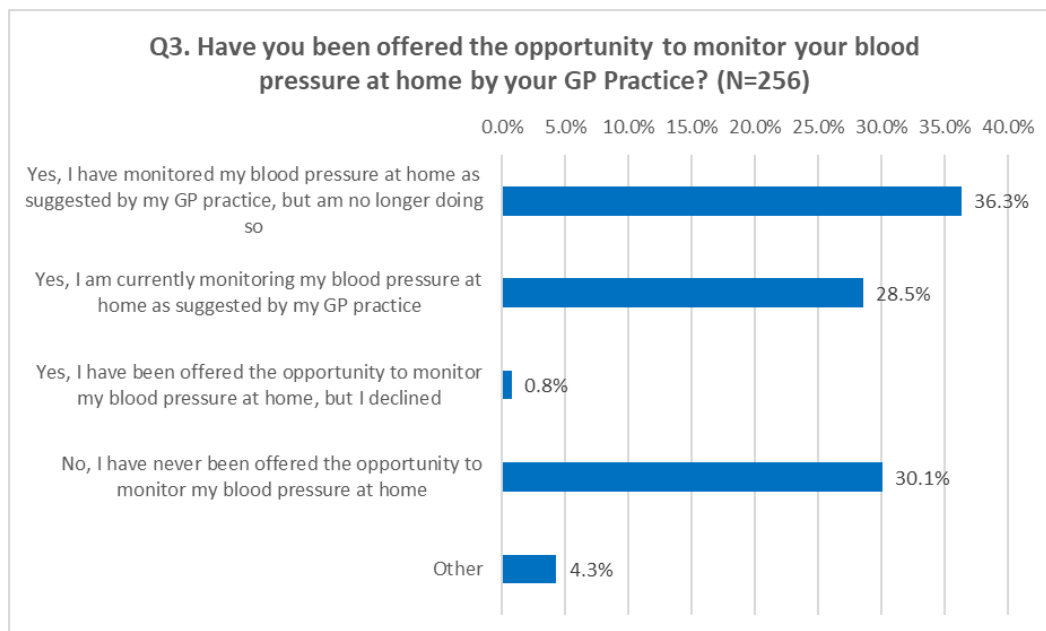
reported their ethnic group to be ‘White British’ (with 26% preferring not to say). Publicly available data confirms this reported ethnicity is in line with the expected demographic profile of the predominant GP practice.

Home Blood Pressure Monitoring Opportunity and Sustainability

A key part of the evaluation was understanding the area of opportunity for BP optimisation and home blood pressure monitoring, and the decision-making around who was offered it, and who subsequently participated and maintained participation. Survey respondents indicate that there are three main cohorts of home blood pressure monitoring (HBPM) (Figure 23).

1. Those who currently HBPM prompted by GP (28%)
2. Those who used to HBPM but no longer do so (36%)
3. Those who have never been offered the opportunity to HBPM (30%)

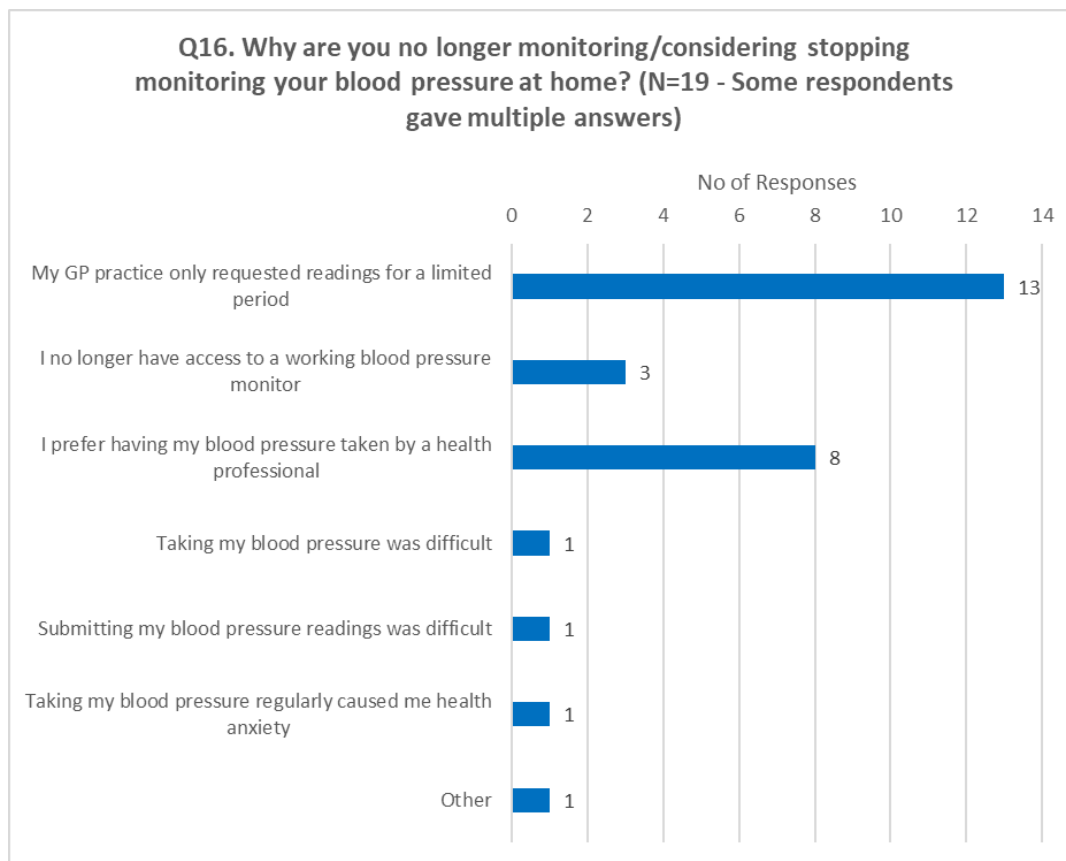
Figure 23: Reported opportunity for patients to participate in home BP monitoring



Responses indicate willingness among almost one third of survey respondents to actively monitor their BP at home, following GP advice (28%). However, the question of missed opportunities is also raised if most of the respondents (if not all) are known to have hypertension. Just under one third reported never having been offered home BP monitoring, and over one third were not maintaining it. An important question of ‘what good would look like’ for people with known hypertension is raised. Understanding more about the factors which underpin initial opportunities to start HBPM and subsequent decisions to stop are also important, particularly in relation to providing equitable access to healthcare and support to patients to optimise their health outcomes. It is also important to consider the three cohorts in relation to reports in this GP Practice of not receiving any BP monitors as part of BP@home, and challenges of lack of capacity among local pharmacies to support BP monitoring.

19 respondents provided information about their decision to stop home BP monitoring with some giving multiple answers (Figure 24). The low number of responses makes drawing conclusions difficult, with 13 reporting that they were requested to provide readings for only a limited period, eight patients reported a preference for health professional to take BP, and three patients lacked access to a BP monitor. Difficulties were noted by three respondents in taking BP (1), submitting BP readings (1) and anxiety caused by taking BP (1). It is worth considering these views in relation to what is considered best practice in advice and support given to patients with hypertension.

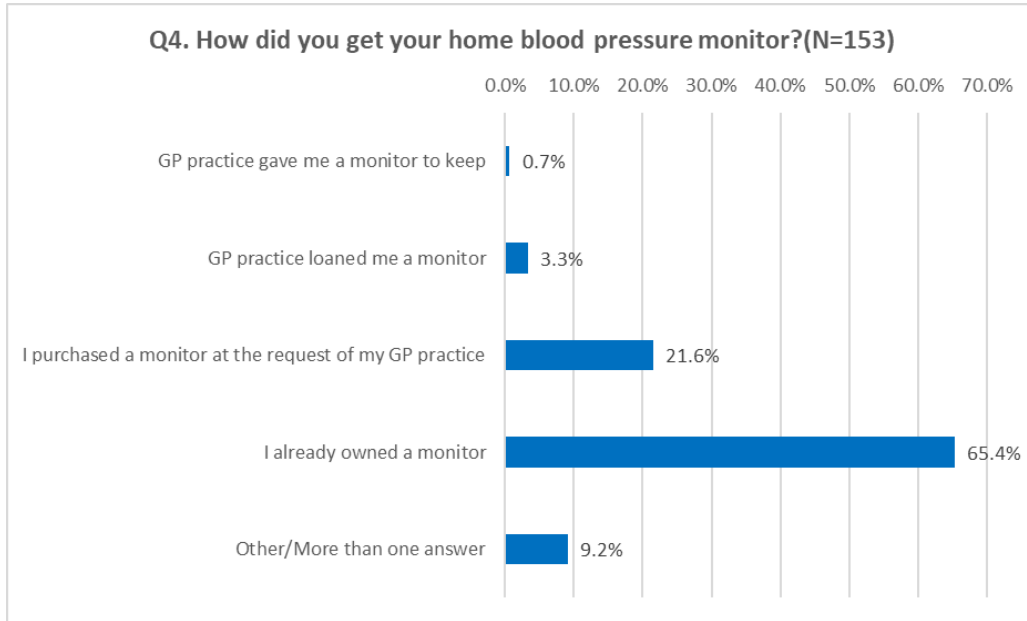
Figure 24: Reported reason for stopping home BP monitoring



Access to BP Monitors

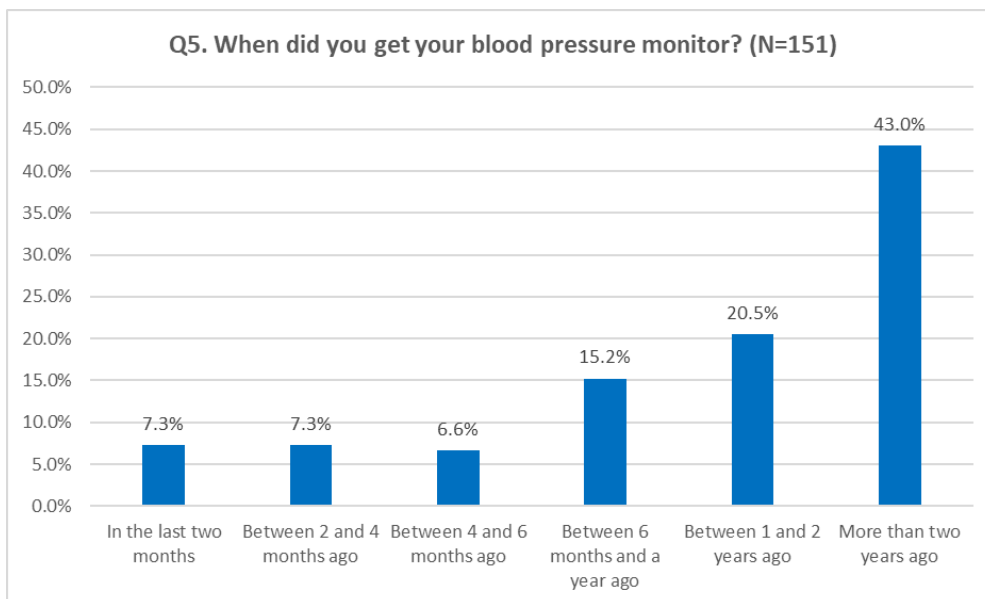
Three key groups of patients emerge in reported methods of obtaining their BP monitors (Figure 25). An appetite for HBPM is indicated by the majority of patients who responded (65%) as already owning a monitor, and one fifth (21%) had purchased one at the request of GP practice. Opportunities to build on this willingness to scale-up HBPM further are important to explore, especially among the sizeable cohorts of people who reported never having been offered the opportunity to participate, or revisiting those who had started but not maintained . Only a small number of respondents reported receiving a BP monitor from the GP practice, which fits with GP Practice 2 reports of not receiving any BP monitors to distribute, with this practice providing the majority of the survey responses.

Figure 25: Reported methods of obtaining BP monitor



It is interesting to note the reported time-period for GP patients obtaining home blood pressure monitors, with the majority (63%) being more than one year ago; within this, 43% had done so more than two years ago (Figure 26). This timing may link to specific activity around the BP@home campaign. However, it also raises questions about the established process to maintain, sustain and extend the reach of HBPM, year on year, within each GP practice, and across the Cheshire and Merseyside system. This is a key consideration if benefits of BP Optimisation are to be realised at scale, and the target groups reached.

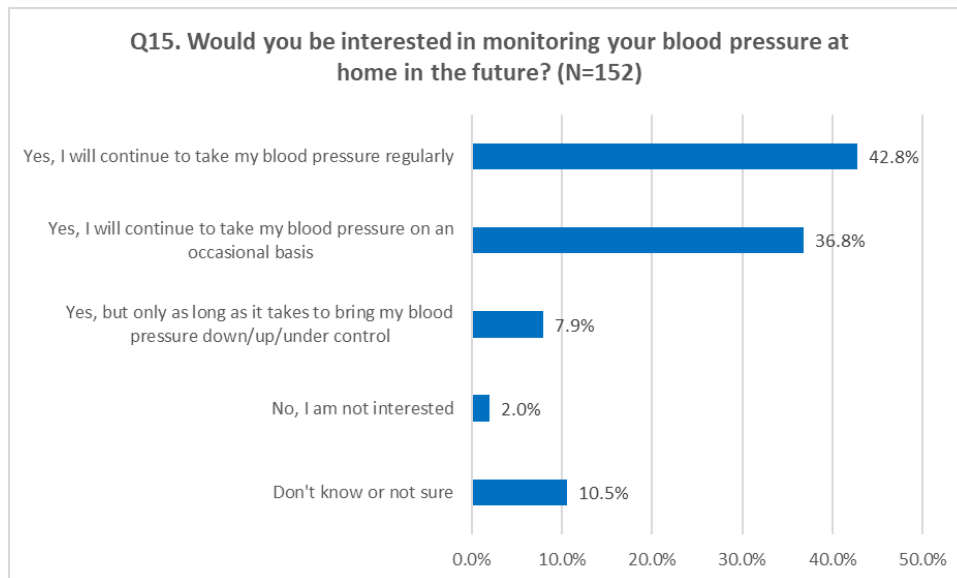
Figure 26: Reported time-period for obtaining BP monitors.



Most patients who responded (78%) reported an interest in monitoring their BP readings at home either regularly or occasionally (Figure 27). Another group would do so if they could

see improvements in their BP control (7%). Only a small proportion of patients reported lack of interest, often preferring it to be done by a health professional, with 10% 'not sure'. A key consideration for GP practices and the Cheshire and Merseyside health system is the extent to which the information and support received by patients has been sufficiently optimised to encourage patients to start and sustain home BP monitoring. This is likely to be a key element to further BP Optimisation.

Figure 27: Reported interest in future monitoring BP at home



Information and support for patients monitoring BP at home

Early evaluation scoping indicated that a range of patient-focussed resources, developed both locally (e.g., website) and nationally (e.g., British Heart Foundation, BP@home), were available to support the workforce and provide patients with the information they needed to successfully monitor their BP at home. Variation in approaches were reported across Cheshire and Merseyside. Survey respondents provided some corroboration of variation, with reports of multiple methods of receiving guidance and instructions (Figure 28).

Figure 28: Reported guidance and instructions received by patients about taking BP readings.

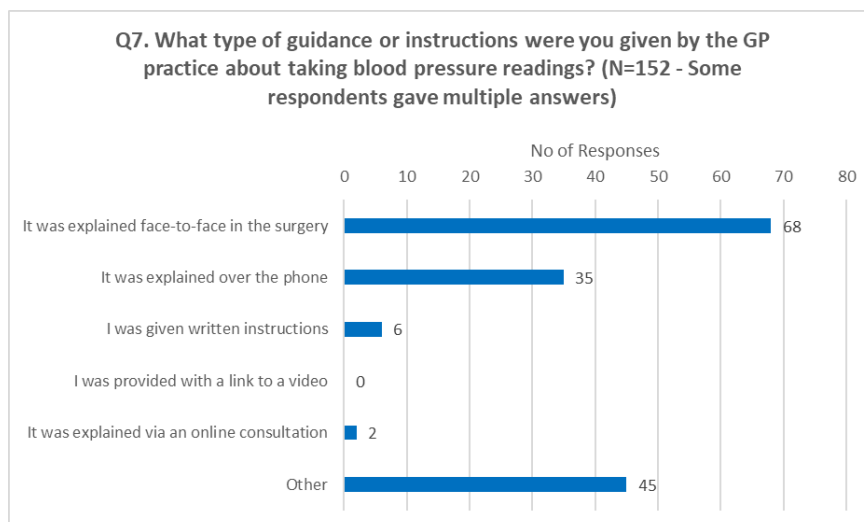


Table 15: Q7 Answers provided under ‘Other’

Open text answers for ‘Other’	Number of responses
No guidance	10
Instructions with monitor	10
Already knew health care worker	7
Text message	4
Already knew how	3
Someone I know explained it to me	3
Phone consultation	1
We asked to come in to use the machine	1
Used the internet	1
Never,	1
Only when my high blood pressure was discovered	1
Not home monitoring	1

A similar pattern was reported in relation to range of guidance and instruction received by patients to submit their home BP readings (Figure 29), which some respondents highlighted in free text comments. The benefits of local adaption of national initiatives are well-known to meet the needs of different practice populations and local context. However, it is not clear what is established best practice across Cheshire and Merseyside in relation to onboarding new patients participating in home monitoring of BP to ensure they have what they need to successfully initiate and maintain their participation, or the extent to which the effectiveness of differing methods and educational materials have been tested.

Figure 29: Reported guidance and instructions for patients about submitting BP readings.

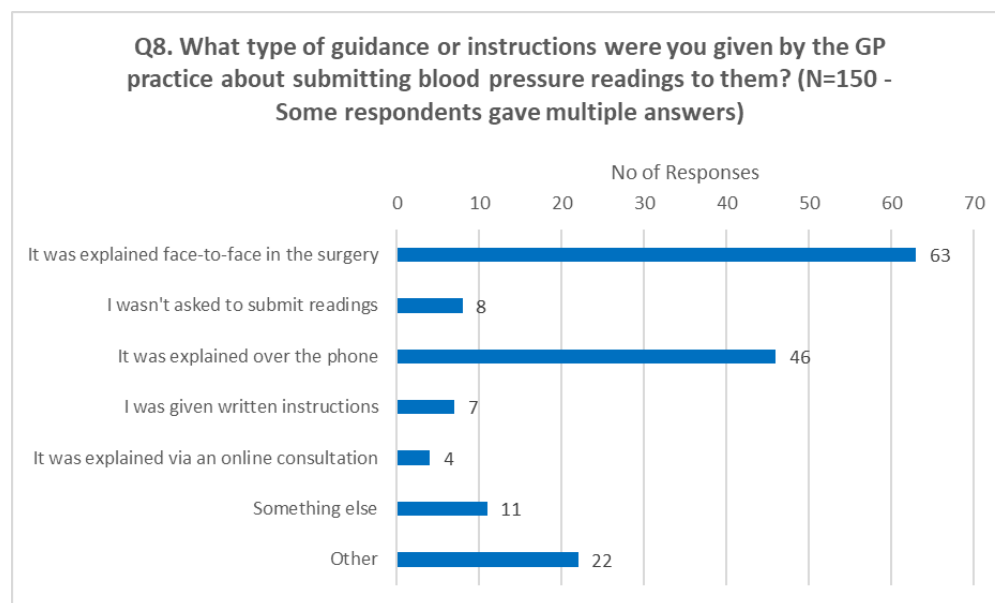


Table 16: Q8 Answers provided under ‘Other’

Open text response for ‘other’	Number of Responses
Not submitting readings	7
No guidance	5
Text	3
Email	1
Instructions with monitor	1
Sheet for recording was enough	1
Kept own record	1
Already knew healthcare worker	1
Drop it off	1
Always high BP, better at home	1
Never	1

Use of digital enablers to support BP Optimisation Initiatives

An important aspect of BP Optimisation initiatives is the role of digital enablers in extending reach, potentially creating efficiencies, and supporting the workforce and service users to take an active part in their health management. Cheshire and Merseyside practices reported the use of AccurX or Patches in supporting the BP Optimisation initiatives. This provides opportunities for GP practices to contact patients individually or as a targeted group via text, as well as for patients to submit BP readings. The evaluation was interested in understanding the uptake and experience of patients in using these digital solutions.

Approximately half of patients (52%) who responded reported being contacted by their GP practice about their BP via text message (Figure 30). Understanding the factors which underpin GP practices decisions to use text services with specific patients is important to identify the potential area of opportunity to optimise and expand reach through these digital platforms. Particularly if most (if not all) of survey respondents have diagnosed hypertension.

Figure 30: Patient reported contact by GP via text about blood pressure.

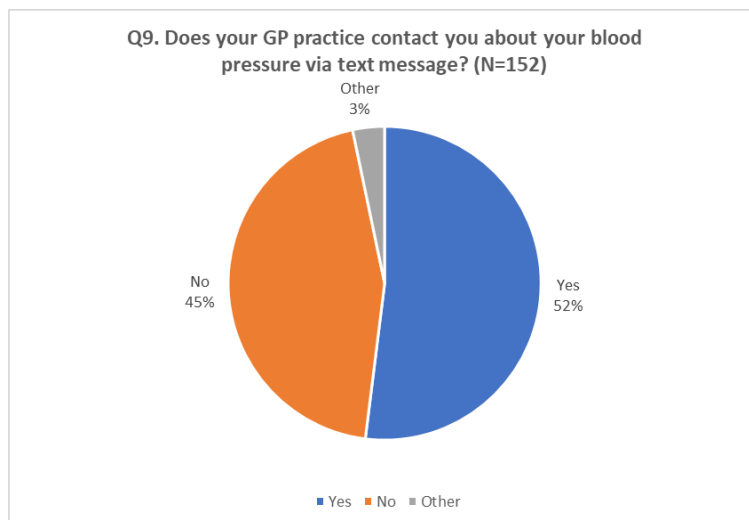
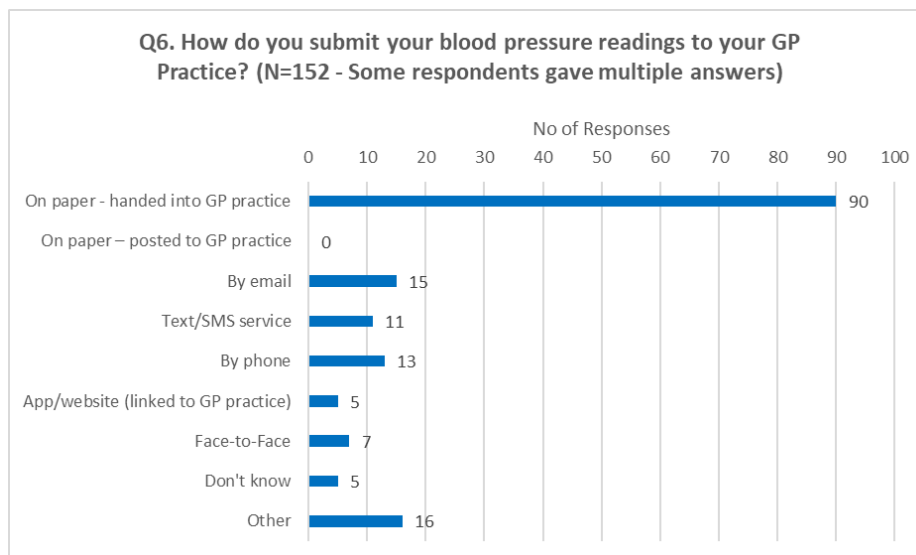


Table 17: Q9 Answers provided under 'Other'

Open text responses for 'Other'	Number of Responses
Sometimes	3
They phone me because it was very high	1
This was at a previous Dr surgery	1
No	1

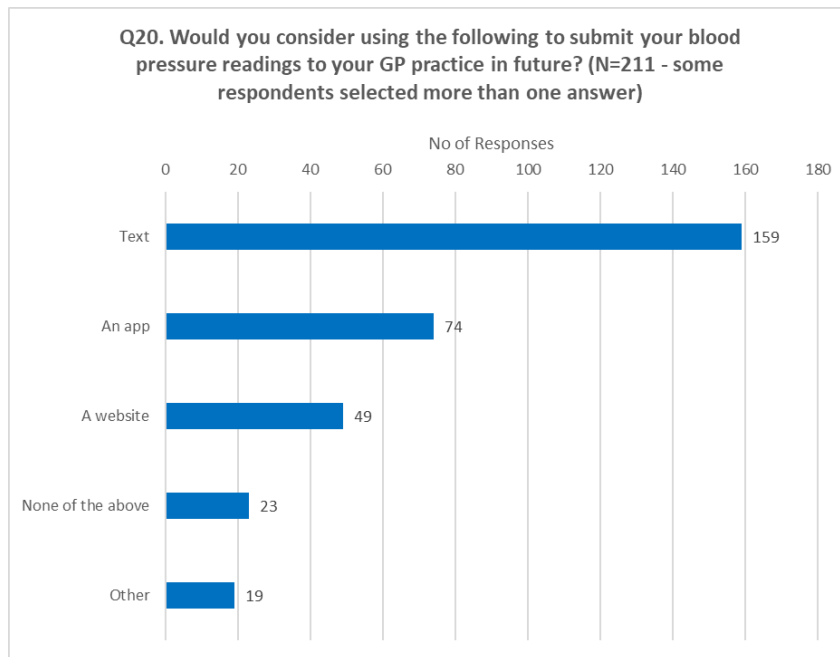
The majority of patients (56%) who responded submitted their BP readings on paper – handing them into the GP Practice (Figure 31). A much smaller number reported use of digital options. This raises questions at both GP practice and Cheshire and Merseyside system-level about the opportunity to scale up the use of digital services, with our survey suggesting significant reported appetite among patients to do so (Figure 32). This will require addressing potential barriers and providing the support that patients may need to do so. Increased focus on patient requirements in relation to remote monitoring may be an important consideration within future procurement discussions about digital solutions.

Figure 31: Reported methods of home BP submissions



The majority of patients who responded indicated an appetite to use one or more digital services, such as text, app and website to submit readings (Figure 32). Only 10% indicated that they would not consider these options. It is important to note the online nature of the survey which might reflect response bias to those who are already digital users. However, reported reliance on paper methods of BP readings submissions (Figure 31) and only half reporting GPs contacting them about BP via text indicates opportunities to increase the reach and scale of digital enablers within BP Optimisation initiatives.

Figure 32: Reported consideration of using digital services to submit BP readings.



Reported patient experience of home BP monitoring.

The majority of patient survey respondents’ ratings in several aspects of their experience of home BP monitoring were generally positive in relation to their understanding, information received and ease of BP reading submission (Table 18).

Table 18: Survey respondents’ positive ratings of experience of home BP monitoring.

Survey questions about aspects of Home BP monitoring	% of respondents Rating Agree/Strongly Agree
1. I understand why home blood pressure readings have been requested	69%
2. The information I was provided with explained why taking blood pressure readings is important	76%
3. The information I was given around monitoring my blood pressure at home was satisfactory	82%
4. My experience of monitoring my blood pressure at home was satisfactory	75%
5. The information I was given on submitting my home blood pressure readings was satisfactory	73%
6. It was easy to submit home blood pressure readings to my GP Practice	74%

61 Survey respondents provided additional information about their rationale for the ratings given, and these are shown in Table 19 in order of reported frequency. Reports of experience were noted (10 patients) and clarity of information received (5 patients). Other themes are highlighted as 5 patients reported not being invited to take part or lack of access to a monitor, and 4 patients reported a preference for having BP taken by a clinician. Several patients reported appetite for more digital options to submit BP readings, with one expressing lack of feedback to understand their BP. 4 respondents also provided reason for non-submission, either through their own decision or not having been requested to do so.

Table 19: Survey respondents' additional information to explain ratings of experience of home BP

Themes	Illustrative quotations
Satisfied	<ul style="list-style-type: none"> • Was asked to supply my blood pressure by my GP I found no problem doing so if it helps out with having to take time up with the doctor thank you. • I have found it interesting. • Happy with all. • It was easy to do. My practice is very good at keeping in touch. • Everything was over the phone not face to face which sometimes you need to see your dr but appointments are very hard when you work. • I have been diagnosed with 'White Coat Syndrome' my monitor was calibrated at my GP's surgery ... When I moved ... I had to replace my battery and have my unit calibrated again. • GP monitoring regularly in order to change medication when necessary. • This was at a previous surgery, had to take tablets as pressure too high. Once it went back to normal, and my stress levels had gone down, the tablets were stopped. I still check my pressure if my head feels a bit pressured. • With out my support and guidance from my GP, I would have never took the help to control my blood pressure, I've had it years and cancer support team has documented this over the years of having chemotherapy. They didn't help me or highlight it till my GP looked at my notes and looked more into my condition. I strongly believe without my GP I wouldn't be here right now, it's the only GP I have ever had in my life who cared and help me. All my records have this documented, and I've only been with this GP about 12 months. And they have done so much for me. • My GP and practice nurses have always made thing clear and to how and why my blood pressure readings are important. • It is easy to do and follow, then ring surgery and give over the phone. Our practice Nurse then will ring a few days later to discuss the reading with me. • I find monitoring blood pressure that bit easier at home as sometimes it can be on the high side just going to have it done in the surgery. •
Clear info	<ul style="list-style-type: none"> • I understood all the information given to me and the reasons why. • I understand why I do BP readings at home. I have my own monitor, happy doing it this way,

Themes	Illustrative quotations
	<p>my GP/nurse is always happy to discuss any queries I have.</p> <ul style="list-style-type: none"> • Clear and concise information • Everything was explained by the doctor and nurse as well was made to feel confident about doing it myself. • Have always been given good information and advice on monitoring my blood pressure. • My GP surgery always given me instructions on checking my blood pressure. <p>Explanations was thorough by staff.</p> <ul style="list-style-type: none"> • Excellent communication from my GP surgery. • the ratings are true how I feel the nurse that showed me how to use the monitor was good
Not invited/no monitor	<ul style="list-style-type: none"> • I don't have a monitor and have to go into the surgery to use a machine there. Then give the nurse the readings. • Because I do not have a blood pressure monitor it was not convenient to expect my neighbour to take it twice a day for 4/5 days! • Bought blood pressure on own initiative. • GP has never requested any readings or undertaken; a review of the prescribed medication during the past 2.5 years. • I have not been asked to submit readings. Never been asked about my blood pressure from the GP but I do myself do my blood pressure.
Prefer to see GP	<ul style="list-style-type: none"> • I would rather see my GP because if you have high Blood pressure regularly there could possibly be an underlying reason for it. • My GP is very helpful and the nurse, • Would rather see GP for blood pressure readings instead of having to wait and wait for appointment. • Not a very good idea really. I just went along with it. Like everything else can't get to see a doctor • Not really happy having to do it myself, Would prefer a health professional to do it. Then have to wait for text to ask me to ring practice and book a telephone consultation, which is sometimes 2 weeks away if lucky
Prefer digital BP submission options	<ul style="list-style-type: none"> • It would be useful to have number to text the results to the doctor. • If I had been given the opportunity, I would have preferred to submit results more and by email. • Would have liked to have emailed them. But was told to pass into GP surgery.
Reason for non-submission	<ul style="list-style-type: none"> • Do not have to provide a reading to go because it is always fine.

Themes	Illustrative quotations
	<ul style="list-style-type: none"> • I exercise a lot & have a balanced diet. My BMI is normal. My blood pressure readings are fine. If I had an issue, I would contact my surgery. • I was only asked to monitor my blood pressure for a week, when my hypertension was discovered, and then again when I started my medication. I have not been asked to continue to monitor it or let my GP know any results since then. • I don't check it very much, I'm on ramipril 5mg, still alive. • It's difficult to remember to take your own blood pressure when you have a busy life. Then remember to write it down & take it to the doctors etc. • I work night shift so sometimes forgot to take it not sure how accurate my machine is. • I do understand the importance of monitoring my own blood pressure at home & in all honesty have unintentionally neglected my own health as I have been concentrating on supporting family members HW Being at this time.; ; Home life circumstances, working full time & recent circumstances have all played a part in my neglect of putting my own Health and WellBeing into the equation and finding time in life to monitor myself
Lack of email	<ul style="list-style-type: none"> • As I do not use email my wife submitted it for me
Lack of feedback	<ul style="list-style-type: none"> • I've no clue if it was right or wrong. No feedback • Handed my readings in at reception and never got any feedback at all.

Reported benefits/impact of home BP monitoring

Survey respondents were asked to rate the extent to which they had experienced key benefits from participating in home BP monitoring (Table 20). The majority of respondents positively rated (agree or strongly agree) that BP monitoring helped them to understand their BP (75%), made them more motivated to check it (66%), and gives them peace of mind (61%). Saving time going to the GP practice was noted as a benefit by 65%. Approximately one quarter of respondents reported monitoring BP making them feel more anxious about their health. Less than half reported BP monitoring prompting a healthier lifestyle (48%) and only 41% reported their BP having stabilised or improved since starting to monitor it. Patients' reported benefits coupled with positive aspects of experience underline the potential of optimising the scale, process and reach of the scheme to be able to demonstrate greater impact at scale. Understanding more about the leverage that BP monitoring has for some patients on their wider health behaviours is important to build upon as well as exploring barriers for patients that do not report positive benefits.

Table 20: Patient reported benefits of home BP monitoring

Survey questions about benefits of home BP monitoring	% of respondents Rating Agree/Strongly Agree
1. Getting a blood pressure monitor has helped me understand my blood pressure	75%
2. Getting a blood pressure monitor has made me more motivated to keep my blood pressure in check	66%
3. Getting a blood pressure monitor has led me to take steps towards a healthier lifestyle	48%
4. Monitoring my blood pressure gives me peace of mind	61%
5. Monitoring my blood pressure at home saves me a lot of time and effort going to my GP practice	65%
6. Monitoring my blood pressure makes me feel more anxious about my health	26%
7. My blood pressure has stabilised or improved since I started monitoring my blood pressure at home	41%

What works well with home BP monitoring from patient perspective

26 survey respondents provided information about what worked well from their experience of taking part in their GPs home blood pressure monitoring scheme, which span five broad categories outlined in the table below according to reported frequency (Table 21). These point to important benefits for patients, GP practices, the NHS system, and perhaps environmental with reduction in travel to appointments. Given the fact that only one third of respondents reported actively monitoring their BP at home, there is potential across C&M to optimise these benefits and increase the impact of home blood pressure monitoring, particularly given the significant number of responses where patients reported not having been offered the opportunity to participate in home monitoring. This would require greater scale, robust processes, and extended reach of the programme.

Table 21: Survey respondents' reports of what's worked well with home BP monitoring

Themes: What's worked well	Illustrative quotes
<p>Convenience/ Ease:</p> <p>Benefits: Save time, mobility, freeing up clinician time, personal responsibility</p>	<ul style="list-style-type: none"> • Just the time of not having to book a appointment with the doctor • Not having to go to the surgery just to have blood pressure taken • It saves you going to your GP all the time • Regular monitoring at home, saves me time, and that of Gp or nurse. • Don't need to arrange a medical appt around my daily routine & work • Being allowed to take personal responsibility. You many people waste GP appointments when personal responsibility should be chosen. • Medication and me time • My mobility is not good, so doing this at home is very helpful. • Easy for me not good on my feet
Better understanding of BP	<ul style="list-style-type: none"> • Experience of BP levels • Additional details about what relates to and affects your BP

Themes: What's worked well	Illustrative quotes
	<ul style="list-style-type: none"> I have been aware of rises in BP enabling me to take steps to lower it It gives me a clear picture of where my BP is up to and I can act accordingly Keeping a check on my blood pressure.
BP Medication Management	<ul style="list-style-type: none"> Different tablets have improved BP Currently on 2 high blood pressure tablet, so monitoring it made me aware the readings of my blood pressure It enabled me to get the right balance of medication Able to change medication early to avoid issue
Reducing Anxiety	<ul style="list-style-type: none"> Don't get anxious Less stressful because of white coat syndrome Keeping regular checks is reassuring. Taking a reading during my day in real terms is more accurate. Having the readings taken in my GP's increase my anxiety.....and therefore increases my blood pressure.
Health awareness/ behaviours	<ul style="list-style-type: none"> Eating more healthy Makes me feel a lot better doing it every week. Well worth the money I paid for the monitor. Being more aware of being more healthy.

Suggested improvements to the home BP monitoring

25 respondents suggested improvements based on their experience of home BP monitoring; these centred around provision of more digital options for submission of readings, more BP monitors available, face to face contact with clinician, more information about BP and feedback about submissions, and being invited to take part in home monitoring (Table 22). Patient feedback aligns with GP stakeholder reports of reliance on paper methods of BP submission, a willingness to try more digital options, lack of monitors available in GP Practice 2, and variation in the provision of information to patients. It provides further support for the opportunity to improve the scale, process and reach of BP optimisation initiatives. It should also be noted that 14 respondents reported being happy with the service or not being able to suggest any improvements.

Table 22: Survey respondents suggested improvements

Theme	Illustrative quotations
Digital options	<ul style="list-style-type: none"> Number to forward results via text. If the recordings were noted electronically eg on the NHS app. Maybe a text service, someone to talk day/night...but can't see that. Be easier to have an app to submit readings monthly. Answering the phone. Having to wait so long puts my blood pressure up. A text reminder to take your blood pressure possibly? A watch or some device you can use for two weeks that's stored & can be downloaded so you don't have to remember to do it with a machine.
Provision of monitors	<ul style="list-style-type: none"> Maybe if they provide a monitor and show how to use it.

Theme	Illustrative quotations
	<ul style="list-style-type: none"> • Not having to keep contacting the reception to ask if one had been returned. • Maybe offering a home machine at a reduced price as it can be expensive especially batteries. • Well as I am a pensioner I found it an extra cost to go and buy one and no loan monitor
Face to face contact	<ul style="list-style-type: none"> • More face-to-face contact with NHS staff. • Seeing my GP • Less phone calls and more face to face. • Seeing GP face to face to discuss
More information	<ul style="list-style-type: none"> • More information on help available or additional testing ... cholesterol etc • More clarification about readings what they mean about what the readings should be. • Show how to use monitor
Invited to participate	<ul style="list-style-type: none"> • Need to inform patients that a scheme exists first. • To tell me about it! • Asked to do it
Feedback on BP readings	<ul style="list-style-type: none"> • They could get back to me to let me know how things are going good or bad. • After handing in bp results more feedback would be welcome.
Frequency of BP requests	<ul style="list-style-type: none"> • Maybe annual requests are not enough
Good/ Satisfied No suggested improvements	<ul style="list-style-type: none"> • It's all good with me. • Happy with the results that I am doing • Happy with things at my surgery. • Nothing I am very satisfied • Nothing happy the way the monitoring scheme goes well run • I am quite happy with the service • Nothing (x7 respondents)

Key findings:

The GP patient evaluation survey responses highlight opportunities and challenges for NHS Cheshire and Merseyside ICB in relation to optimising the scale, process and reach to deliver the anticipated benefits from the BP Optimisation Programme.

The majority of those who responded indicated positive aspects of their experience of home BP monitoring – understanding why it had been requested, its importance, the information received and ease of submission. Reported benefits also included greater understanding of their condition, motivation to check, peace of mind and saving time going to the GP. A sizeable minority of patients also indicated that it had prompted healthier lifestyle (48%) and their BP had stabilised or improved (41%) since starting to monitor it.

The reported willingness and appetite of a sizeable proportion of patients to purchase a monitor and participate in home BP monitoring is an important opportunity for GP practices to build upon at scale. However, the majority of those who responded to the

survey had purchased their monitors more than one year ago. It is not clear what current processes and support for onboarding is available to new patients who are willing to participate in HBPM, particularly as the BP@home monitors are no longer available through that programme.

Access to BP monitors, either through GP practices or local community services for those who cannot afford to purchase, them remains an important consideration in promoting inclusion and reducing reported barriers to active participation.

The emergence of cohorts of patients who have never been offered the opportunity to take part in home BP monitoring, or who did so and have not sustained this activity highlights both a challenge and an opportunity. It is worth considering in the context that most, if not all of the survey respondents had diagnosed hypertension.

Findings indicate the need to review and consider options to optimise digital enablers to realise anticipated benefits at scale. There may be opportunities to capitalise on survey respondents' reported interest in using more digital services. This is likely to require upskilling of the workforce to actively encourage and support patients to initiate and sustain home blood pressure monitoring. Respondents indicate an appetite in using more digital options, however reports suggest addressing variation in the type and quality of information would also be important.

Patient feedback is a key component of implementation of BP Optimisation initiatives, both in relation to implementation, but also the extent to which anticipated benefits are realised. Our findings closely align to six key areas reported by Healthwatch in their BP@home report to improve the support and outcomes for people who monitor BP at home.

1. Better information about high blood pressure, so people know why they should monitor their pressure, what "normal" readings look like, how to reduce risks and when to act.
2. Guidance and support around taking and submitting blood pressure readings.
3. Better solutions for submitting readings easily and efficiently.
4. Feedback on submitted readings and provision of ongoing support
5. Advice on what to do to improve blood pressure.
6. Acknowledge concerns amongst patients and access to a GP if required.

Taken together with the current evaluation findings, the Cheshire and Mersey system has an important opportunity to respond to patient feedback.

Data Limitations

Capacity pressure within primary care may limit availability to support patient feedback surveys. This evaluation survey indicates the rich insights that feedback can provide, both about what is working well and opportunities for improvement. This is particularly relevant in the one GP practice that was able to generate the majority of the responses. A key limitation is the limited response across the other GP practices who took part in qualitative

work. The survey provides an opportunity to revisit patient experience, particularly to gain early insight into both the implementation and outcomes of initiatives such as home BP monitoring.

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5. Supplementary Files

File	File Description	Format
A	CIPHA dashboard data review	Ppt. Slide deck
B	Bespoke Retrospective Evaluation Implementation Metrics	Excel Spreadsheet
C	Bespoke Retrospective Evaluation Outcomes Metrics	Excel Spreadsheet
D	GP patient online survey	PDF

6. Appendices

Appendix I: Quantitative Data Sources

The following table summarises the main data sources used in the quantitative analysis:

Source	Data	Description
NHS Digital	Quality and Outcomes Framework (QOF) Dataset (2019/20, 2021/22)	Practice level data on hypertension related QOF indicators.
Care Quality Commission	Summary ratings on quality of care	GP CQC inspection reports
CVD PREVENT	CVD Prevent (12-month data extracts for the periods to March 2021, March 2022, Sept 2022, and March 2023).	Primary care audit with practice level data for key hypertension metrics.
NHS Digital Organisation Data Service	EPRACCUR (August 2022)	NHS master list of all live GP practices.
Office for Health Improvement and Disparities (OHID)	Fingertips CVD profiles (Feb 2021)	CVD prevention profiles on key risk factors.
Office for Health Improvement and Disparities (OHID)	Fingertips National General Practice Profiles (April 2022)	Practice level demographic and health outcome indicators.
National Cardiovascular Intelligence Network	NCVIN estimated hypertension prevalence (2020)	Estimate of practice level prevalence for hypertension.
CIPHA – Combined Intelligence for Population Intelligence	CIPHA Dashboard CVD Metrics (Updated daily)	Practice level data for Cheshire & Merseyside for a range of CVD related indicators, updated from GP practice systems.
Health Innovation NWC	Wirral Hypertension Metrics (Jan 2023)	Practice level data for Wirral GP practices for key programme metrics
Health Innovation NWC	C&M Hypertension Data Tracker and Baseline Measures spreadsheets	Summary hypertension statistics at sub-ICB level
Health Innovation NWC	Cheshire, Liverpool, and Wirral Hypertension Reporting spreadsheet	Summary statistics at sub-ICB level for 3 accelerator sites.
NHS Cheshire & Merseyside Business Intelligence Team	BP Evaluation Template (Feb 2023)	AQUA specified bespoke practice level data collection, designed to provide key data in relation to rates of home blood pressure monitoring, BP control, diagnosis rates, and health inequalities. Completion rate was low and data quality insufficient to enable detailed analysis.

Appendix 2: Key Document Review

Four key documents relating to the Cheshire and Merseyside BP@home and digital initiatives were shared with the evaluation team during the scoping phase (Table 23). A further 44 documents were identified and reviewed from these original resources and searches (Table 24).

Table 23: Key documents supplied by Health Innovation NWC

Key Source	Audience	Date	Description of Content	Conclusions/Outputs/Opportunities	Points noted
BluePrint: Hypertension: Digital Enablers Supporting Home Blood Pressure Monitoring in General Practice	Other NHS trusts	May 22	About the Hypertension Accelerator Programme & BP@home programme Inform the approach for @home/remote blood pressure monitoring as 'BAU' for GP across C&M ICS Describes Minimum Dataset for Hypertension Accelerator, Review & Planning Phase & Implementation Phase of 3 places (Cheshire, Wirral & Lpool)	Scope: 3 Places where BP Optimisation activity has been described - 2 parts: Hypertension Accelerator Programme and BP@home Aims: Enabling 3 C&M CCGs to work in agile manner to digitally support remote management of hypertension patients in partnership with HCPs. - Testing no. of products by primary care across ICS to find what works best & to inform wider decision making & support offering across C&M ICS Opportunistic BP monitoring with vaccines in Lpool possibly diff. approach	<ul style="list-style-type: none"> Who are the 4 Digital Navigators? (Patients?) Importance of patient/public engagement approach noted in comms learning – what did this look like? What time period is the Sustaining phase with 7 key elements Can we understand which monitors and cuffs are remaining? Patient resources don't explain why they should monitor their BP Some GPs unsure of data into EMIS
C&M CVD Prevention resources incl. bp@home, BPQI, AF, Cholesterol, digital enablers	GP Practices	Jun 22	About the BP@home programme Bundle of resources to support GP practices to adopt the processes	National BP@home FAQs document not specific to C&M – how do they inform the evaluation?	<ul style="list-style-type: none"> Patient resources don't explain why they should monitor their BP Mention of plan for distinguishing between owned & provided monitors – was data ever collected by national programme?
GP Getting Started bp@home pack	GP Practices	Feb 22	About BP@home Useful items to assist practices & patients to use BP@Home remote monitoring	<ul style="list-style-type: none"> Pack specific to Liverpool SOP – is this the same as the national one or have amendments been made for local practice? 	<ul style="list-style-type: none"> Patient resources don't explain why they should monitor their BP
Resource pack to support community pharmacies	Pharmacies	Oct 21	Some of the same resources as CVD pack, at home/referral pathway & checklist for pharmacies & resources for patients	<ul style="list-style-type: none"> GPs in Knowsley did not have capacity to engage in the programme, so an alternative was via pharmacies 	<ul style="list-style-type: none"> F2F consultation WF implications of emailing readings Patient resources don't explain why they should monitor their BP

The four key documents were mostly resources aimed at clinicians from the national programme and Cheshire & Merseyside ICS, with some local resources for GP practices from Liverpool. The document review suggested several potential aspects to investigate:

- Lack of clarity about intervention components to ensure fidelity, and monitoring of implementation, progress, and outcomes
- Potential data quality issues – clinician report challenges of coding, understanding monitor stock, distinguishing between owned & provided monitors
- Need to understand the utilisation and utility of patient resources – potential improvement opportunities
- Potential workforce implications of mode of appointment and reading submission method

Table 24: Additional documents reviewed in scoping phase of evaluation

Key Document Title	Author/ Source	Date	Short Description of content/purpose	Primary Audience	Contents
Hypertension: Digital Enablers Supporting Home Blood Pressure Monitoring in General Practice	C&M HCP and Midlands and Lancs CSU	May-22	<p>About the Hypertension Accelerator Programme and BP@home programme</p> <p>Inform the approach for @home/remote blood pressure monitoring as 'business as usual' for General Practice across Cheshire & Merseyside ICS</p> <p>Describes Minimum Dataset for Hypertension Accelerator, Review and Planning Phase and Implementation Phase of 3 places (Cheshire, Wirral and Liverpool)</p>	Other NHS trusts	Background and Context
					Planning and Preparing
					Implementing: Cheshire Place Implementation
					Implementing: Wirral Place Implementation
					Implementing: Liverpool Place Implementation
					Sustaining: BAU approach to hypertension
					Communicating and Sharing Learning
					Benefits and Outcomes
					Implementation Roadmap Hypertension Accelerator BP_Home
					Hypertension PID
					MC Hypertension Case Study
					MLCSU Hypertension Case Study
					C&M ICS Hypertension Accelerator Working/Delivery Group ToR
Long Term Conditions Management in Primary Care Clinical Meeting					
Wirral CCH Remote BP Process Map					
Cheshire Remote BP Monitoring Process Map					
C&M ICS Hypertension Minimum Dataset reporting					
BP@home intranet page					
PCN Funding Letter					
GP Getting Started bp@home pack (Also included as artefacts in the Blueprint but not	Liverpool CCG (Key contact Gayle Rooke - Programme	Date in file properties 08/02/22	<p>About the bp@home programme</p> <p>List of useful items that are included within this pack to assist practices and patients</p>	Liverpool GP Practices	BP@ Home Summary information sheet
					Flow Chart –the process by which you select patients, code the BP monitor and Code the results..... (Feb 22)
					How to download and use the BPQI tool

Key Document Title	Author/ Source	Date	Short Description of content/purpose	Primary Audience	Contents
listed above to avoid duplication)	Delivery Manager)		to use BP @Home remote monitoring		A practical guide by the British Hypertension Society (Sep 17)
					A protocol by the British Hypertension Society (Sep 17)
					A Patient Leaflet that includes a BP diary
					A local Service Operating Procedure (Apr 21)
Cheshire & Merseyside CVD Prevention resources incl. bp@home, BPQI, AF, Cholesterol, digital enablers	Sally Deacon	June- 22 (according to document properties)	About the BP@home programme and Proactive Care @home programme This bundle provides resources that can support your practice to adopt the processes which can enable you to improve your treatment to target and hypertension list management as well as AF/Cholesterol pathway management resources.	GP Practices in C&M	[Florey] SNOMED codes and questions for the BP Questionnaire - 7d Home Monitoring (Accur-X)
					BP@home FAQs v3 (NHSE document)
					BP@home record sheet auto calculator
					Cuff guidelines (Maybe specific to implementation?)
					Example AccuRX message for owning BP machine (Specific to implementation)
					Example Digital Pathway (Specific to implementation)
					Key Lifestyle Messages (Specific to implementation)
					Lifestyle questions admin (Specific to implementation)
					Patient BP Pathway (specific to implementation)
					Patient Diary
					Preparation (Specific to implementation)
					Routine decontamination of reusable non-invasive patient care equipment
					SNOMED codes to use (Specific to implementation)
					SOP v3 (national document)
					Treatment Targets and Co-morbidities
					UCL Risk Stratification and guide
Useful links staff resources					
RESOURCE PACK TO SUPPORT COMMUNITY PHARMACIES WITH HBPM	Happy Hearts website			Community Pharmacies	BP at home record sheet Auto Calculator v7 (Same as CVD Pack)
					Checking BP@home poster BPUK
					Cuff guidance (similar to CVD pack)
					How to instructional leaflet
					Key Lifestyle Messages (Same as CVD pack)
					Knowsley BP AT HOME PATHWAY_GP Practice Nov 2021
					Knowsley BP at home referral pathway to community pharmacy Nov 2021
					Patient Diary community pharmacy Final (same as CVD pack)
					Pharmacy checklist v2
					Useful links patient resources
Useful links staff resources (Similar to CVD pack)					

Key Document Title	Author/ Source	Date	Short Description of content/purpose	Primary Audience	Contents
<u>UCL Partners website (linked from Happy Hearts)</u>					BPOp Programme - Transforming CVD Prevention.pdf
					Digital-resources-for-hypertension-Sept-2021-FINAL.pdf
					Preventing-cardiovascular-disease PPI-report FINAL.pdf
					Proactive Care Frameworks - Implementation lessons learned.pdf

Appendix 3: Data Gap Analyses and Rescoped Evaluation Questions

The table below maps the datasets supplied to date (or published nationally) against the original evaluation questions, and provides an initial summary assessment of the extent to which the data might allow us to answer those questions.

Key:

Y – The dataset covers the question in sufficient detail.

P – The dataset provides partial coverage, or addresses one part of the question.

N – We wouldn't be able to answer this question with what we currently have available.

Original Evaluation Questions:	Currently Supplied Data Coverage	Supplied Datasets/Nationally Available Datasets						
		QOF	CVD Prevent	Fingertips / PHE / NCVIN modelling	Wirral Hypertension Metrics	C&M Hypertension Data Tracker	C&M Baseline Measures (3 Sites)	Cheshire, Liverpool, Wirral Hypertension Reporting
1 What is the continuing impact of COVID-19 on BP management and control across C&M and what factors influence our programme?	P	X	X	X		X		
2 What has been the combined impact of C&M strategies to strengthen BP care in practices and supporting remote BP management	P	X	X	X	X	X	X	X
3 Where have these strategies worked best and why?	P	X	X	X	X	X	X	X
4 What are the workforce implications of remote monitoring?	N							
5 What is the impact of the programme on health inequalities?	N							
6 What are the patient and workforce perspectives on experience, barriers, and enablers to uptake and impact.	N							

‘New’ Evaluation questions to consider from 7/11 meeting		Currently Supplied Data Coverage	Supplied Datasets/Nationally Available				
			QOF	CVD Prevent	Fingertips / PHE / NCVIN modelling	Wirral Hypertension Metrics	C&M Hypertension Data Tracker
1	To what extent (designated* projects/programme) have been successful in achieving long term ambition of 80% treatment to target (BP Optimisation)? (What level – practice/PCN/C&M)	P	X	X	X	X	X
1a	What has ‘worked well’ that could potentially be considered for scale up elsewhere?	N					
1b	What are the common themes identified?	N					
1c	Can we understand individual/ cumulative contribution?	N					
2	To what extent there had been a shift (improvement) over time in achieving long term ambition of 80% treatment to target (at what level – GP practice/PCN/C&M?)	Y	X	X	X	X	X
2a	If so, what groups had seen improvement? (also important to look at deterioration?)	N					
2b	Has there been an improvement in most deprived 20%/ ethnic minority groups (health inequalities to be defined)?	N					
3	What are the characteristics of practices/ areas showing an improvement – what approaches had been used - early site/use of BPQI?	N					
3a	To what extent GP practices have successfully achieved target of case/finding detection?	Y	X	X	X		X
3b	Is there variation between practices/PCNs/areas? (are we able to look at unwarranted variation?)	P	X	X	X	X	X
3c	What are the characteristics of ‘underperforming’ practices (how would that be defined)	N					
4	To what extent has there been an improvement in detection/case finding of hypertension? (at what level – Practice/PCN/C&M?)	Y	X	X	X	X	
5	Is there any association between increased detection/ case finding and improved BP optimisation rates?	Y	X	X	X	X	
6	What has been the impact of the Pandemic on performance of both detection and optimisation at practice/PCN/C&M level?	Y	X	X	X		

Appendix 4: Interview Schedule

Topic area	Question	Mapped to Evaluation Q (Nos)	Potential Survey Q (Y/N)
Role	1. Can you briefly describe your current role and role in (digital) BP improvement initiatives in <i>your practice/place</i> ?	5 (understanding the view demographic)	Y
Implementation Reach/ Penetration	2. Can you describe the (digital) BP improvement / home BP monitoring initiatives <i>your practice/place</i> have implemented? (Prompt: BP@home, HTA, BPQI, other) 3. How did <i>you/your practice/place</i> go about identifying the cohort of people for home BP monitoring? (Prompt: specific risk stratification tools? By BP level, comorbidities, deprivation, ethnicity, other?) 4. What has worked well in relation to your implementation of BP improvement/home BP monitoring initiatives approach in <i>your practice/place</i> ? What challenges experienced? Impact of Covid? What would you do differently? What could be scaled up elsewhere? 5. What support has been available/taken up? How would you rate the support received? 6. What other support would have been useful? Prompt: Do you feel other staff members could have been activated/trained to support this? 7. How have you engaged/supported patients in digital BP improvement/home BP monitoring initiatives? (Training, resources, dedicated contact, telephone follow up?) What has been the uptake of support/level of engagement of patients? (Prompt: differences between groups/ health inequalities) 8. What methods of BP reading submissions are available to patients in your practice/place? (What proportion have opted for digital? telephone? Paper? Hybrid?)	1 (need to understand initiative to understand impact) 2. (understand what inequalities data was used in targeting patient access) 4. Risk tools prompt (understand if key component) 5.I worked well/challenges 5.I and II 5.II 4. (understand what patient support is a key component) 2. (understand how patient support affects access and effectiveness for different groups) 4. (understand if submission options are a key component, could give insight into 2. on equality of access)	Y (choose from list) Y (choose from list) Y (choose from list) Y (free text and rating scale) Y (free text) Y (choose from list) Y (choose from list)
Additional Information	9. Is there anything you would like to add that we haven't covered?	5.	Y (free text)

Appendix 5: Participant Information Sheet

Title: Evaluation of Cheshire and Merseyside Blood Pressure Optimisation Programme

Participant Information Sheet

You are being invited to take part in a short 30-45 minute interview via telephone or Microsoft Teams about your views and experience of the Cheshire and Merseyside Blood Pressure Optimisation Initiatives

Before you agree to participate, it is important to understand why the interview is being conducted and what participation will involve. This interview is part of an independent evaluation being conducted by Advancing Quality Alliance (Aqua). It is funded by Cheshire and Merseyside Integrated Care System (formerly known as the Cheshire and Merseyside Health and Care Partnership).

- Please take time to read the information below and discuss it with others if you wish.
- Ask us if there is anything that is not clear or if you would like more information. Thank you for sparing the time.

Why are we doing this evaluation of the Blood Pressure Optimisation Programme?

During the Covid-19 pandemic, new ways of working in Blood Pressure (BP) management, such as remote monitoring, have been implemented very quickly. New NHS guidance to increase the percentage of patients with hypertension treated to target to 77% by March 2024 makes capturing the learning from local initiatives all the more important. This year-long evaluation focuses on several ongoing initiatives in Cheshire and Merseyside around improving BP management. These include the BP@home programme and Hypertension Accelerator programme, which support remote BP monitoring.

Aqua are the independent evaluation partners, findings will be used to inform future system-wide strategic decision-making.

Why have you been chosen?

You have been identified as a key stakeholder in Cheshire and Merseyside's BP Optimisation Initiatives. We are keen to capture your views, experience and learning from the programme.

Do you have to take part?

It is up to you to decide whether or not to take part. You can withdraw at any time without giving a reason. If you decide to withdraw, then you will be asked what you wish to happen to the data you have provided up to that point.

What will happen to you if you take part?

You will be asked to complete an interview (approx. 30-45 minutes) via telephone or MS Teams with [Eileen McDonach](#), Aqua's Head of Analytics and Evaluation (or an Aqua colleague) about your views and experience of the BP Optimisation Programme. This will include some background about your role, what has worked well, any challenges experienced, and what support could help with continued and sustained improvement in BP management. We aim to include a range of stakeholders, including primary care providers, clinicians, and patients. Your permission will be sought to record and transcribe the interview in Microsoft Teams.

Anonymous quotes may be used as illustration within the final report, slidedeck and associated publications. No-one outside of Aqua's Analytics and Evaluation team will be allowed to access the original recordings. The audio recordings will be stored securely and will be deleted after analysis and reporting is complete. In approximately 2-3 months' time, you may also be invited to join a 1.5-2 hour virtual discussion group to review qualitative findings from the evaluation to inform next steps for the programme.

What are the possible disadvantages and risks of taking part?

It will require your time to take to part in the interview.

What are the possible benefits of taking part?

Possible benefits include obtaining a range of stakeholder views on the roll-out of digital strategies in Home BP Management, to inform future system-wide strategic decision-making.

What if something goes wrong?

If you have any comments or concerns you should discuss these with Dr Eileen McDonach, Head of Analytics, Evaluation and Measurement, Aqua, Eileen.Mcdonach@aquanhs.uk or Ruth Yates, Associate Director, Aqua Ruth.Yates@aquanhs.uk

Will your taking part in this project be kept confidential?

All the information that we collect about you during the course of the evaluation will be kept strictly confidential. By agreeing to taking part in an interview you are consenting to Aqua creating and holding records that include your personal information. Personal identifiable data will be held in line with Salford Royal's GDPR guidance and in line with the Data Protection Act. Recordings will be destroyed after they have been transcribed. Transcriptions will be subject to the Trust's record retention policy. Your personal information will not be shared in the evaluation report and any direct quotes will not be attributed to individuals or presented in a way that allows individuals to be identified.

What will happen to the results of the evaluation?

A final report and accompanying slidedeck summarising findings will be presented to the Cheshire and Merseyside Hypertension Steering Group.

Who is organising and funding this evaluation?

The C&M CVD Prevention Sub-group are delegated the authority for commissioning the work, which is funded by the Cheshire and Merseyside Integrated Care System, formerly known as the Cheshire and Merseyside Health and Care Partnership

Who has reviewed and approved the evaluation?

The evaluation was commissioned as part of a competitive process to evaluate programmes designed to improvement the identification and management of high BP. The evaluation has been reviewed by members of the C&M BP Steering Group (a sub-group of the CVD Prevention Subgroup) and confirmed as service evaluation by Dr Julia Reynolds, Associate Director for Transformation (Health Innovation NWC) and Jon Develing, Director of Transformation and Chair of the CVD Prevention Sub-Group (Liverpool Heart and Chest Hospital NHS Foundation Trust).

Thank you for reading this information sheet.

If you would like to take part and/or require further information, please email Eleanor Battrick, Eleanor.Battrick@Aquanhs.uk

Appendix 6: Consent Form

Title: Evaluation of Cheshire and Merseyside Blood Pressure Optimisation Programme

EVALUATION CONSENT FORM

You are being **invited to take part in a short 30-45 minute interview** as part of an independent evaluation of work across Cheshire and Merseyside region to improve the identification and management of Blood Pressure. The project is funded by the Cheshire and Merseyside Health and Care Partnership, and led by the Hypertension Steering Group. The evaluation is being conducted by Advancing Quality Alliance (Aqua).

Please read the associated **Participant Information Sheet (9 February 2023)** and complete the form below and return to eleonor.batrick@aquanhs.uk.

Participant Identification Number: _____

		Please Initial Box
1.	I confirm that I have read the information sheet dated [9 February 2023] for the above evaluation. I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily	
2.	I understand that my participation is voluntary and that I am free to withdraw at any time without giving any reason.	
3.	I understand that any information I give may be included in the final reports but where direct quotes are used my identity will be protected by the use of pseudonyms.	
4.	I agree to this interview being recorded and transcribed on MS Teams and back up recording. Recordings will be deleted after transcription and final report delivered. Transcripts will be retained according to AQUA's host organisation, Northern Care Alliance's, records retention policy in line with national NHS guidance.	
5.	I understand that the information I give will be held in confidence other than in the unlikely event I disclose dangerous or harmful situations.	
6.	I agree to take part in the above evaluation	

Name of participant

Date

Signature

Name of person taking consent

Date

Signature

Appendix 7: Relevant Policy and Programmes

- NHS Health Checks (NHS 2019)
- Cardiac Pathways Improvement Programme (NHS 2021)
- CVDPREVENT audit (CVDPREVENT undated a)
- CVD Prevention Recovery Programme (NHS England 2022), which includes Blood Pressure @home (NHS England undated c) and Making Every Contact Count (NHS Health Education England undated).
- Guidelines and standards for CVD care include: the National Institute for Health and Care Excellence (NICE) range of guidance and quality standards (NICE 2021b)
- NHS RightCare’s pathway guidance (NHS England 2016) and stroke toolkit (NHS RightCare 2022)
- Getting It Right First Time (GIRFT) programme’s cardiology workstream (GIRFT undated).
- The Quality and Outcomes Framework (QOF) (NHS England and NHS Improvement 2022b) for primary care includes measures on CVD and related conditions, and a Directed Enhanced Service (DES) relating to CVD was added for 2022/23 (NHS England 2022).

Appendix 8: Analysis Plan

An analysis plan was formulated in relation to the initial evaluation questions, and an appraisal carried out of the available quantitative data during November 2022. This highlighted several areas where the available data was unlikely to support a successful assessment against the evaluation questions. Table 25 below shows a summary of this assessment:

Table 25: Appraisal of data availability to address evaluation questions (Nov 2022)

	Original Evaluation Questions:	Supplied Data Coverage (Nov 22)
1	What is the continuing impact of COVID-19 on BP management and control across C&M and what factors influence our programme?	P
2	What has been the combined impact of C&M strategies to strengthen BP care in practices and supporting remote BP management	P
3	Where have these strategies worked best and why?	P
4	What are the workforce implications of remote monitoring?	N
5	What is the impact of the programme on health inequalities?	N
6	What are the patient and workforce perspectives on experience, barriers, and enablers to uptake and impact.	N

Note: P = Partial Coverage, N = No Coverage.

The available data supplied to us therefore suggested that, while we might be able to address part of the first 3 evaluation questions, we would be unable to answer them in full, and for questions 4, 5, and 6, there was a lack of any directly applicable quantitative data. At the Evaluation working group meeting on the 7 November 2022, it was agreed that a revised set of evaluation questions would be considered, and a further appraisal of the available data against these newly proposed evaluation criteria was carried out. This is shown in Table 26 below:

Table 26: Re-appraisal of data availability to address rescoped evaluation questions (Nov 22)

	'New' Updated Evaluation questions to consider from 7/11 meeting	Supplied Data Coverage (Dec 22)
1	To what extent (designated* projects/programme) have been successful in achieving long term ambition of 80% treatment to target (BP Optimisation)? (What level – practice/PCN/C&M)	P
1a	What has 'worked well' that could potentially be considered for scale up elsewhere?	N
1b	What are the common themes identified?	N
1c	Can we understand individual/ cumulative contribution?	N

2	To what extent there had been a shift (improvement) over time in achieving long term ambition of 80% treatment to target (at what level – GP practice/PCN/C&M?)	Y
2a	If so, what groups had seen improvement? (also important to look at deterioration?)	N
2b	Has there been an improvement in most deprived 20%/ ethnic minority groups (health inequalities to be defined)?	N
3	What are the characteristics of practices/ areas showing an improvement – what approaches had been used - early site/use of BPQI?	N
3a	To what extent GP practices have successfully achieved target of case/finding detection?	Y
3b	Is there variation between practices/PCNs/areas? (are we able to look at unwarranted variation?)	P
3c	What are the characteristics of ‘underperforming’ practices (how would that be defined)	N
4	To what extent has there been an improvement in detection/case finding of hypertension? (at what level – Practice/PCN/C&M?)	Y
5	Is there any association between increased detection/ case finding and improved BP optimisation rates?	Y
6	What has been the impact of the Pandemic on performance of both detection and optimisation at practice/PCN/C&M level?	Y

Note: Y = Covered by available data, P = Partial Coverage, N = No Coverage.

The available data therefore provided better coverage against these revised questions, but there remained significant gaps, particularly in relation to assessing the contribution of the blood pressure control initiatives implemented to the level of performance observed (1a, 1b, 1c), the variation in impact by social or ethnic group (2a, 2b), and in quantitatively identifying key points of difference between under and over-performing GP practices (3, 3b and 3c).

The data insights we were able to draw in relation to this set of evaluation criteria is set out in our findings in section 3 of this report, particularly with regard, to the change in levels of performance over time.

To help address the remaining gaps in data coverage, we proposed a bespoke data collection, and provided a template for completion at practice level, which outlined the key data items required to significantly improve the level of data coverage. It was envisaged that this template would be completed by data analysts at ICB or place level, using data extracted from GP practice systems. This template was issued in December 2022.

Following the evaluation group meeting on the 9 January 2023, a further revision to the evaluation questions was proposed, taking into account revised national priorities for hypertension and CVD set out in national planning guidance, discussion with the key stakeholders for the programme, and our feedback to date. These revised evaluation questions were as follows:

“As C&M ICS and Places recover from the wider impacts of the Covid-19 pandemic, what impacts have BP optimisation initiatives (BPQI, BP@home, Digital First in Primary Care) had on:

1. BP CONTROL: Recorded BP ‘treatment to target’ (and implications for achieving the new ‘77% control by March 2024’ target)?

2. HEALTH INEQUALITIES: Addressing inequalities in access to, and effectiveness of, BP optimisation care (and implications for Core20PLUS5 priority groups, e.g., most deprived 20%, certain ethnic groups, age, sex, and unwarranted variation at practice/Primary Care Network level).

3. PRIMARY CARE WORKFORCE: Acceptability and sustainability of new ways of working, including implications for workload across the primary care team.

4. What were the enablers and barriers to the adoption/rollout of each initiative? Which initiatives delivered the biggest positive impact, what facilitated that impact, and what were the barriers to its adoption?

5. How has the uptake of home BP assessment improved 'treatment to target'?"

We therefore carried out a further appraisal of the quantitative data available against these questions, and supplied the following feedback at the end of Jan 2023:

Table 27: Re-appraisal of data availability to address rescoped evaluation questions (Jan 23)

Prospective Evaluation Questions Jan 2023:	Notes on data availability:
<p>As C&M ICS and Places recover from the wider impacts of the Covid-19 pandemic, what impacts have BP optimisation initiatives (BPQI, BP@home, Digital First in Primary Care) had on:</p> <ol style="list-style-type: none"> 1. BP CONTROL: Recorded BP ‘treatment to target’ (and implications for achieving the new ‘77% control by March 2024’ target)? 	<p>CVD Prevent and QOF datasets provide GP practice level data showing the level of BP control and how this has changed over time. We would not currently be able to attribute movement in these metrics to BP optimisation initiatives, without details of how these have been implemented at practice, PCN, or place level.</p>

<p>2. HEALTH INEQUALITIES: Addressing inequalities in access to, and effectiveness of, BP optimisation care (and implications for Core20PLUS5 priority groups, e.g., most deprived 20%, certain ethnic groups, age, sex, and unwarranted variation at practice/Primary Care Network level)</p>	<p>While CVD Prevent data allows for the performance against the key hypertension control metrics to be split by deprivation quintile, this is only at sub-ICB (CCG) level. We would therefore only be able to say whether the level of BP control for the most and least deprived quintiles had improved proportionately, but not to identify any variation across GP practices or PCNs. The same dataset provides splits by age band, sex, and ethnicity at PCN level (but not GP practice), but is subject to rounding, data suppression processes, and data omissions that limit its value for low patient number measures, such as the number of BP controlled hypertensive patients by ethnic group. Within the CVD prevent dataset nationally, more than 20% of patients have no ethnicity recorded. Extraction of local data from GP practice systems could be used to overcome these issues, but this would require agreement on the use of GP data for this purpose and the commitment of BI resources within the ICB. As with the point above, to ascribe impact on these outcome metrics to BP optimisation initiatives will also require more detailed description of the interventions carried out and their variation across the ICB than we currently have available.</p>
<p>3. PRIMARY CARE WORKFORCE: Acceptability and sustainability of new ways of working, including implications for workload across the primary care team</p>	<p>The datasets currently supplied don't allow us to quantify the workforce implications of the initiatives. This would require a bespoke data collection.</p>
<p>4. What were the enablers and barriers to the adoption/rollout of each initiative? Which initiatives delivered the biggest positive impact, what facilitated that impact, and what were the barriers to its adoption?</p>	<p>If we are able to better describe the interventions carried out in each practice/PCN then it may be possible to examine the extent to which this corresponds to higher or lower performance against the key BP control metrics, and therefore to offer some insights on which initiatives were potentially linked to improved BP control. Insights into the enablers and barriers associated with each initiative would be mainly qualitative and require local engagement.</p>
<p>5. How has the uptake of home BP assessment improved 'treatment to target'?</p>	<p>To date we have currently only been supplied with data for home BP readings at GP practice or PCN level for Wirral practices. If we can obtain this data more widely, with consistent definitions (such as separating numbers of readings from numbers of patients), then it might be possible to examine the extent to which higher levels of home BP readings are associated with improved BP control.</p>

During February and March 2023, we received back the completed data collection template for each ICB place. The level of data completeness and data consistency, however, was relatively low, and the template was supplied with significant caveats and omissions for key

data fields. On 3rd April we met with BI leads for Cheshire & Merseyside ICB to discuss the potential options to improve the level of completion of the template or to obtain the missing data from other sources. We were informed that the missing data items we had requested were a reflection of incomplete data in the underlying GP practice systems, and were due to a lack of use of the specified codes needed to identify the key activities. On this basis, it was therefore agreed with the project team that we would base our quantitative analysis on the data available to us, noting the remaining gaps, and adopting a qualitative approach to try and mitigate these.

Appendix 9: Reconciliation of Highest, Lowest and Most/Least Improved Practice Sample Lists

The table below show a comparison of the GP practice sample derived from data for the 12 months to September 2022, versus the refreshed dataset for the 12 months to March 2023 (CVD Prevent published data). In most cases, where practices were ranked as higher or lower performing in the original sample, they remained significantly above or below average (as shown in the ranking scores below) in the refreshed version, even if they were no longer ranked in the highest or lowest 20.

Table 28: Best Performing GP Practices in Cheshire & Merseyside: Combined Treatment to Target – Sept 22 vs Mar 23

Org Code	Name	C&M Place/Sub ICB	Combined Treatment to Target BP Percentage			Flag	Also in 20 Most Improved List?	Performance Rank			Improvement Rank		
			19/20 QOF % to Target	CVD Prevent Comb % to Target Mar21	CVD Prevent Comb % to Target Sep22			Rank in Sep22 Data	Rank in Mar23 Data	Change in Ranking	Rank in Sep 22 Data	Rank in Mar23 data	Change in Ranking
N83043	LONGVIEW MEDICAL CENTRE	Knowsley	85.52	61.29	87.65	Highest 20	20 Most Improved	2	104	-102	19	310	-291
N82003	DOVECOT HEALTH CENTRE	Liverpool	85.01	77.42	79.79	Highest 20	No	3	2	1	84	124	-40
N81127	THE WEAVER VALE SURGERY	Cheshire	76.88	67.07	79.73	Highest 20	20 Most Improved	4	27	-23	15	95	-80
N84625	THE FAMILY SURGERY	Southport & Formby	74.43	70.53	78.08	Highest 20	20 Most Improved	5	53	-48	11	94	-83
N81123	WILLOW WOOD SURGERY	Cheshire	78.84	66.85	77.88	Highest 20	No	6	12	-6	38	85	-47
N82033	DINGLE PARK PRACTICE	Liverpool	85.45	77.06	77.04	Highest 20	No	7	9	-2	143	203	-60
N83018	STOCKBRIDGE VILLAGE HC	Knowsley	79.38	66.39	76.78	Highest 20	No	8	52	-44	57	194	-137
N81125	NESTON MEDICAL CENTRE	Cheshire	75.40	63.16	76.76	Highest 20	20 Most Improved	9	44	-35	21	96	-75
N81071	GREENMOSS MEDICAL CENTRE	Cheshire	80.19	64.68	76.69	Highest 20	No	10	34	-24	62	179	-117
N85025	ST HILARY GROUP PRACTICE	Wirral	71.30	66.45	74.94	Highest 20	20 Most Improved	11	61	-50	12	53	-41
N82664	ROCKY LANE MEDICAL CENTRE	Liverpool	73.46	80.90	74.69	Highest 20	No	12	127	-115	23	171	-148
N85037	HEATHERLANDS MED CTR	Wirral	77.14	47.01	74.48	Highest 20	No	13	11	2	58	57	1
N81038	LAUREL BANK SURGERY	Cheshire	76.15	63.92	74.46	Highest 20	No	14	39	-25	47	101	-54
N81030	PRINCEWAY SURGERIES	Cheshire	72.73	53.76	74.39	Highest 20	20 Most Improved	15	22	-7	20	28	-8
N81113	MIDDLEWICH ROAD SURGERY	Cheshire	80.60	75.92	74.23	Highest 20	No	16	16	0	107	147	-40

Org Code	Name	C&M Place/Sub ICB	Combined Treatment to Target BP Percentage			Flag	Also in 20 Most Improved List?	Performance Rank			Improvement Rank		
			19/20 QOF % to Target	CVD Prevent Comb % to Target Mar21	CVD Prevent Comb % to Target Sep22			Rank in Sep22 Data	Rank in Mar23 Data	Change in Ranking	Rank in Sep 22 Data	Rank in Mar23 data	Change in Ranking
N82048	WALTON MEDICAL CENTRE	Liverpool	80.31	50.00	74.19	Highest 20	No	17	82	-65	102	239	-137
N82655	MOSS WAY	Liverpool	69.48	72.41	74.09	Highest 20	20 Most Improved	18	5	13	9	6	3
N84614	THE MARSHSIDE SURGERY	Southport & Formby	79.83	76.67	74.07	Highest 20	No	19	45	-26	95	187	-92
N81111	MEREPARK MEDICAL CENTRE	Cheshire	79.29	65.14	73.73	Highest 20	No	20	32	-12	90	159	-69
N81069	CHELFORD SURGERY	Cheshire	74.76	69.44	73.67	Highest 20	No	21	23	-2	41	59	-18

Table 29: Lower Performing GP Practices in Cheshire & Merseyside: Combined Treatment to Target – Sept 22 vs Mar 23

Org Code	Name	C&M Place/Sub ICB	Combined Treatment to Target BP Percentage			Flag	Also in 20 Least Improved List?	Performance Rank			Improvement Rank		
			19/20 QOF % to Target	CVD Prevent Comb % to Target Mar21	CVD Prevent Comb % to Target Sep22			Rank in Sep22 Data	Rank in Mar23 Data	Change in Ranking	Rank in Sep 22 Data	Rank in Mar23 data	Change in Ranking
Y00446	MAGHULL PRACTICE	South Sefton	62.69	46.55	42.59	Lowest 20	No	324	243	81	282	116	166
N85021	HAMILTON MED CTR	Wirral	72.56	NULL	42.14	Lowest 20	20 Least Improved	325	299	26	337	323	14
N82676	FIR TREE	Liverpool	57.17	22.95	42.11	Lowest 20	No	326	292	34	239	118	121
N84011	EASTVIEW SURGERY	South Sefton	61.84	NULL	42.02	Lowest 20	No	327	318	9	278	260	18
N81623	STRETTON MEDICAL CENTRE	Warrington	66.42	29.30	41.81	Lowest 20	No	328	304	24	313	290	23
N82668	WALTON VILLAGE MEDICAL CENTRE	Liverpool	64.97	34.29	41.78	Lowest 20	No	329	200	129	307	90	217
N83031	ROSEHEATH SURGERY	Knowsley	69.92	38.36	41.62	Lowest 20	20 Least Improved	330	321	9	329	334	-5
N84035	15 SEFTON ROAD	South Sefton	55.36	35.68	41.61	Lowest 20	No	331	331	0	218	237	-19
N81068	GROSVENOR MEDICAL CENTRE	Cheshire	72.15	18.27	41.56	Lowest 20	20 Least Improved	332	303	29	338	324	14
N83610	COLBY MEDICAL CENTRE	Knowsley	67.01	30.26	40.82	Lowest 20	No	333	328	5	320	328	-8
N85643	PRENTON MEDICAL CENTRE_MURUGESH V	Wirral	69.79	32.20	40.48	Lowest 20	20 Least Improved	334	342	-8	334	342	-8

Org Code	Name	C&M Place/Sub ICB	Combined Treatment to Target BP Percentage			Flag	Also in 20 Least Improved List?	Performance Rank			Improvement Rank		
			19/20 QOF % to Target	CVD Prevent Comb % to Target Mar21	CVD Prevent Comb % to Target Sep22			Rank in Sep22 Data	Rank in Mar23 Data	Change in Ranking	Rank in Sep 22 Data	Rank in Mar23 data	Change in Ranking
N84015	BOOTLE VILLAGE SURGERY	South Sefton	61.50	48.84	40.45	Lowest 20	No	335	339	-4	295	333	-38
N85629	EGREMONT MED CTR	Wirral	51.87	37.76	39.76	Lowest 20	No	336	319	17	202	91	111
N83045	NEWTON MEDICAL CENTRE	St Helens	78.21	29.41	39.12	Lowest 20	20 Least Improved	337	170	167	344	283	61
N83025	CORNERWAYS MEDICAL CENTRE	Knowsley	63.11	28.26	38.81	Lowest 20	No	338	341	-3	312	337	-25
N83028	ASTON HEALTHCARE LIMITED	Knowsley	70.31	30.93	38.81	Lowest 20	20 Least Improved	339	332	7	341	339	2
N82107	EDGE HILL HEALTH @ MOSSLEY HILL SURGERY	Liverpool	68.90	23.64	38.25	Lowest 20	20 Least Improved	340	274	66	339	272	67
N84010	MAGHULL FAMILY SURGERY	South Sefton	46.91	20.10	37.90	Lowest 20	No	341	336	5	153	130	23
N83609	CEDAR CROSS MEDICAL CENTRE	Knowsley	63.34	22.14	37.78	Lowest 20	No	342	102	240	318	17	301
N82004	GARSTON FAMILY HEALTH CENTRE	Liverpool	62.44	37.50	34.94	Lowest 20	20 Least Improved	343	317	26	326	267	59

Appendix 10: Rapid Evidence Scan

A member of the project team identified a small number of studies from the national evaluation of the BP@home Trailblazer sites (Mata-Cervantes and Solomons, 2022) and the C&M HCP & NHS Midlands & Lancashire CSU Blueprint on digital enablers of home blood pressure monitoring in general practice. The potential benefits identified in the BluePrint included reduced appointments, increased cost-effectiveness and reduced costs incurred by hypertension such as through less hospital admissions.

An ultra-rapid evidence scan was undertaken to better understand the evidence underpinning the BP@home initiative (Table 30). A key observation is the reported limitations of key studies; 3/5 were excluded from the [NICE 2019 Evidence review on monitoring](#) or graded as low or very low evidence. The NICE review concluded that “Due to the low quality of the evidence, the committee agreed it was not robust enough to make a strong recommendation to offer home blood pressure monitoring.”

Key questions were raised about the evidence supporting home BP monitoring:

Whether the effect on BP by remote monitoring sustains over time

The two low or very low graded studies, Tucker et al (2017) and McManus et al (2018) found improvements in systolic BP compared with usual care. Tucker et al (2017) indicated that the effect may wane over time e.g., at 18 months, although McManus et al (2018) found 12 months produced more effect than 6 months for self-monitoring. McManus et al (2018) saw less patients at follow-up in intervention groups vs. usual care, which may also point to more attrition with remote monitoring over time.

Medication being the likely mechanism by which remote monitoring improved BP

The improved effect of remote monitoring compared with usual care seems to be associated with more medications (Hammersley, McManus et al, 2018) and the difference was greater for patients whose BP was uncontrolled (Hammersley, 2020) – but these were also overrepresented in patients who discontinued.

The importance of the intensity of co-intervention

Tucker et al (2017) and Uhlig et al (2013) indicated that intensity of co-intervention with self-monitoring (e.g. feedback and education, or counselling) seemed to matter, but studies’ varying protocols make it difficult to assess (hence the exclusion of the Uhlig et al (2013) study and the very low grade of the Tucker (2017) study in the NICE evidence review).

The importance of the reading submission method

Patients in the HealthWatch report mainly submitted readings by post and a key recommendation was better solutions for submitting readings. The national evaluation (Mata-Cervantes and Solomons, 2022) reported challenges with engaging patients in submitting readings and in ensuring readings were captured. A key element of the Scale Up BP project in Lothian was a system which summarised readings alongside routine lab results, which may explain some of their conclusions on time-saving for the workforce.

The potential importance of time-saving for the workforce and patient

The evidence on time-saving (Hammersley, 2020) was not convincing, although larger practices’ experiential reflection was that it did save time. However, convenience and time saving for patients was a key theme of the HealthWatch report on BP@home, as well as peace of mind and calm (some of which specifically in contrast to going to the surgery) and feeling in control and informed.

The homogeneity of participants

There is a possible issue with reproducibility across population as the average participant tended to be in their 60s, mostly white, and were mostly more affluent.

Table30: Rapid evidence scan

HealthWatch. (2022). The public’s experience of monitoring their blood pressure at home.	
Background	<ul style="list-style-type: none"> • Focussed on 5 local HealthWatch areas: Hampshire, Oxfordshire & Bucks, Gloucestershire, Darlington & Hammersmith & Fulham) – and was later opened to ‘trailblazing’ sites • Sampled anyone who measured BP remotely. 47% had a disability. 65% over 65, 88% white British
Methods	<ul style="list-style-type: none"> • Quantitative online survey (484 responses from ‘early mover’ sites and 54 from ‘trailblazer’ sites) • 25 interviews (5 on the BP@home programme)
Results	<ul style="list-style-type: none"> • 1/4 were asked to submit readings on an ongoing basis, third short period only. Paper most common, 1/8 used app or website. 99% had access to or own at least one internet able device. 26-28% unsure, probably or definitely would not use an app/website to submit readings (10% unsure) • 15% neither asked to submit readings or told what to do if had high or low reading • Not clearly explained to 33% why monitor BP and 61% what happened to readings • Provision of monitor small improvement theme vs. ease of submitting readings/getting feedback. Instructions on taking readings better than on submitting them. Patients found taking easier • 70-75% understood BP, monitoring=peace of mind, saved time/effort, motivated them re. BP control • Only 33% agreed BP stabilised or improved since monitoring. 55% healthier lifestyle • Key themes on benefits - convenience and ease, peace of mind and calm (some of which specifically in contrast to going to the surgery), feeling in control and informed
Conclusions	<ul style="list-style-type: none"> • 6 recommendations: better information, guidance and support on taking/submitting, better solutions for submitting readings, feedback on readings and ongoing support, advice on improving BP, acknowledge concerns among patients and access to GP if required
Limitations	<ul style="list-style-type: none"> • Ethnic minorities under-represented • Questions on GP experience only asked of those who were given or lent monitors by GP (3%, N=12)
Tucker et al (2017) Self-monitoring of blood pressure in hypertension: A systematic review & individual patient data meta-analysis.	
Background	<ul style="list-style-type: none"> • Medline, Embase and Cochrane Library searched for randomised trials comparing self-monitoring to no self-monitoring in hypertensive patients
Methods	<ul style="list-style-type: none"> • Meta-analysis of Individual Patient Data from 25 trials. 19 published data at 12 months, but 4 did not provider individual patient data. • Data for primary outcomes (change in mean BP and proportion controlled below target)
Results	<ul style="list-style-type: none"> • At 12 months, self-monitoring associated with reduce systolic and diastolic BP compared to usual care but with significant differences between studies. 5 studies at 18 months showed smaller point estimates • At 6, 12 and 18 months, clinic BP control was improved • Reductions in systolic BP varied with 4 different levels of intervention: none = -1.0mmHg, highest level personal support -6.1mmHg. CI overlapped. Diastolic similar but lower difference, -1.1 vs -2.3.
Conclusions	<ul style="list-style-type: none"> • Effect of reduction clinical systolic BP strongly influenced by intensity of co-intervention (e.g., feedback and education, or counselling) - no effect with self-monitoring alone. • Most effective on those with higher BP and on fewer medications
Limitations	<ul style="list-style-type: none"> • NICE evidence review graded it VERY LOW due to risk of bias, indirectness, imprecision
Uhlig et al (2013) Self-measured blood pressure monitoring in the management of hypertension: a systematic review and meta-analysis.	

Background			
Methods	<ul style="list-style-type: none"> • 26 studies found; meta-analysis of 19 of these. 	<ul style="list-style-type: none"> • 25 studies found, no meta-analysis because studies too different • Additional support included educational materials, letters to patients and providers on treatment recs, web resources, phone monitoring with electronic transmission of BP data, telecounseling, behavioural management, medication management with decision support, nurse or pharmacy visits, calendar pill packs and adherence contracts. 	<ul style="list-style-type: none"> • 13 studies found • Behavioural interventions/disease management by nurse or pharmacist, meds management, educational interventions, transmission of measurements, websites/training for patient-provider comms, tele monitoring, BP and med tracking tool, information leaflets or home visits
Results	<ul style="list-style-type: none"> • No change at 2 months, statistically significant changes in systolic & diastolic BP at 6 months but not at 12 months. 	<ul style="list-style-type: none"> • 5 studies reported mean net reduction in systolic or diastolic BP • Additional support: telemonitoring and counseling on patient adherence to medication, web-based pharmacy counseling, telemonitoring with self-titration, telemonitoring with nurse videoconference and combined medication-behavioural management • 2 studies found it at 24 months • 5 studies reported statistically significant higher proportion of patients achieved BP target. 2 trials ambulatory BP outcomes 	<ul style="list-style-type: none"> • 11 studies mixed results
Conclusions	<ul style="list-style-type: none"> • Moderate strength evidence for improvement in BP using self-monitoring vs usual care 	<ul style="list-style-type: none"> • High strength evidence for reduction in BP using SMBP monitoring plus additional support compared with usual care 	<ul style="list-style-type: none"> • Low strength evidence
Limitations	<ul style="list-style-type: none"> • Excluded from NICE evidence review because description of “usual care” was either not given or participants were told not to have their blood pressure measured for the duration of the trials (in these trials, the investigator measured all participants’ blood pressure at specified time-points). Also, the treatments given within trials were not standardised for all ppts. 		

McManus et al (2018). Efficacy of self-monitored blood pressure, with or without telemonitoring, for titration of antihypertensive medication (TASMINH4): an unmasked randomised controlled trial.

Background	<ul style="list-style-type: none"> • TASMINH4 trial, funded by NIHR, UK
Methods	<ul style="list-style-type: none"> • Parallel RCT 142 GPs - self monitoring vs self-monitoring with telemonitoring vs usual care • Patients with uncontrolled BP recruited, average age 67, equal gender split but most white British • 1182 randomly assigned to one of the groups, analysis based on 1003 • Ppts self-monitored their BP twice a day every first week of the month and submitted readings by post (self-monitoring) or by free text message (tele-monitoring) and the GP then adjusted the medication if necessary.
Results	<ul style="list-style-type: none"> • At 12 months, systolic BP lower in both intervention groups compared with usual care (3-4mm HG) <ul style="list-style-type: none"> - Additional medication compared with usual care. No evidence of a non-pharmacological effect • At 6 months, systolic BP significantly lower in telemonitoring group (3.5mm HG), but not in self-monitoring group • No evidence of differences in diastolic BP at either period • No difference in self-reported adherence between 3 groups at either period, but less patient at follow-up in intervention groups vs. usual care (83 vs. 88%) • Similar consultation rates but might have failed to capture additional workload of self-monitoring
Conclusions	<ul style="list-style-type: none"> • No difference between telemonitoring and self-monitoring

Limitations	<ul style="list-style-type: none"> NICE evidence review graded it LOW due to risk of bias and indirectness. A number of other trials by same group were excluded from the review - The TASMIN-SR trial due to more than 20% population indirectness
Margolis et al (2020) Cardiovascular events & costs with home blood pressure telemonitoring & pharmacist management for uncontrolled hypertension.	
Background	<ul style="list-style-type: none"> Hyperlink study in the US in 16 primary care clinics Fortnightly telephone calls with pharmacist in first 6 months until BP control sustained for 6 weeks. Bi-monthly calls following 6 months. Pharmacists could prescribe/change antihypertensive therapy. Ppts mean age of 61, 82% white, 10-20% comorbidities
Methods	<ul style="list-style-type: none"> 450 patients analysed to telemonitoring intervention or usual care (8 clinics with 228 patients TI, 8 clinics with 222 patients UC) BP measured at research clinic visits at 6, 12, 18 and 54 months – also extracted routine clinical BP measurements from electronic health records Reported CV events (via search of electronic health records/insurance claims) and costs over 5 years Calculates various ROI figures based on cardiac events 2 analyses - microsimulation analysis to determine whether observed CV events were similar to model predicted results. Model initialised with virtual counterparts of the patients in each study group Exploratory comparison of cardiovascular events in 5 year follow up period
Results	<ul style="list-style-type: none"> TI: 15 CV events in 10 ppts; UC: 26 CV events in 19 ppts. Model predicted TI 18 and 20.5 UC. Cost of intervention per patient around \$1500 Net costs saving of about \$1241 per patient – ROI 82%. If coronary revascularization was included increase to \$1792 – ROI 119%. Including med costs reduces ROI to 71 & 105% At 12 months, systolic BP was 10mm Hg lower & diastolic BP was 5mmHG lower in TI than UC group
Conclusions	<ul style="list-style-type: none"> Telemonitoring with pharmacist management lowered BP and may have reduced costs by avoiding CV events over 5 years
Limitations	<ul style="list-style-type: none"> Only the microsimulation analysis was prespecified – study not powered for comparison analysis and reduction in CV events was not statistically significant Relatively small trial, single medical group in urban and suburban clinics, few minority/low socioeconomic status ppts
Hammersley et al (2020). Telemonitoring at scale for hypertension in primary care: an implementation study. PLoS Medicine, 17(6), e1003124.	
Background	<ul style="list-style-type: none"> Quasi-experimental implementation study with qualitative process evaluation in Lothian, Scotland. Scale up BP implementation project – routine care rather than research setting. Approach: Demonstrated potential to improve outcomes & save time. Provided ongoing training/support, local champions, flexibility in target groups, clinician involvement & learning shared in newsletters Median age of ppts 64 years, Scottish IMD of 8 Ppts submitted readings by text, regular summaries of home readings delivered to GP alongside routine lab results
Methods	<ul style="list-style-type: none"> 75/126 primary care practices enrolled 3,200 patients with hypertension. Evaluation group of 8 practices; measured patient engagement & adherence, resource & medication use, BP change over time. Gauged clinician & patient acceptability/ Semi structured F2F interviews with patients, GPs, practice nurses and HCAs Data extracted from electronic health records and deidentified
Results	<ul style="list-style-type: none"> 7% difference in face-to-face appointments, saving 15 minutes per patient. 7% attrition. People with less well-controlled BP were overrepresented in those who discontinued. Systolic ↓ 6mm HG Diastolic 4mm HG. Greater if uncontrolled - 13mm Hg in Systolic BP if >135, no change if <135 Small increase in total number of prescriptions (1.06)

Conclusions	<ul style="list-style-type: none"> • Differences in BP greater for those whose BP was initially uncontrolled • Clinician found that getting regular reports integrated with their usual data handling practices was particularly helpful • Initially, starting patients on the system was seen as time-consuming • Practices with large numbers of patients believed it was saving them time
Limitations	<ul style="list-style-type: none"> • Practices and patients self-selected, younger and more affluent patients • Excluded patient appointments over 30 minutes (3%), 7% not recorded and consultations within 2 weeks of starting telemonitoring/anchor point in control group (increased consultation in those 2 weeks) • Did not capture time spent by clinicians in evening recruitment meetings - 90 minutes x2 clinicians, usually recruited 70 patients (2.5 minutes per patient). Also not captured time spent dealing with abnormal reports in ad hoc way. • 118/430 patients had valid resource use data

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