# Learning from the Implementation of a Quality Improvement Intervention in Australian General Practice: A Qualitative Analysis of a CVD Preventive Care Project

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# Abstract

Background

Quality-improvement collaborative (QIC) initiatives aim to reduce gaps in clinical care provided in the healthcare system. This study provides a qualitative evaluation of a QIC project (QPulse) in Australian general practice focused on improving cardiovascular disease (CVD) assessment and management.

Methods

This qualitative-methods study explored implementing a QIC project by a Primary Health Network (PHN) in 34 general practices. Qualitative analyses examined in-depth interviews with participants and stakeholders focusing on barriers and enablers to implementation in our health system. They were analysed thematically using the Complex Systems Improvement framework (CSI), focusing on strategy, culture, structure, workforce, and technology.

Results

Despite strategic engagement with QPulse objectives across the health system, implementation barriers associated with this program were considerable for both PHN and the general practices. Adoption of the QIC process was reliant on engaged leadership, practice culture, systems for clear communication, tailored education and regular clinical audit and review. Practice ownership, culture and governance, rather than practice size and location, were related to successful implementation. Financial incentives for both the PHN and general practice were identified as prerequisites for systematised quality improvement (QI) projects in the future, along with individualised support and education provided to each practice. Technology was both an enabler and a barrier, and the PHN was seen as key to assisting the successful adoption of the available tools.

Conclusions

Implementation of QI programs remains a potential tool for achieving better health outcomes in General Practice. However, enablers such as individualised education and support provided via a meso-level organisation, financial incentives, and IT tools and support are crucial if the full potential of QI programs are to be realised in the Australian healthcare setting.

Trial registration

ACTRN12615000108516, UTN U1111-1163-7995.


# Introduction

Cardiovascular diseases (CVD) are the single leading cause of death in Australia and most developed countries, despite significant declines in morbidity and mortality over the last 40 years(1). In 2015, CVD was responsible for 29% of deaths and over 1.1 million hospital admissions(2, 3). Importantly, CVD burden can be reduced through risk-factor modification(4). Around two-thirds of Australians have three or more modifiable risk factors such as tobacco smoking, high blood pressure (BP), high cholesterol, physical inactivity, poor nutrition, or overweight/obesity(3, 5, 6). General Practitioners (GPs) play a significant role in mitigating CVD morbidity and mortality, seeing over 85% of the population and conducting over 20 million patient consultations annually(7). However, previous studies have shown sub-optimal measurement and management of CVD risk in Australian and International primary care settings (8–13).

The 2021 Australian Institute of Health and Welfare data from more than 5700 Australian general practices recorded only 48.5% of patients with enough data to measure cardiac risk (27).

Quality Improvement (QI) initiatives in primary care have the potential to improve uptake of evidence-based practices (14). QI is a multi-dimensional concept, which can be defined as having a systematic approach to making changes that will lead to better patient outcomes (health), better system performance (care) and better professional development (learning) (15). Bataldan et al. postulate that defining QI in this way allows people to have a measurable approach to the concept of improving healthcare (15). There are several ways to implement QI initiatives intentionally, and one such method is establishing a Quality Improvement Collaborative (QIC). QICs actively bring together practitioners from different organisations to meet and learn about a specific aspect of health service quality and share experiences about making changes to improve measurable outputs in their local settings. There has been mixed evidence of success implementing QICs in health care (16–18). However, a systematic review of 64 QIC programs in 2018 reported significant improvements in 83% of targeted clinical processes and patient outcomes (19).

This paper presents a qualitative analysis of the implementation of a shortened QIC approach to improving Cardio-Vascular Disease (CVD) prevention care (QPulse), offered in "real world" general practice in one Primary Health Network (PHN) in Sydney, Australia. QPulse used existing medical audit and decision support software (20) to assist General Practices in focusing on measuring and managing CVD risk factors in Australian general practice. We describe the challenges associated with implementing QPulse as reported by the participating general practices and the supporting external health organisation, a Primary Health Care Network, and lessons learnt for future QI programs in primary care.

# Background

QPulse was a collaboration between the Central and Eastern Sydney Primary Health Network (CESPHN), The George Institute for Global Health (TGI) and Improvement Foundation Australia (IF), funded through a Health Research Award from Bupa health foundation. In Australia, Primary Health Networks (PHNs) are meso-level organisations contracted by the Australian Government to improve access to primary care services for regional patients and coordinate with local hospitals to improve the overall operational efficiency of primary care. QPulse focused on enhancing the implementation of the Australian National Vascular Disease Prevention Alliance Guidelines (the Guidelines)[1] to manage absolute cardiovascular disease risk. The intervention was designed to be delivered by the PHN into general practices via a series of 3 brief 6-month duration QIC "waves".

[1] Guidelines-recommended treatment was defined as: among high-risk patients, prescription of a BP-lowering medication and a statin, and among patients with established CVD, prescription of a BP-lowering medication, a statin and either an antiplatelet or an anticoagulant.

# Methods

General Practices were recruited from the geographical footprint of a Sydney based urban Primary Health Network (Australia) between May 2015 and November 2016. Practices were eligible if they used one of two electronic medical record software programs (i.e. Medical DirectorTM or Best PracticeTM) for recording risk factor information, pathology results and prescriptions.

Several methods were employed to recruit practices to the study:

1. Targeted invitation of individual practices that had participated in previous QI programs

2. Verbal invitation to interested practice staff at professional development or local network meetings
3. Written invitation via emailed newsletters and weekly fax communique to GPs and practice managers.

A total of 127 from a possible 670 General Practices in the PHN catchment were approached to participate. Forty-six eligible General Practices expressed interest in participating in QPulse, and thirty-four were enrolled into the QI program. There were three waves of recruitment conducted between April 2015 - July 2017; twenty-five practices were included in Wave 1, nine in Wave 2 and nine in Wave 3. (See Figure 1)

Wave 3 was subsequently cancelled due to a lack of PHN staff resources, and consequently, only the 34 practices from Waves 1 and 2 participated, with three of these withdrawing.

Throughout the study, all practices had access to their PenCAT tool, monthly data reports, Healthtracker and PHN support. The PHN received monthly de-identified data extracts from each practice and generated basic reports at the start and completion of the 6-month intervention. The PHN reports were used as the basis for the initial PDSA plan submitted by each practice.

A detailed timeline for recruitment and project rollout can be seen in Appendix A.

Outcome measures were collected pre and post-intervention and included:

- proportion of eligible[2] patients with complete CVD risk factor[3] data recorded,
- percentage of high-risk patients who were prescribed Guidelines-recommended medication,
- proportion of high-risk patients reaching prescribed blood pressure (BP) and lipid targets.

# QI Software tools

Each QPulse general practice was provided with two QI software tools: 'Health Tracker' and 'PenCAT.' The 'HealthTracker' software works as an integrated electronic decision support tool alongside the existing electronic medical records to identify high-risk patients and provides GPs with 'real time' guideline recommendations relating to cardiovascular risk reduction during consultations (21). The PenCAT Clinical Audit Tool™ enabled practices to generate whole of practice clinical audits about their full patient cohort and provide data focused on CVD risk identification and current preventive care. Every participating practice commenced the study by providing the PHN with a baseline set of de-identified "active" patient data and then commenced the QIC intervention six months later. The de-identified data was then sent as a monthly download to both PHN and TGI data hubs. Complete pre and post-intervention data were available from the TGI data hub from fifteen GP Practices. Complete follow-up data were not successfully extracted using the automated data extraction software (N=16) from the remaining practices due to a technical failure in extracting prescribed medications from some practice records. The QIC was unaffected by this information technology (IT) failure. Both PHN and participating general practices could access the essential data extraction reports generated by the PenCAT tool throughout the intervention. Results from the study have been reported elsewhere (22, 23). Practices included in this study covered the geographic area of the PHN, represented practices with different billing structures (i.e. bulk- and private-billing) and had both independent- and corporate-owned practices. Reasons given to the PHN team from 41 non-participating (invited) practices included not enough time, staffing limitations, competing priorities, CVD not being a practice priority, and not being interested in participating in research. Semi-structured interviews were conducted after completion of the intervention with a purposive sample of nineteen people involved in QPulse implementation, including general practitioners, practice manager, practice nurse, project officers, IT support personnel and managers at the PHN (Table 1).

Table 1
Interviewee characteristics of participants from the Primary Health Network and general practices

| **Interview participants from PHN (n= 7)** | |
|---|---|
| Female | 4 |
| Project Officer | 2 |
| Team Manager | 2 |
| Executive Officer | 1 |
| IT Support Officer | 2 |
| Interview participants from general practices (n=12) | |
| Female | 9 |
| Practice nurse | 1 |
| Practice manager | 1 |
| General Practitioner | 10 |
| Practice size<br>(number of regular patients) | |
| < 2000 | 1 |
| 2001- 4000 | 1 |
| 4001-6000 | 3 |
| 6001-8000 | 3 |
| 8001-10000 | 2 |
| 10001-20000 | 1 |
| >20001 | 1 |
| Previous QI experience | 6 |

# Quality Improvement Collaborative (QIC) Intervention

At least one key stakeholder from each practice, such as a practice nurse, senior GP or practice manager, was invited to attend three 2-hour evening workshops over three weeks that covered: cardiovascular risk assessment tools and absolute risk calculators, current guidelines for preventive management of CVD including the pharmacological management of high-risk patients, QI theory and specifics on how to achieve change using the Plan Do Study Act (PDSA) methodology (24). By planning a change, trying it, observing the results, and acting on what was learned, participants were guided through a rapid feedback exercise to generate change ideas for their practice. All practice teams were asked to choose ideas (aligned with improving their ability to identify and manage patients at high risk of CVD) to test on a small scale and refine the change as necessary before implementing successful ideas more broadly. Each practice team was also asked to submit a monthly PDSA to assist them in planning and measuring change. A project officer based in the offices of the PHN was assigned to oversee the project three days per week, who offered ongoing IT and QI support to the participating practices during the 6-month active intervention. (Figure 2)

### Qualitative Interviews

Twenty-two people were approached by the first author of this paper by phone or email, inviting them to participate in a 30-minute interview, face to face or using the phone (this was at the choice of the interviewee). Nineteen participants were interviewed after providing the research team with written and verbal consent to participate in the research project. Three of the selected GP invitees opted not to participate due to lack of time, which was seen as a low priority task. All nineteen interviewees were emailed a set of questions (see Appendix B) to assist them in preparing for the interview on enablers and barriers to participating in the QPulse intervention. One PHN interviewee asked to respond to the questions in written format in preference to verbal responses. The oral interview was semi-structured, and interviewees were invited to elaborate on any question that they felt would be helpful to explore further. Each interview was audio-recorded and then transcribed using a manual transcription service. Transcriptions were shared with the interviewees to ensure they were seen as accurate and they were agreeable to the contents being used for the study.

Two GP interviewees were interviewed together at their request, but all other interviews were conducted as one-on-one sessions. Detailed practice demographics for each interviewee was recorded and compared to ensure a full range of practices was included. (Table 2)

Table 2
Practice Demographics of General Practice Interviewees

| Wave | Gender + Role | Practice size V small Small Moderate Large | # downloads | Billing | # GP's In practice | Practice Nurse | Allied Health On site | PM / Admin support | Prior QI |
|---|---|---|---|---|---|---|---|---|---|
| 1 | F GP | M | 16 | Mixed billing | 6 | 1 x PN | Y | PM + Admin support | Y |
| 1 | F GP | L | 16 | Bulk Billing Corporate | 7 | 2 x PN | Y | Corporate PM + Admin support | N |
| 1 | F GP | V | 16 | Mixed Billing | 1 | 1 | N | PM + Admin support | N |
| 1 | M GP | M | 17 | Bulk billing Corporate | 2 | 0.5 x PN | Y | PM + Admin support | N |
| 1 | F GP | S | 18 | Bulk billing | 2 | No | Y | No PM + Admin support | N |
| 1 | F GP | M | 24 | Mixed billing | 16 | 2 x PN | Y | PM + Admin support | Y |
| 1 | M GP | S | 14 | Mixed billing | 4 | 1 x PN | Y | PM + Admin support | Y |
| 1 | M GP | M | 15 | Mixed billing | 5 GP | 1 x PN | N | PM + Admin support | N |
| 1 | F GP | S | 14 | Mixed billing | 4 GP | 1 x PN | N | PM + Admin support | Y |
| 2 | F GP | S | 13 | Mixed billing | 1.5 GP | 1 x PN | N | PM + Admin support | Y |
| 2 | F PN | S | 13 | Mixed billing | 1.5 GP | 1 x PN | N | PM + Admin support | Y |
| 1 | F PM | M | 25 | Mixed billing | 16 GP | 1 x PN | Y | PM + Admin support | Y |

Four researchers independently read and analysed the interview transcripts; this comprised the principal investigator and three researchers who had not participated in the implementation of QPulse; one is a co-author of this paper, and

two are noted in acknowledgments. All were approved to contribute to the analysis via the University of Notre Dame Australia Human Research Ethics Committee (UNDA HREC) process. Each researcher manually coded interviews to develop core themes and observed patterns in the data. Two co-authors (CH and EB) reviewed the themes and systematically analysed them against the Kraft et al. Complex Systems Improvement (CSI) framework (25). This framework was selected for its relevance to the context and complexities of the Australian general practice environment. The framework identifies four levels of a health system that align with a successful implementation of change - environment, organisation, microsystem, and patients and their caregivers (26). This study focused on GP's, their practices and the PHN. Thus the data analysis primarily concentrated on the environment, the meso-level organisation (PHN) and the microsystem (general practices).

The CSI framework also identifies five domains for evaluating a change-making intervention in the health system. These domains include strategy, culture, structure, workforce and technology. "Strategy" addresses alignment of the improvement intervention with the strategic intention of participants. "Culture" looks at the norms, values and beliefs of participants. "System" addresses infrastructure in place to enable participants to learn new practices, spread best practices, and continuously measure performance and improve processes. "Workforce" looks at how people, tasks, tools and technologies, organisational conditions, and physical environment affect the adoption of the intervention. "Technology" specifically addresses the role that IT and electronic medical records play in the adoption of new processes. We used the framework to examine the change intervention experience rather than describe the implementation sequence. After analysing the transcripts from all 19 interviews, the research team was confident data saturation had been achieved, with no need for further interviews.

# Trial Registration and Ethics

QPulse was approved by University of Notre Dame Australia HREC (UNDA HREC 014105S). Informed consent was obtained from all the participants. Informed consent for patient data was waived by the University of Notre Dame Australia Human Research Ethics committee as all patient-level data collected in the study was de-identified and aggregated ((22) and 3). Interviewees provided written and recorded verbal informed consent. The study was conducted in accordance with all relevant guidelines and regulations including the Declaration of Helsinki.

The study was registered with the Australian and New Zealand Clinical Trials Registry, ACTRN12615000108516, UTN U1111-1163-7995.

[2] Eligible patients were those recommended by the Guidelines who were regular attenders at the practice. This included Aboriginal and Torres Strait Islander people ≥ 35 years and all others ≥ 45 years; and those at clinically high risk of CVD regardless of age. ‘Regular attenders’ were patients who attended the practice at least three times in the previous 24 months, and at least once in the previous 6-month period.

[3] smoking status, blood pressure recorded within the previous 12 months, total and HDL cholesterol recorded within the previous 24 months.

## Results

### Implementation of the QPulse intervention

Thirty-four general practices enrolled in the QPulse study and 28 successfully downloaded datasets to the research hub containing all the required baseline analysis variables (22). Only 15 practices downloaded complete datasets for pre-and post-intervention due to ongoing challenges with the IT settings in the remaining 28 practices. Although this

IT failure prevented pre-and post- analyses of the prescribing data for 19 practices by the research team, it did not affect participation in the QIC intervention for the 34 enrolled practice teams.

Of the 34 enrolled practices, all attended at least one workshop, 11 attending two and 6 attending all three workshops. Most practices sent only one attendee to each workshop, with three practices sending two attendees and one practice sending three attendees to all three workshops. The PHN recorded a minimum of once monthly contact with all participating practices. Some practices requested higher levels of interaction (range 1 to 8 communications per month) which was provided via phone or face-to-face, to assist with IT and QI processes. The project officer recorded a median of 4 practice visits and 15 phone calls per participating Practice throughout the project. Although twelve practices registered to attend the first two webinars, only two practices attended, and these were consequently discontinued after two months. All participating practices submitted a baseline PDSA, with 8 submitting two and one practice completing a monthly PDSA as requested.

Quantitative analysis of the pre and post data from fifteen practices indicated trends toward improvements in the measurement of blood pressure and blood lipids between baseline and post-intervention in all CVD risk groups(23). However, there were no significant changes in the cardiovascular risk group's attainment of blood pressure and lipids targets over the study period (ref paper 3). However, there was variation noted in some individual practice performance that could not be identified through the pooled dataset. For example, variations in BMI (recordings in 2 practices, increasing from 10.5% to 18.0%, and 81.8% to 91.7%) and Waist circumference measures (3 practices demonstrated improvement from 0.7%, 32.2% and 6.4%, to 18.5%, 69.8% and 25.3%, respectively). This highlighted the value of qualitative interview data analysis examining the experience of individual participants in the project to explore practice-specific enablers and barriers to implementation. The CSI framework was used to identify insights and issues that affected implementation for the general practices and PHN (health system levels) across the five domains.

### Qualitative data analysis: Complex System Improvement Framework

A summary of the key findings of our analysis is presented in Table 3.

Table 3
Study findings analysed within the Framework for Complex System Improvement proposed by Kraft, Carayon (25).

| | **Goals and strategies (incentives, priorities, opportunities for change** | **Culture (values, beliefs, norms)** | **Structure of learning (infrastructure to support continuous learning and improvement)** | **People, workflow and care processes (role optimisation, processes of care, standard workflows)** | **Technology (information services, electronic health records)** |
|---|---|---|---|---|---|
| Patients and caregivers | Support GPs in improved CVD prevention and care.<br><br>Engage GPs in Quality Improvement data collection and scrutiny.<br><br>Patients voice was not captured in this study: no ability to record their role in adopting preventive care strategy. | Highly variable, a key determinant of success.<br><br>Enrolled GPs personally motivated to improve their practice.<br>_____<br><br>Patients values and beliefs were not measured in this study – they were seen as recipients of their GP's advice to be educated in preventive health by their GP. | GPs have ongoing structured CPD with emphasis on evidence-based care, support from the college.<br><br>GPs supported by PHN staff during implementation.<br><br>GPs stated Healthtracker to be educational and engaging for patients, but this was reported from the perspective of the GP and PN | Increased workload for GP practices would have appreciated more support, e.g. from PHN.<br><br>Patient-centred workflow processes lacking and should be included in the next stage of the design | Healthtracker, Topbar often needed troubleshooting (PHN generally prompt with this).<br><br>Practice members sometimes experienced problems due to knowledge deficits.<br><br>More incentive required to encourage the sustained use of the tools by GP or PN<br><br>Healthtracker was noted to be engaging and valuable for patient use during consultations |

| | Goals and strategies (incentives, priorities, opportunities for change | Culture (values, beliefs, norms) | Structure of learning (infrastructure to support continuous learning and improvement) | People, workflow and care processes (role optimisation, processes of care, standard workflows) | Technology (information services, electronic health records) |
|---|---|---|---|---|---|
| Microsystems (small units where care is delivered)<br><br>i.e. Practice level<br><br>(The General Practices) | GP practices vary widely in nature (size, internal supports, team culture/lack thereof, business models etc.): opportunities for change are affected by this on an individual level. Solo and large practices are seen to struggle more with the adoption of systematised QI practices.<br><br>Individualised approach required | GP practice culture and leadership key to implementation<br><br>The culture was noted to be very variable.<br><br>Level of engaged leadership variable.<br><br>Practice culture/ circumstances dictate or limit possibilities for change in systems. Individual GP priorities appeared to override the ability to introduce changes in practice and systems. | Practices required hands-on support – and would have appreciated more proactive help from PHN staff (e.g. regularly scheduled visits, facilitated networking, more in-practice teaching about QI and clinical topics requiring improvement, structured learning using practice data). | Some practices were agile concerning role optimisation and adoption of new processes.<br><br>Successful implementation required effectively engaging PNs and PMs as well as the GP. Change leadership by a GP +/- PN or PM was key to success. | Software used varied between practices, sometimes incompatible.<br><br>They were seen as time-consuming.<br><br>It quickly became a barrier due to the time required.<br><br>PHN was generally competent in resolving practice-level IT problems but was often left out of the loop. |
| Organisations (supporting microsystems)<br><br>i.e. PHN, RACGP | Clear guidelines, readily accessible, need for improvement universally agreed. | The identity and nature of PHN were in flux at the time of the study. The need for established and trusted relationships between practice and PHN was identified as key to ongoing success. | Seen as the role of the PHN by practices.<br><br>PHN did not visualise its role consistently throughout this project due to a lack of prioritisation and resourcing by senior management for this work. | Strategic Leadership by executives aligned to QI was fundamental.<br><br>Personnel selection and support at PHN may have been non-optimal. | IT support by PHN key to implementation – PHN offered excellent IT support in most cases, but GP's did not always utilise this service |

| | Goals and strategies (incentives, priorities, opportunities for change | Culture (values, beliefs, norms) | Structure of learning (infrastructure to support continuous learning and improvement) | People, workflow and care processes (role optimisation, processes of care, standard workflows) | Technology (information services, electronic health records) |
|---|---|---|---|---|---|
| Environment<br><br>(policy, payment, regulation) | Clear guidance from the Department of health to prioritise this work and part of the new PHN contract. Minimal reimbursement available to assist practices or PHN to fund the work adequately | "Quality Improvement" is part of Australian Primary health care policy documents but not incentivised for individual GP's nor adequately funded within the entire primary care health system | Adversely affected through changes in ML to PHN<br><br>They are not funded. GPs have to do mandatory CPD to maintain Australian Medical registration. RACGP has mandated 1 QI activity every three years for each GP to maintain specialty status and registration | QI Practice Incentive Payment is available for accredited General Practices but not yet linked to any tangible programs related to improvements in services. | No current funding is available for practices to support the adoption of any specific technology.<br><br>PHN contracted to provide generic "QI support" to general practice by the Federal Health department but no actual funding stream to implement. |

**Goals and strategies** (incentives, priorities, opportunities for change) **for improved adoption of CVD risk prevention guidelines**

All participants in QPulse were strategically aligned with decreased CVD related mortality and morbidity and were engaged with the goals of the QPulse project. However, there was a lack of tangible incentives to assist participants in adopting the QI process into their regular work systems to achieve measurable change.

It was reported that GP participants signed up for the QPulse study because they were personally interested in improved preventive care and individual patient health outcomes. Still, doing this work as part of usual business proved too tricky for most of them.

> "an opportunity to become more proactive rather than reactive, …it's too much reactive care in general practice, I think, even though we're obviously aiming to be preventative, often in the day to day running of a practice, they don't happen." GP9

The lack of incentives in the GP workplace to prioritise QI work meant that it was ultimately not given sufficient priority by the GP practice staff or the PHN.

In particular, QI was seen as time-consuming and "low priority" to systematise into existing business models.

> “QI projects currently happen outside of consulting and in general practice the only way that you can have money coming in is to be seeing patients and providing services…..I think funding incentives for QI projects would be good because then you can then allocate some time.” GP6

**Culture** (values, beliefs, norms)

The overriding "culture" supporting Quality Improvement was reported as key to implementation for general practice and the PHN. There were significant differences noted between the participating practices, including size, ownership and practice culture. While initial interest in and enrolment into the project was driven mainly by an individual GP or Practice Manager, a "Quality Improvement" culture of the practice team was reported as the essential factor for successful implementation of QI, rather than the size or location of the practice. The practices highlighted that the most critical determinant for whether or not they could implement and sustain the QI work was the motivation and culture created by their significant leaders. Identified influential leaders were usually a GP (owner or designated "lead") but also noted to

> “It really comes down to the culture within the practice, who is the real leader, who is the driver in the practice… with QI for it to be really successful, you need all of practice engagement, but you really need to have somebody who is going to take the reins on that.” (PHN1)

be the Practice Manager or Practice Nurse.

Participants reporting a pre-existing QI improvement culture also said increased practice engagement occurred during this project. Practices with no prior experience of QI reported increased difficulty engaging in the QI process. In particular, corporate[4] style practices did not appear to have systems to enable the adoption of QI to improve patient outcomes. This style of practice was also noted to lack a practice culture designed to engage the entire "team" with each of the identified changes to achieve an improvement. On the other hand, staff who had already embraced QI as part of their practice culture were more enthusiastic about being involved. They utilised established clinical audit and review systems to identify what needed to be done, by whom and how to check whether it achieved the desired outcome. Some interviewees reported recruiting staff aligned with their culture and had a policy of ensuring the entire "team" received regular updates about QI projects. One GP interviewee described a practice culture characterised by clearly defined leadership, collaboration with all the staff (primarily via regular meetings and discussion around identified areas of improvement) and commitment to try new initiatives.

Conversely, in practices that described a lack of commitment to Leadership or QI, project uptake was less enthusiastic and difficult to disseminate to the other GPs working in the practice. One interviewee from a larger corporate style practice who was personally motivated by an interest in CVD noted that implementing practice-wide change was only possible with the cooperation of the owner, practice manager, nurse and secretaries. They reported that this had not been evident in their practice during QPulse. They noted that it was challenging to engage the GP's to do anything that might involve extra work. This corporate style of practice enabled GP's to work as individuals with no overriding guidance or accountability around the quality of care delivered to their patients.

Several interviewees who discussed the benefits of a group practice "team" culture contrasted with a solo GP who noted interactions in her team tended to revolve around practice management rather than clinical issues. Peer support for QI in clinical management was gained through external activities such as PHN organised professional

development. Solo GP practices reported difficulty in achieving sustainable implementation of QI processes, despite having more authority and "leadership" in adopting change. The constant demands upon the GPs' time by acute issues precluded what were perceived as optional, less essential activities.

"Unless I can see an immediate necessity for it, I'd rather not do it…. (GP3)".

At its most pragmatic, a lack of consensus or accountability regarding clinical input from peers meant that introducing QI was seen as too time-consuming from the clinician viewpoint – particularly given the lack of incentives over the longer term.

A PHN interviewee also noted that their meso-level organisation needed to have a cultural shift from seeing QI as an optional add-on and instead identifying it as a core process that integrates

into all projects, alongside building relationships with the general Practices in their footprint.

"QI should be embedded in everything we do…" (PHN4)

**Structure of learning** (infrastructure to support continuous learning and improvement)

Overall, most GP interviewees did not report having a structured approach to continuous learning and quality improvement within practices. Many GP interviewees described a lack of leadership within their Practice team, operating as a group of siloed independent GPs with no structured approach to education or support of the team members by their employer. Most Practices held some face-to-face meetings as an entire Practice; however, the purpose and intention of the sessions varied from practice to practice depending on the owner's preference. Corporate practice participants noted regular lunchtime meetings sponsored by Pharma with no relationship to their individual or collective learning needs. Several interviewees said they would have appreciated short, practice-level presentations from the PHN, particularly after the QI workshop, to assist with "how to" implement what had been presented.

However, some interviewees noted the difficulty in getting GPs together to meet as this was unpaid time and so not seen as a priority for contracted GP's. Specifically, there was no time available during practice hours for scheduling meetings around QI topics. PHN participants also noted the difficulty in gaining access to general practices to talk to GP's – they reported being heavily reliant on communication via the non-GP staff such as the practice managers and nurses.

The PHN interviewees also noted the lack of resources to provide educational support, despite acknowledgement by the PHN senior executive that the provision of face-to-face support was key to engagement and implementation of programs with GP's and practices.

"Support from an individual at the PHN was essential and a main driver of the project" (PM1)

Another barrier noted to the adequate provision of PHN services to practices was the regular "rollover" of key project staff. This led to the need to retrain and upskill new project staff, loss of "corporate memory", and inadequate

capacity to fully undertake the required scope of GP support programs. In most cases, the priorities of a General Practice were reported as influenced by the lead GP, but with implementation usually handed over to PM or PN. All interviewees felt that a lack of tailored practice support hampered the implementation of the QPulse project activities. Positive adoption of QI and change in systems were reported as more likely where key practice staff had an inherent interest and capabilities in clinical data management and computer software skills.

While interviewees reported initially completing the PDSAs as requested, overall, these were reported as negative experiences. The PDSAs were described as tedious, time-consuming or repetitive - with no one adopting this methodology as a systematised way to assist in QI activity, despite acknowledging their value in targeting change. The PHN interviewees also reported very little engagement with the PDSA process.

> “Getting practices to submit PDSAs was very difficult …I think that GPs think it is too time consuming ...If we can come up with a less time consuming version, I think they would be more willing to complete it.” (PHN3)

Some interviewees did note positive changes within their practice following the implementation of previous structured QI programs, including increased coding of diagnosis and the ability to track improvements over time with reports that included all of their data and charted improvements. The opportunity to engage with the data was limited, with only intermittent reporting amongst the participating practices due to the IT and scheduling problems associated with the software. PHN interviewees also noted that data extractions without the follow-up provision of monthly reports and targeted education provided little long term value for the practices.

When asked about attending education, training and networking sessions designed to upskill general practice staff to do QI work, most GP's reported that they favoured face-to-face engagement. However, this was also reported as a significant barrier to participation as there were never mutually convenient times or places for everyone to attend. For QPulse, this was reflected in the poor attendance rates by participating practices at scheduled training and support sessions despite prior agreement to attend.

> “The CPD workshops were good at engaging members but it was very hard to get them there” (PHN4)

**People, workflow and care processes** (role optimisation, processes of care, standard workflows)

Although it was confirmed in the interviews that all participants had engaged with baseline requirements of the QPulse project (measurement of baseline data, initial goal setting, setting up (at least one) PDSA cycle and then reviewing goals). It was also evident that only two practices had implemented practice workflows to achieve a sustainable QI process. Most GP interviewees reported that they saw it as just another extra thing to do, rather than an opportunity to improve their data or health outcomes. The two interviewees from the most "engaged" practices also discussed the difficulty of achieving sustainable QI. They cited both lack of tangible incentives (for practice management and GP employees) and dedicated time to do this work. PHN interviewees identified the need to provide long-term assistance in this work rather than brief interventions rolled out with no system or solutions to achieve sustainability.

> “lighter touch than we would have liked, like this was supposed to be much more engaging program than what it ended up being.” (PHN4).

They noted that most individual GPs are not interested in practice management and workflow "systems" and instead are focused on getting through their daily acute clinical care workload. The need to align appropriate resourcing by the PHN to enable role optimisation for the "coal face" PHN project officers was highlighted as key to the implementation of QI by PHN and GP interviewees. All participants noted the lack of resources allocated to QI work by the PHN.

Lack of clarity around the roles and responsibilities of PHN staff was highlighted by PHN participants as another barrier to QI implementation. One interviewee observed that a lack of clear guidance by team leaders about the QPulse project had resulted in a lack of motivation and uncertainty in terms of what each staff member should be setting out to achieve and the outcomes they were accountable for delivering.

PHN participants identified specific enablers included strategic use of flexible funding streams (to fund QI work). Key barriers were the high staff turnover, lack of engagement and skills in QI work by crucial staff (particularly frontline project officers), full time versus part-time roles (continuity of functions) and staff managing competing priorities with minimal time allocation to assisting with "add on" QI projects.

> “QPulse became a mini-project, carried out by a lone project officer, separated from the “core business” of the PHN” (PHN5)

In addition, it was noted that at the start of QPulse, three meso-level GP organisations (formerly known as Medicare Locals) were merged to form one PHN increasing the number of practices that fell within the remit of individual PHN project officers. This appeared to exacerbate their difficulty in meeting project and practice expectations. For QPulse, one project officer was responsible for overseeing 40 practices in a role funded at three days per week.

PHN interviewees also noted that QI support needed to be better tailored to individual practice needs and priorities rather than directed by the preferences of specific PHN projects.

> “Lack of funding for the PHN to adequately resource QPulse together with lack of financial incentives for practices to engage was seen as the major barrier to getting things happening” (PHN2)

The PHN interviewees discussed the importance of prioritising engagement with people in the practice who are responsible for the oversight of systems of care.

Several mentioned that a provision of more regular updates and visits from the PHN might have helped maintain the prominence of this work amongst all the other competing priorities of the busy GP practice.

Significantly, GP interviewees noted the additional workload arising from QI was not sustainable in the long term without some tangible incentive for participants – both for the individual GP and the practice team. Incentives might be both financial and aligned with accreditation and registration. The particular challenges of sustained engagement when the practice operated as a group of independent contractors was also noted, especially with a lack of obvious financial incentives.

"without the reminders from the PHN…it doesn't happen". (GP1)

**Technology** (information services, electronic health records)

The use of technology tools to aid QI, such as Healthtracker, the clinical decision support tool, was reported as crucial in successful implementation but was also a cause of failure and disengagement, often needing additional time investment in troubleshooting. There were varying levels of IT ability and IT difficulties experienced within the GP practices and by PHN staff. Barriers ranged from poor IT connectivity, incomplete data entry, challenges with using the software tools, and achieving sustained usage, specifically for QPulse, adopting the new technology (Healthtracker) during clinical patient encounters. From a practice perspective, most interviewees saw the PHN as an essential resource, particularly concerning the installation and troubleshooting of the Healthtracker software.

The importance of good relationships with the PHN was made clear by several interviewees, both as a supportive IT support resource (e.g. installation of PenCAT and troubleshooting problems with Healthtracker) and as a source of reminders to do the monthly data extractions and data review. GPs appreciated the assistance provided by the PHN at the point of software installation, noting that this ensured the program was useable by the "coal face" participants.

Many GP interviewees stated that learning to use new technology was a barrier, yet also noted the decision support tool, Healthtracker, was user friendly and appealing to both GP's and patients.

"Healthtracker needed GPs sure it..wasn't a white elephant…that no one could use" (GP2).

However, Healthtracker did not always run as intended in some practices, with several interviewees reporting that they had experienced problems, although these were usually readily solved by the PHN contacts.

Software incompatibility was also cited as a significant barrier, with no on-call IT support to troubleshoot a solution. Ongoing and often unresolved difficulties encountered included software crashing with updates, lack of automation with data extractions and reminders, inability to access or use the PenCAT tools, and problems setting up and training all practice team members. There was also difficulty achieving sustained use of the IT tools due to the variable reliability in their performance.

Some interviewees also noted that access to the PenCAT Data extraction tool could be difficult. It was only available on one computer terminal within a practice providing a barrier for easy implementation of the QI process. One GP interviewee expressed her disappointment when there were problems with data extractions and exports, resulting in a disruption in data reports.

> “we put all those figures in for 12 months…I thought we’d be reviewing all our data to see if we were better but they stopped our access….” (GP4)

Most GP interviewees found that regularly submitting data to the PHN was beneficial for setting up a pattern of QI work. Still, they found the ongoing time requirements challenging without any financial incentive to compensate for this task's administrative burden in the "too hard" basket.

> “certainly having that done is very important to see how we’re going “(GP2)

The QPulse project did not examine patient barriers to medication utilisation nor the adoption of recommended lifestyle measures as these data fields were not extractable from the GP medical records. However, GP interviewees discussed improved conversations with patients when using the Healthtracker point of care tool, which they stated achieved better engagement in discussions regarding preventive care strategies.

> “patients were very keen to be involved – but they wouldn’t realise the risk and TopBar (Healthtracker) was a great way of visually explaining this to them” (PN1)

[4] Corporate style practice is used here to refer to those General Practices owned by an incorporated entity rather than owned by one or more of the General Practitioners working in that same practice

## Discussion

The QPulse participant interviews provided an opportunity to understand the "why" and "what happened" of the QPulse project's failure to demonstrate changes in the measured data outcomes.

What is the daily experience of real-world general practice that prevents the adoption of routine CVD preventive care? QPulse participants understood improving CVD preventive care provided them with an opportunity to decrease mortality rates linked to CVD in Australia. Yet, they were unable to demonstrate any tangible change in the recorded risk measures or prescription of CVD preventive care (23). A 2021 AIHW report looking at data from > 5700 Australian general practices showed disappointingly similar results, with only 48.5% of patient records showing cardiac risk measures(27). This figure has not shifted over the last 15 years (8, 22, 28) despite the introduction in 2019 of a Government-funded Heart Health check by GPs (29). The AIHW data demonstrate a need to change Health policy strategic approaches, such as implementing quality improvement projects that address known barriers revealed by this analysis.

Interviews focused on this brief QIC project by GP's and PN's within the real-world practice setting (microsystem) via a program delivered and supported by a PHN (meso-level, external organisation). Both General Practices and PHN's are reliant on their "environment" to provide incentives to enable work outside of a fee-for-service model of healthcare. The implementation of QPulse was adversely affected by the timing of implementation – specifically, the initial

rollout, which coincided with a significant change in funding and structure of the meso-level organisation. Three smaller organisations amalgamated into the larger PHN during the initial recruitment phase of the project. The merger resulted in significant disruption to the delivery of everyday business, related to the redeployment of staff into new teams and roles and multiple redundancies. QPulse was sidelined into being a "siloed" QI project rather than becoming part of a strategic QI program for both the General practices and PHN staff.

Using the CSI framework, identified themes from this project align strongly with other current national and international research around implementing quality care initiatives within primary care settings (30–32). There are variations between the implementation of change exemplified by the original Kraft et al. article and this study. The present study relied upon practices opting into the project, whereas Kraft et al. focused on a mandatory, all-practices, system-wide implementation. The critical role of the meso-level organisation in our project was complicated by the PHN being a developing entity rather than an established organisation with a clear strategy for QI projects.

The clear themes identified from this study include the crucial need for leadership, both at the practice and PHN, and the provision of tailored education and support for each practice setting. The need for better communication systems and trust amongst all staff and project officers is essential, including the need to address many GP's' lack of readiness for change. These key themes recur when reviewing implementation in the primary care health setting(30, 31). Implementing change also requires a paradigm shift from individual practitioner care toward team-based care alongside a longer-term commitment to achieving sustainability rather than rolling out a series of independent projects. Implementation of a project to establish patient centred medical homes in the Australian setting also describes this issue (33, 34). Other resonant issues were the need for better IT systems and support, such as integrated electronic health records, decision support tools and data reports, and funding models designed to support sustainable changes(33, 34). In QPulse, individual practice QI culture was seen as crucial to their ability to implement the program. Each practice had distinct and unique characteristics affected by previous QI experience, practice ownership and their underlying philosophy regarding patient-centred, team-based models of care versus physician autonomy. It was also evident that even the QI "culturally engaged" practices needed increased financial support to normalise QI work to cope with the constantly growing portfolio of QI projects. There is evidence of a flow-on effect of the current "fee for service" (FFS) funding model, which provides a perverse disincentive for most of the GP's to participate in non-face to face care (34), and this will need to be addressed if gaps in care can be improved.

Currently, PHN's are constrained in their ability to support QI work, such as improving CVD preventive care, due to lack of accountability, contractual financial constraints and too many competing priorities (35).

# Conclusions

A strategic, evidence-based approach should be taken for future funding of primary care QI programs. The need for incentives prioritising the adoption of QI, such as funding for both infrastructure and time, has been identified as crucial in the current Australian healthcare system.

Implementation strategies should flexibly address and support the identified range of issues specific to general practice setting: culture and readiness for change, practice-based education programs, leadership training and accessible IT support. PHNs will need to be incentivised to deliver these programs as staff can only do this if the organisation proactively enables this level of support.

# Abbreviations

| | |
|---|---|
| BP | Blood pressure |
| CSI | Complex Systems Improvement framework |
| CVD | Cardiovascular disease |
| GP | General practitioner |
| IT | Information Technology |
| PDSA | Plan-Do-Study-Act |
| PHN | Primary Health Network |
| QI | Quality improvement |
| TGI | The George Institute |
| QIC | Quality improvement collaboration |
| UNDA HREC | University of Notre Dame Australia Human Research Ethics Committee |

# Declarations

### Ethics approval and consent to participate

The study was approved by the University of Notre Dame Australia Human Research Ethics Committee (HREC) (reference 014105S). Signed agreements with participating practices were also obtained. A consent waiver for patient-level consent was granted by the committee.

### Consent for publication

Not applicable

### Availability of data and materials

The datasets generated and/or analysed during the current study are not publicly available but data may be made available to interested parties from the corresponding author on reasonable request.

### Competing interests

The authors declare that they have no competing interests.

### Funding

The BUPA Health Foundation funded the QPulse project.

### Author's Contributions

CH made substantial contributions to the conception and design of the study, acquiring funding, conducting interviews of participants, analysing and interpreting data, and drafting the manuscript. LR was a significant contributor to conception, acquisition of the grant, study design, data interpretation, and manuscript drafting. EB was a contributor to the analysis and interpretation of the qualitative data and drafted and reviewed the manuscript. All authors read and approved the manuscript.

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# Figures

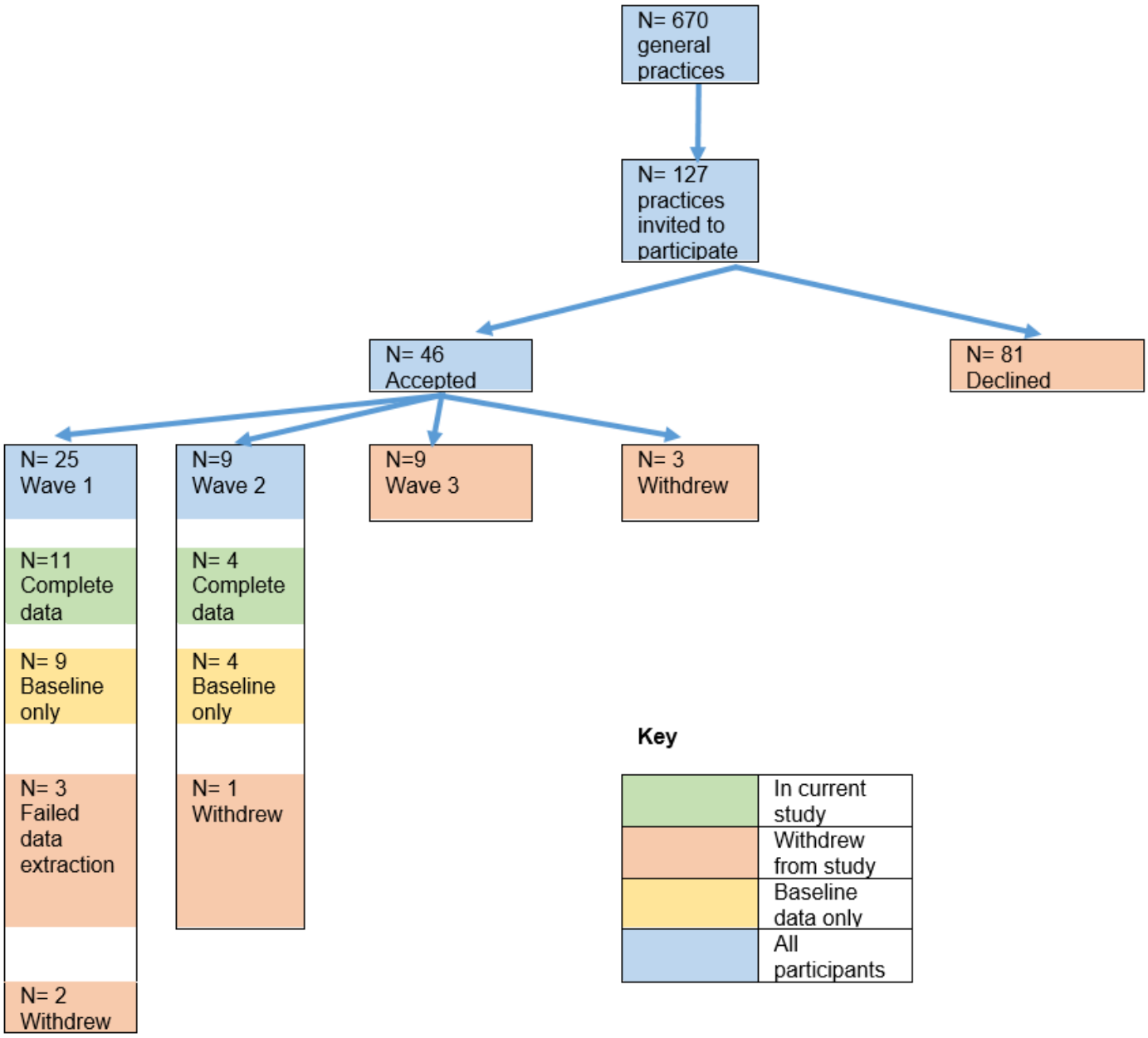


**Figure 1**

QPulse Practice Recruitment

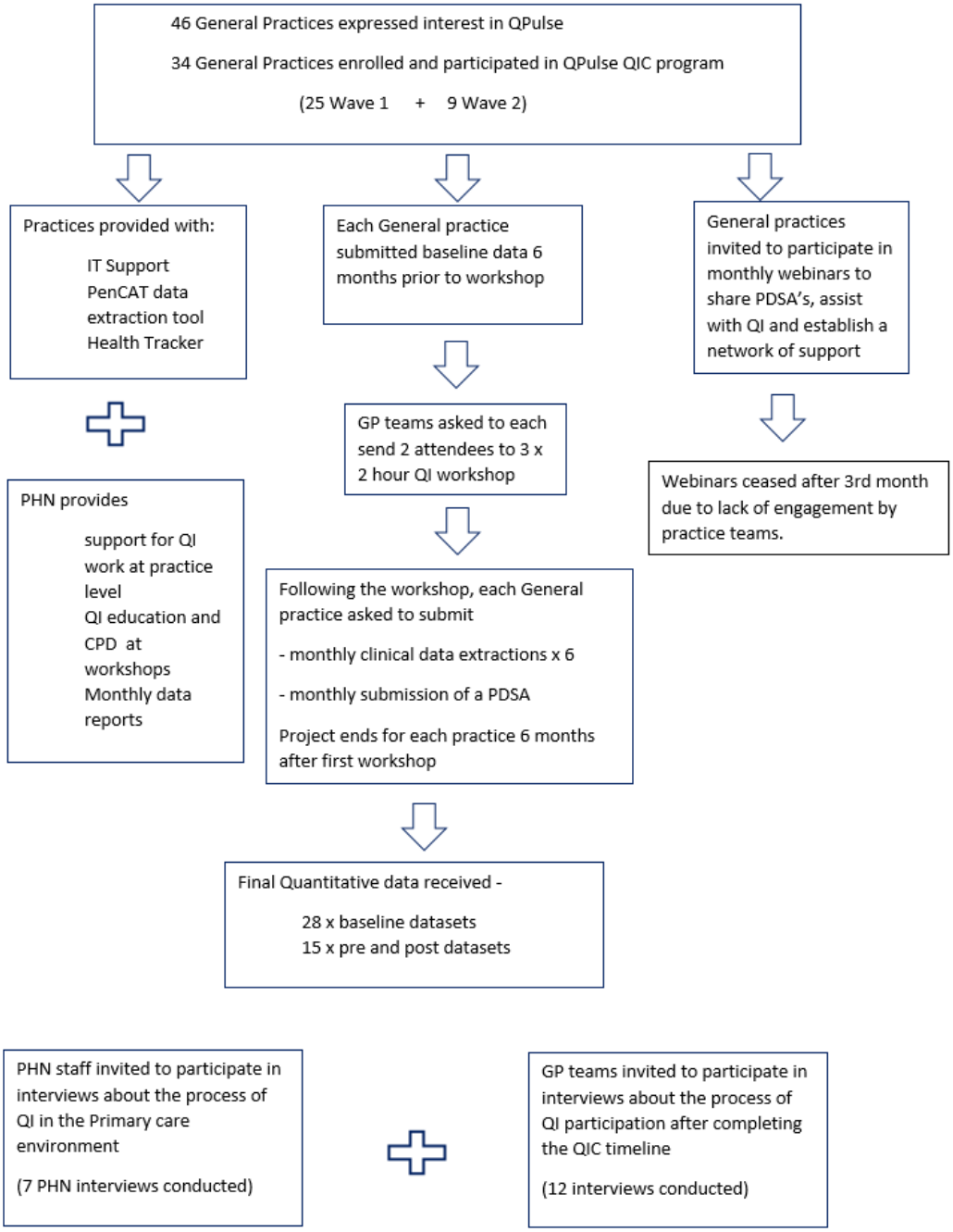


**Figure 2**

Flowchart QPulse intervention

# Supplementary Files

This is a list of supplementary files associated with this preprint. Click to download.

- Appendix.docx