



Executive Summary

**Establishing the impact of remote monitoring in
general practice in North East England – Real-World
Evaluation.**

Dr Annette Payne

Dr Christabel Ihedike

Laura Kane

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Summary

This project was funded by the Academic Health Science Network for the North East and North Cumbria (AHSN NENC), now Health Innovation North East and North Cumbria (HI NENC). HI NENC led the project in collaboration with five general practitioner surgeries within the Tyne and Wear area and commissioned the University of Sunderland to produce this independent real-world evaluation report.

This project aimed to evaluate the effectiveness of newly implemented remote monitoring pathways in five general practice surgeries and the clinicians' experiences with implementing remote monitoring pathways. This mixed methods evaluation demonstrates the benefits, challenges, and future directions for remote monitoring within general practice surgeries.

This executive summary will discuss the benefits, challenges, and future directions of remote monitoring in general practice surgeries.

Aims of the evaluation:

- 1) **Aim:** How effective is remote monitoring in reducing GP/Nurse/Healthcare professionals (HCP) appointments?
- 2) **Aim:** How effective is remote monitoring in improving patient access to appointments?
- 3) **Aim:** Does remote monitoring reduce cost?
- 4) **Aim:** Does remote monitoring reduce appointment time?
- 5) **Aim:** What are clinicians' experiences when implementing remote monitoring into practice?

Background

General Practitioners (GPs) are considered the bedrock of the NHS, with public and patient satisfaction previously reported as higher than 85% (NHS, 2017). Each year, GPs in the UK conduct over 300 million consultations with patients. Compared to Accident and Emergency, which experience approximately 23 million patient visits per year. The cost of general practice consultations is considerably less than the cost of Accident and Emergency visits. However, patient satisfaction has declined, particularly in the 16–25-year-old demographic (NHS, 2019). The NHS *Long Term Plan* (2019) is committed to giving every patient the right to digital consultations with GPs. According to the NHS (2019), many GPs now offer telephone or eConsult appointments. The NHS (2019) asserted the need to modernise and digitalise primary care, referring to a '*digital-first primary care*' within the next five years, due to cost saving, convenience, popularity, improved access, and time-saving potential. Remote patient monitoring is commonly referred to as telemonitoring, and it is a strategy that enables practitioners to observe their patient's physiology remotely, which allows for intervention where needed (Serrano et al., 2023).

UK policymakers have asserted that the use of alternative methods of appointments in primary care settings may have a transformative effect on staff and patients, such as reducing staff workload and increasing appointment accessibility for patients (Department of Health, 2012; NHS, 2016). Although such methods have been encouraged at a policy level, general practices were slow to implement such practices (Brant et al., 2016). Hesitancy to implement such changes was related to concerns about patient safety and staff workload (Atherton et al., 2013). However, the use of telephone appointments has been utilised widely in general practice (Atherton et al., 2018), and telemedicine as a whole became central to the continuity of care during the COVID-19 pandemic (Barkai et al., 2020). However, remote consulting is still in its infancy, and moving to whole remote consulting would be premature, as more research, training, and user-friendly technology are required (Neunaber & Meister, 2023).

Evaluation project process

Ethical approval was applied for and awarded from the University of Sunderland under application 022505 in December 2023 for data collection and analysis. Project governance approval was applied for and awarded in November 2023.

Five GP surgeries were provided with funding to implement a minimum of one remote pathway. The initial meeting occurred in July 2023, and the implementation of pathways occurred in July 2023. GP surgeries and remote monitoring champions were instructed to collect baseline and intervention data specific to their pathways.

Pathways for each surgery are listed below:

- 1) UTI Pathway
- 2) Contraceptive pill check pathway
- 3) BP self-monitoring pathway and Diabetes pathway
- 4) Hypertension and HRT new starters pathway.
- 5) Contraceptive pill check and new patient pathway

The evaluation utilised a mixed methods methodology, integrating qualitative and quantitative approaches, to provide a more holistic understanding (Creswell & Plano Clark, 2017). Mixed methods designs are valuable when the research undertaken aims to inform policy (Brannen, 2005).

Quantitative Aims and Findings

The quantitative findings present the analysis conducted to evaluate the effectiveness of remote monitoring in the five General Practice surgeries. The Diabetes pathway did not result in quantifiable data at the point of data collection, and thus, no quantitative analysis was conducted for this specific pathway. The key findings include improved patient outcomes, cost and time savings, enhanced access to care, provider satisfaction, cost savings, and challenges and barriers. Descriptive statistics were used to provide an analysis to the collected data. Descriptive statistics summarise and describe the main features of a dataset. Descriptive statistics help to identify patterns and relationships between variables.

The aims mentioned previously are now presented with their individual finding and a discussion of what these findings suggest:

1) Aim: How effective is remote monitoring in reducing GP/Nurse/Healthcare appointments?

Finding: The data indicates that an increase in remote monitoring in general surgeries is associated with a decrease in GP/nurse/HCP appointments as a whole, including face-to-face appointments.

What does this mean? Remote monitoring pathways significantly decrease appointments in general practice surgeries and considerably reduce in-person appointments. A decrease in appointments, particularly in-person, can lead to cost savings and time savings for general practice surgeries. It also provides space for patients requiring in-person and urgent appointments, which may enhance patient satisfaction and willingness to contact their surgery when needed.

2) Aim: How effective is remote monitoring in improving patient access to appointments?

Finding: The analysis indicates that increased remote monitoring is associated with improved patient access to appointments.

What does this mean? When remote monitoring is successfully implemented and appointments are significantly reduced, general practice surgeries have

the availability for patients to access needed appointments. This suggests that greater access to appointments in general practice surgeries may increase patient safety. Patient safety underpins the ethos of general practice surgeries and highlights the importance of remote monitoring.

3) Aim: Does remote monitoring reduce cost?

Finding: The analysis demonstrated a significant time and cost reduction with a reduction in the appointment length.

What does this mean? The analysis suggests that remote monitoring reduces the cost of general practice surgeries by reducing appointments and appointment length. The reduction of appointments and appointment times from remote monitoring is significantly greater than the number and length of appointments in traditional general practice. Decreasing costs in general practice surgeries may enable a more sustainable method of patient care and provide greater continuity of care.

4) Aim: Does remote monitoring reduce appointment time?

Finding: The outcome of the analysis appears to be most effective for number and time-reduced appointments.

What does this mean? Overall, the analysis shows that remote monitoring significantly reduces the number of appointments given and the amount of time spent on each appointment. Therefore, remote monitoring, overall, may enhance patient and provider satisfaction, access and continuity of care, and patient safety, and indicates the potential for a sustainable and environmentally friendly way of working in general practice surgeries.

Qualitative Findings

Three themes were identified from the thematic analysis (Braun & Clarke, 2006).

Theme One, *Benefits of remote monitoring*, has two subthemes: **Subtheme**

One, *Benefits for staff* and **Subtheme Two**, *Benefits for patients*. **Theme Two**: *The challenges of remote monitoring*. **Theme Three**: *Future directions for remote monitoring*. See Table 1 for themes and associated quotes.

Theme One: Benefits of remote monitoring

This theme illustrated the value of remote monitoring for both patients and clinicians. The first subtheme, *Benefits to staff*, highlighted a positive experience with many benefits, including time-savings, cost-savings, decreased workload, appointment reductions, and timely reviews. Subtheme Two identified the benefits of remote monitoring for patients, which included a greater sense of empowerment, more access to appointments where needed, enhanced patient safety and greater provisions of person-centred practice.

Theme Two: Challenges of remote monitoring

A multitude of challenges were experienced during the implementation period. For some, short staffing during the implementation increased work-related strain. Others felt there was little reward for the extent of work put into implementing the changes. There were concerns that the new approach was symptom-centred rather than person-centred. Some GPs felt there was a risk of exacerbating already established health inequalities and disparities of some populations who are already hardly reached by services. There were also concerns about patient satisfaction, particularly in the ageing community.

Theme Three: Future steps for remote monitoring

In this theme, GPs discussed the changes they want to see before a permanent roll-out. Some GPs felt no changes were required and were motivated to support a permanent roll-out. However, some GPs felt staff training was needed to enhance uptake and success. Likewise, staff motivation to engage before implementation was viewed as key to success. Furthermore, it was felt that more appropriate apps for the specific task were required to reduce the burden and increase efficiency.

Table 1: Themes and associated quotes.

Themes	Quotes
<p>Theme One: Benefits of remote monitoring.</p> <p>Subtheme One: Benefits for staff.</p> <p>Subtheme Two: Benefits for patients.</p>	<p>Subtheme One: <i>'Ensures clinicians have appropriate information prior to the appointment' (GP 1).</i></p> <p><i>'Reduced number of papers diary's- Greener practice initiative' (GP 5).</i></p> <p>Subtheme Two: <i>'Empowered if measuring own blood pressure' (GP 4.1).</i></p> <p><i>'Yes. More nurse appointments are now available to manage patient with long term conditions' (GP 3.1).</i></p>
<p>Theme Two: The challenges of remote monitoring.</p>	<p><i>'Have had to introduce changes at a time when medical staffing has been particularly tight' (GP 2).</i></p> <p><i>'More time consuming for receptionist to explain new process than just booking an appointment without question' (GP 4.2).</i></p> <p><i>'This moves towards a symptom-centred approach rather than a person-centred approach' (GP 1).</i></p>
<p>Theme Three: Future directions for remote monitoring</p>	<p><i>'No Changes. Would support a permanent roll-out' (GP 3.2).</i></p> <p><i>'All staff need to be aware of the technology and how things work – not just those exposed to this on the front line' (GP 2)</i></p> <p><i>'Send reminder texts promoting self-booking using NHS app rather than Accurx self-booking link as the former can be sent in batches' (GP 4.1).</i></p>

Lessons Learned and Next Steps

This project examined the experiences and effectiveness of implementing remote monitoring in five general practice surgeries in North East England.

Valuable insights were gained, which led to important insights for the future of remote monitoring beyond general practice surgeries and into many other realms of healthcare. The lessons learned from this project may lead to further development and implementation of remote monitoring through refining and extending the knowledge obtained.

- **Lesson One:** This project focussed on one specific area of England. A larger scale project, at a national or cross-regional level, may further evidence the value of remote monitoring, leading to essential changes to policy and practice.
- **Lesson Two:** A co-production approach focussing on the needs of both practitioners and patients may ensure that remote monitoring benefits the whole system. Co-production was beyond the scope of this project due to time constraints. Thus, future research endeavours into remote monitoring should include more time for a co-production approach. This approach would further embed person-centred values into research, practice and policy.
- **Lesson Three:** Extending beyond general practice surgeries and into the broader realms of healthcare within the UK. The healthcare system as a whole is struggling to keep up with demand, and its resources are continually depleted. This project has highlighted the value of remote monitoring regarding meeting demand and increasing resources by using alternative working methods. Thus, remote monitoring may enhance the sustainability, effectiveness, and patient and clinician experiences within the broader healthcare system. Further research is required to examine broader healthcare remote monitoring systems' acceptability, appropriateness, effectiveness, and experiences.
- **Lesson Four:** This project has illustrated how the guidance put forth in the NHS (2019) *Long-Term Plan* can be attained on a small scale and the positive impact this can have. It is the role of future research to examine whether this can be applied on a larger scale. The research provided here indicates that remote monitoring in healthcare may have a considerable positive impact on health services.

Recommendations and Future Directions

The mixed methods analysis provides a balanced overview of the remote monitoring intervention's experiences and findings, enabling valuable insights to guide future practices. Recommendations are as follows:

- It is essential to ensure all staff are provided with the knowledge, resources, and support to implement such change. This approach would provide the foundation for greater uptake and motivation to implement remote monitoring procedures.
- Staff should be provided with short-term incentives to enhance consistent motivation to engage.
- When implementing remote monitoring in general practice, a whole system approach to design, data collection and analysis would enable a more rigorous approach to data analysis.
- Likewise, a whole system approach to the design and development of pathways would enhance pathway implementation by using the most appropriate and effective systems, providing a smoother transition from traditional working methods to alternative methods such as remote monitoring.
- A greater scale out of remote monitoring pathways at a national level would produce actionable findings to inform policy and practice.

Conclusion

Overall, this project has shown the valuable and far-reaching potential of remote monitoring in general practice surgeries. The benefits of this approach included time-saving, cost-saving, appointment reductions, greater access to appointments for those in need, enhanced patient safety, enhanced practitioner and patient satisfaction, the potential for greater patient empowerment, general practice sustainability and eco-friendliness. However, it is essential that benefits to this approach are seen in light of the limitations from data collection and subsequent analysis, which can, at this time, only suggest the above-mentioned benefits are indicated; a more rigorous approach in the future may solidify these findings. Likewise, challenges were experienced, which highlights the need for greater depth and rigour in the design, development and implementation of remote monitoring methods of working. This project experienced considerable time constraints, and thus it is essential for future research and practice that greater time is taken to ensure a smoother transition to remote working is achieved in general practice surgeries. Furthermore, future research may include a patient led steering group to ensure the needs of the patients, from diverse backgrounds continue to met, or where possible enhanced from new ways of working.

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