

Quality improvement report

The aim of quality improvement reports is to answer the following questions:

- (1) What was trying to be accomplished?
- (2) What makes a change an improvement?
- (3) What was the mechanism for change?
- (4) What lessons have been learnt?
- (5) What are the next steps?

Improving the repeat prescribing process in a busy general practice. A study using continuous quality improvement methodology

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Abstract

Problem

- A need to improve service to patients by reducing the time wasted by reception staff so that the 48 hour target for processing repeat prescription requests for patient collection could be achieved

Design

- An interprofessional team was established within the practice to tackle the area of repeat prescribing which had been identified as a priority by practice reception staff. The team met four times in three months and used continuous quality improvement (CQI) methodology (including the Plan-Do-Study-Act cycle) with the assistance of an external facilitator

Background and setting

- A seven partner practice serving the 14 000 patients on the northern outskirts of Bournemouth including a large council estate and a substantial student population from Bournemouth University. The repeat prescribing process is computerised

Key measures for improvement

- Reducing turn around times for repeat prescription requests. Reducing numbers of requests which need medical records to be checked to issue the script. Feedback to staff about the working of the process

Strategies for change

- Using a Plan-Do-Study-Act cycle for guidance, the team decided to (a) coincide repeat medications and to record on the computer drugs prescribed during visits; (b) give signing of prescriptions a higher priority and bring them to doctors' desks at an agreed time; and (c) move the site for printing prescriptions to the reception desk so as to facilitate face to face queries.

Effects of change

- Prescription turnaround within 48 hours increased from 95% to 99% with reduced variability case to case and at a reduced cost. The number of prescriptions needing records to be looked at was reduced from 18% to 8.6%. This saved at least one working day of receptionist time each month. Feedback from all staff within the practice indicated greatly increased satisfaction with the newly designed process.

Lessons learnt

- The team's experience suggests that a combination of audit and improvement methodology offers a powerful way to learn about, and improve, practice. The interventions used by the team not only produced measurable and sustainable improvements but also helped the team to learn about the cost of achieving the results and provided them with tools to accomplish the aims. The importance of feedback to all staff about CQI measures was also recognised.

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This paper describes the first attempt by a general practice in Bournemouth, UK to apply continuous quality improvement (CQI) methodology to its own working practices. It has been written in the hope that some of the lessons learnt might be of value to other practices interested in exploring a similar approach.

In his classic "bad apples" paper of 1989, Berwick advocated the potential value of

applying CQI approaches within healthcare.¹ Since then, an increasing number of project reports and broader overviews have reinforced his views.²⁻⁶ More recently, the implications of applying CQI within primary care have been reported.^{7,8} The key message is that such methodology has value, although the need for further exploration is stressed.

In particular, continuous improvement

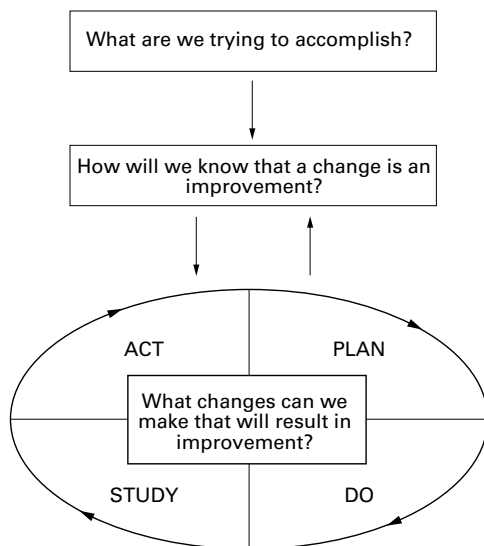


Figure 1 A model for building knowledge for improvement. Reprinted with permission from Langley GJ, Nolan KM, Nolan TW, et al. *The improvement guide*. San Francisco: Jossey Bass Publishers, 1996.

stresses the need to learn about current practice to generate ideas which will lead to improvements in the future. Writers have identified the need for leadership from general practitioners (GPs) to create the conditions for continuous learning in practice⁸⁻¹⁰ and for effective team working to produce higher standards of practice and care through a process of incremental improvement.^{7,9} The emphasis is on people starting where they are and working to improve their practice gradually over a period of time.¹¹

A simple model, which is both flexible and rigorous, has been proposed by Langley *et al* as a guide for those desiring to translate these ideas into practice (fig 1).¹² The model poses three fundamental questions which serve as a framework for improvement projects. Question 1 is designed to build knowledge about current practice, whereas question 2 helps teams to choose measures to check whether planned changes do result in improvement. The third question focuses on the improvement effort and is underpinned by the Plan-Do-Study-Act (PDSA) cycle that allows teams to learn as they go and to use their learning to inform their next change. The application of this model is

currently the focus of much attention from those undertaking CQI work in healthcare,¹³ and was used as a guide by the staff at Talbot Medical Centre.

Outline of problem

QUESTION 1: WHAT ARE WE TRYING TO ACCOMPLISH?

The receptionists at Talbot Medical Centre felt that their workload was becoming increasingly unmanageable and that although they provided a good service to patients, this was at a high cost to themselves. In response, the lead partner undertook a questionnaire survey to discover what the receptionists felt to be their most unproductive and time wasting tasks. This showed that they thought the repeat prescribing system was their most stressful and frustrating activity because they often had to wait in corridors to catch a doctor to sign a prescription while the patient was waiting at the reception desk. It was agreed to tackle this as a matter of urgency and to use it as an opportunity to check the value of CQI methodology using the model in figure 1 as a framework.

The practice established an interprofessional team whose members between them had an overview of all the processes involved in issuing repeat prescriptions. This team consisted of one partner, the practice administration manager, three receptionists including the senior receptionist, and an external facilitator. It met four times during three months, usually over lunch. Their first task was to establish their broad aim. At their first meeting team members discussed the current situation from their own individual perspectives and addressed Langley *et al*'s question 1 (fig 1) "What are we trying to accomplish?" As a result they were able to agree a joint aim as follows:

"To improve the repeat prescribing system so that all patients' repeat prescriptions are processed within 48 hours and are ready for collection at the specified time."

The discussion leading up to this agreement helped the team to identify areas where they needed more information, and the agreement itself provided a common purpose that gave direction to their work. They used various methods to build their knowledge about the current situation and these are described in the next section.

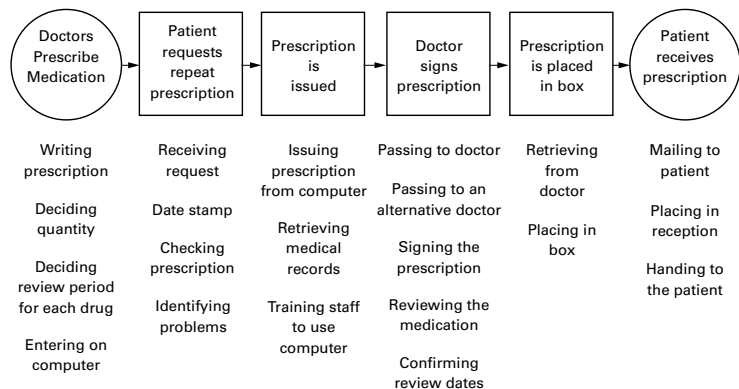


Figure 2 Repeat prescribing process at Talbot Medical Centre: a "top down" flowchart.

Design

GATHERING INFORMATION

During their meetings the team used brainstorming techniques to structure their discussions and to ensure that everybody had an opportunity to share their own experiences. They drew a "high level" flowchart illustrating the major steps of the process and then turned it into a "top down flowchart" by listing under each step the actual activities which were undertaken across the practice to make it work well (fig 2).¹⁴

Next they drew a more detailed flowchart which showed how a prescription request travelled through the system that had evolved in their practice over the years (fig 3). It illustrated

Table 1 Repeat prescribing process at Talbot Medical Centre

Comparison of all audits	0 months	6 months	12 months	24 months
	First audit	Second audit	Third audit	Fourth audit
Total prescriptions in audit	1444	986	1624	1445
Total prescriptions done 48 hours or less	1378	970	1609	1402
As a percentage of total prescriptions in audit	95.43	98.38	99.08	97
Total prescriptions done more than 48 hours	66	16	15	19
As a percentage of total prescriptions in audit	4.57	1.62	0.92	1.31
Total prescriptions done 24 hours or less	1032	816	1391	1278
As a percentage of total prescriptions in audit	71.47	82.76	85.65	88.44
Total needing medical records	257	111	172	125
As a percentage of total prescriptions in audit	17.8	11.26	10.59	8.6

the interrelations between different activities and helped the team to clarify their thinking about next steps and where to focus their improvement efforts.

To obtain more knowledge about their current performance, an audit was done over a one month period to assess how many prescriptions were ready for collection within 48 hours and to identify the number that needed medical records to be checked before they could be signed. It was practice policy to do this if the requested item was not on “repeat medication” on the computer, or the patient was under/over using.

Analysis and interpretation

Preparing the flowcharts stimulated considerable discussion among team members. This demonstrated how many different assumptions existed about what was actually happening. For example, it was initially assumed that the patient’s request for a repeat prescription was the first step in the process. After discussion, however, the team realised that the process really began when the GP wrote the initial prescription (fig 2). The “cloud” in the detailed flowchart (fig 3) illustrated an area of activity where it was unclear what the doctors did, and it became obvious that each had their own (and sometimes more than one) way of dealing with repeat prescriptions. Signing them was not considered a priority by all, and the reception-

ists frequently had to find a partner at the 47th hour to do this. A second major cause of delay and uncertainty was the doctors’ practice of signing prescriptions in the central administrative area at the end of surgery. There were many distractions/telephone calls and limited access to computer screens. The GPs were also invariably under pressure to leave the building to begin their visits.

Discussion also highlighted the number of different, and potentially contradictory, instant solutions that team members had in mind. These were recorded and saved until later so that the process could move on.

The results of the audit (table 1) showed that the 48 hour turnaround target was achieved in 95% of the cases. However, although this seemed acceptable, the receptionists had already pointed out that it was achieved at a high cost to their daily working life. As mentioned earlier they regularly had to leave queues at the reception desk while they hunted for the relevant GP to get a prescription signed for a waiting patient (fig 4).

Key measures for improvement

QUESTION 2: HOW WILL WE KNOW THAT A CHANGE IS AN IMPROVEMENT?

The team chose four key areas where they predicted that their changes would lead to improvement. These were:

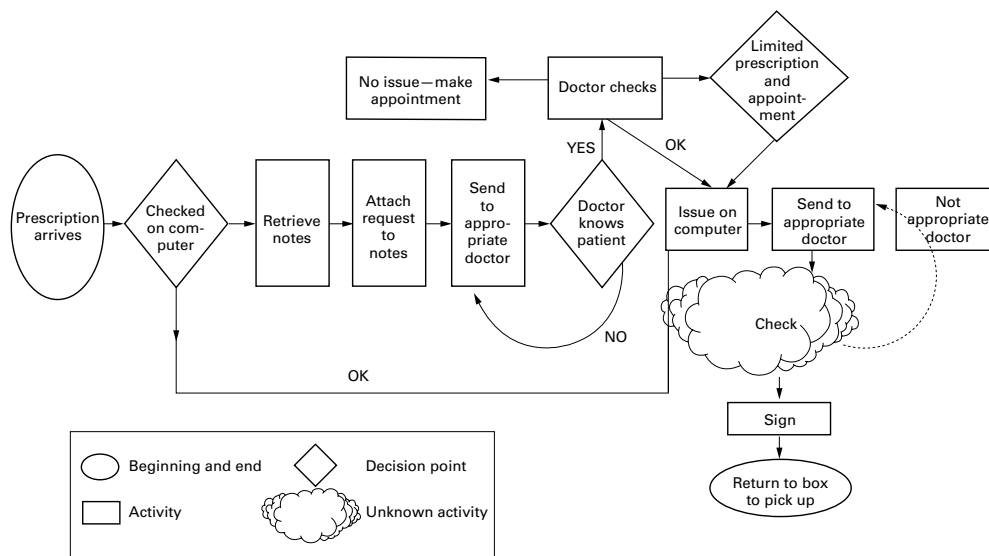


Figure 3 Repeat prescribing system at Talbot Medical Centre: the journey of a repeat prescription.

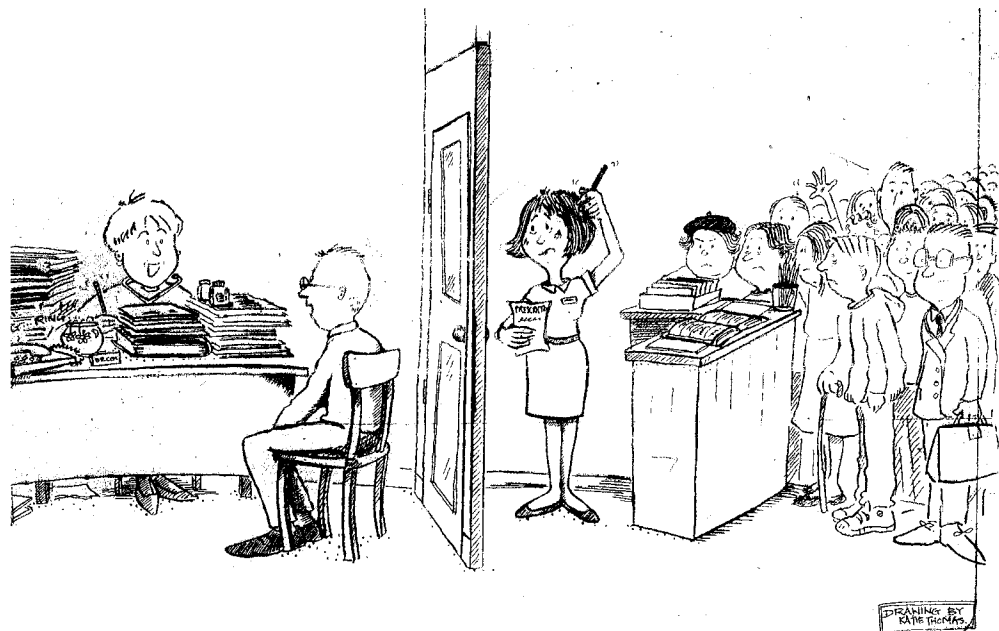


Figure 4 Prescribing problems. Cartoon used with permission of the artist, Kate West (née Thomas).

- (1) The percentage of prescriptions available for collection within 48 hours will increase
- (2) Fewer prescriptions will require checking of medical records
- (3) The overall system will work better with receptionists wasting less time waiting outside doctors' rooms to get prescriptions signed
- (4) Patients' complaints will be reduced.

Strategies for change

QUESTION 3: WHAT CHANGES CAN WE MAKE THAT WILL RESULT IN AN IMPROVEMENT?

The knowledge gained from the flowcharts and the audit results helped the team to identify areas that were likely to have the most impact. They decided to concentrate on two areas:

- (1) the practice's prescribing protocols; this relates to the team's realisation of the importance of the first step in the whole repeat prescribing process; and
- (2) the practice's core

repeat prescribing process: the team had learnt that they needed a better way of doing things which matched everyone's working day.

Using all the above information the team used the plan and do steps of the PDSA cycle as a guide to make the following changes:

- All partners in the practice met and agreed to coincide repeat medications and to record on the computer drugs prescribed during visits
- To give the signing of prescriptions a higher priority, it was agreed that they would be brought into the doctor's consulting room at a breaktime midway through surgery. This allowed them to be signed in front of a computer screen where the doctors could make necessary changes in peace
- The site for printing prescriptions was moved to an area behind the reception desk so that queries could be dealt with face to face by a designated member of staff

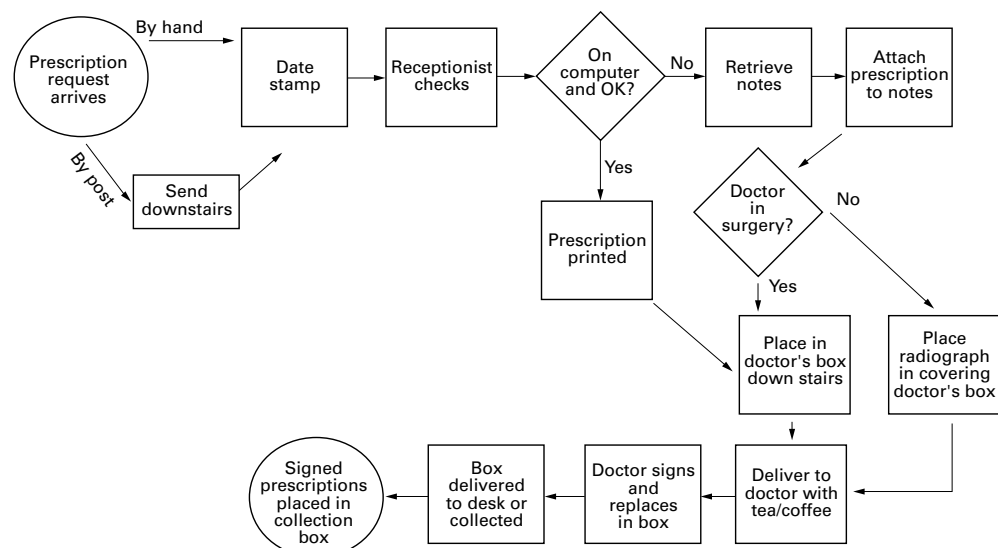


Figure 5 Repeat prescribing process at Talbot Medical Centre.

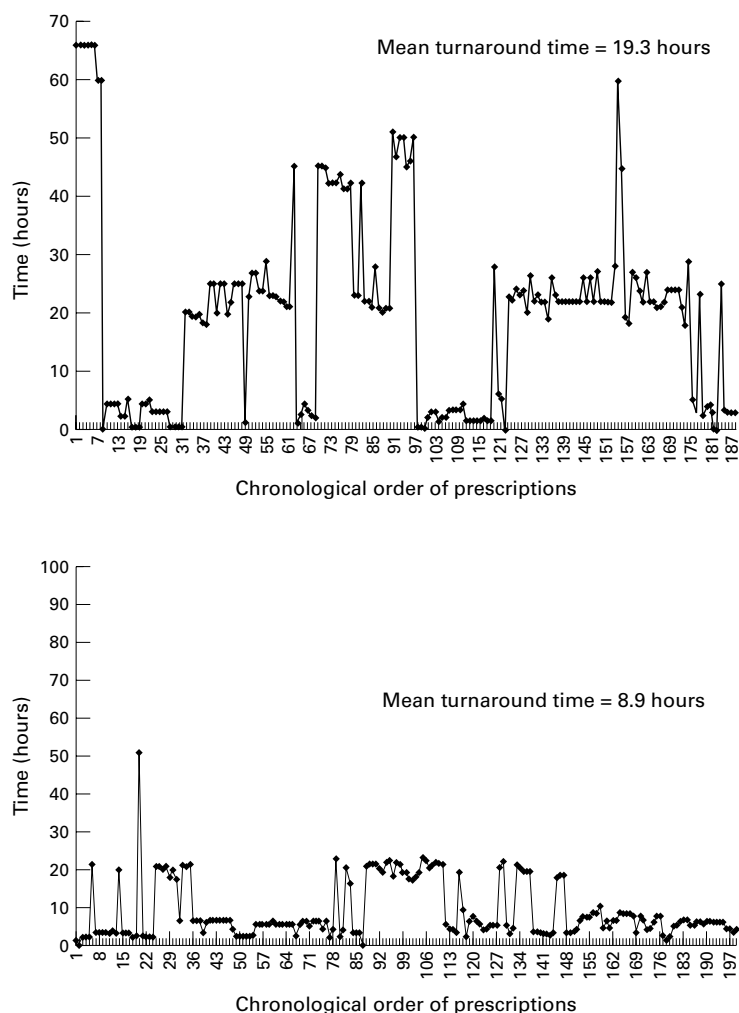


Figure 6 Repeat prescription processing time, (A) pre-changes, audit 1 and (B) post-changes, audit 4.

- A detailed flowchart of the new process was designed and placed on the wall next to the repeat prescription computer (fig 5) This serves as a constant reminder and is useful for training new staff.

Effects of changes

Six months after implementing the changes the team did a follow up audit as part of the “study” and “act” steps of the PDSA cycle. They studied the results of the changes outlined in the section above detailing key measures for improvement. Two further PDSA cycles were undertaken, informed by audits, at 12 and 24 months (table 1).

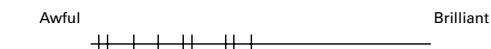
The results were as follows:

PERCENTAGE OF PRESCRIPTIONS AVAILABLE FOR COLLECTION WITHIN 48 HOURS

Table 1 shows that the percentage of prescriptions available within 48 hours increased from 95.4% to 98.4%. The 24 hour turnaround time also increased from 71.5% to 82.8%, indicating that the process was running more effectively and efficiently. The 12 and 24 month audits showed prescriptions ready for collection in 48 hours being 99% and 97%, respectively and in 24 hours 86% and 88%,

Staff:

(1) Before reorganising the repeat prescribing at Talbot Medical Centre, how did you feel the system worked?

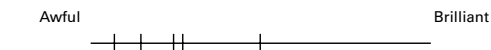


(2) How is it now?



Doctors:

(1) Before reorganising the repeat prescribing at Talbot Medical Centre, how did you feel the system worked?



(2) How is it now?



Figure 7 Repeat prescribing project at Talbot Medical Centre: staff survey results.

respectively. The slight decline in the 48 hour turnaround results was investigated and appropriate action was taken. This is discussed in the next section. The results also indicated a continuing fall in the number of medical records that needed to be checked from 17.8% to 8.6% overall.

The team took the opportunity to experiment with a different way of analysing their data and prepared graphs of turnaround times for consecutive scripts over time. Graphs of the first 200 scripts for the first and fourth audits are shown for illustration purposes (fig 6). These suggest that the process is becoming more uniform with reduction in variability and in mean turnaround time from 19.3 to 8.9 hours. Their significance is discussed in the next section.

NUMBER OF PRESCRIPTIONS NEEDING RECORDS

The 6 month audit results indicated a significant reduction of 146 case notes needing to be pulled in one month (p<0.001). Assuming it takes approximately three minutes to retrieve, attach the prescription request, take to the doctor, and refile one set of notes, this represents a saving of one working day each month.

OVERALL SYSTEM OF WORKING

The team reported that all staff involved felt that the new process was working much better. Even partners not directly involved in the project had commented on this. In particular the receptionists reported that they were spending less time waiting in corridors; there was less nagging by, and of, staff because there was now a single process in place; and the partners reported the new process to be easier, more efficient in its demand on their time, and less stressful due to fewer interruptions.

A simple retrospective survey of receptionists and doctors was undertaken to check their feelings about the impact of the changes. The results (fig 7) show a considerable improve-

ment and indicate that the staff of this practice felt much more positive about the process.

REDUCTION OF PATIENT COMPLAINTS

Staff reported a significant reduction in patients' complaints, although a lack of any formal measures to record this is a weakness in this study.

Studying the results gave the practice confidence about the new working arrangements and these were therefore confirmed as practice policy. Thus the "act" part of the PDSA cycle was to maintain the newly designed ways of operating within the practice.

Conclusion

LESSONS LEARNT AND NEXT STEPS

Traditionally, an audit depicting 95% success against a standard might have been considered good enough with no need for further activity. However, using CQI methodology helped the team to learn about the cost of achieving the results and offered them tools to do something about it. Even if there had been no improvement, the investment of time would have been worthwhile because the changes produced a more uniform and efficient way of doing things. In fact, as reported above, the team's intervention produced measurable improvements that have been maintained over two years.

It is worth noting the changed attitude to audit within the team. Because this project began with a desire for change, the need for information gave purpose and value to undertaking an audit. This feeling was maintained as the follow up audits were done at intervals to check the results of the changes that had been implemented. They were perceived as exercises that would help the team to learn about an important aspect of their practice rather than being externally imposed for the benefit of others. The feedback helped the team to identify where further action was necessary, for example when the 24 month audit showed a decline in the 48 hour turnaround time. It was possible to identify the cause and refresh appropriate people's minds about the processes they should be following.

The graphs (fig 6) made the results more obvious and provided pointers to areas that needed further enquiry. This way of presenting the data raised more questions and initiated more discussion than the data presented only as before and after scores.

In addition to the reduction in mean turnaround times, the reduction in variation shown in the graphs indicates that the new process is working more consistently and is under better control than previously. In other words it has become the ordinary way that repeat prescribing is handled and managed within the practice, rather than a variety of daily events with few connections and little stability over time. Probably the greatest immediate benefits have been felt by staff who now spend less time retrieving medical notes and waiting in corridors while patients are queuing to be seen at the reception desk. The team's experience of using graphs in this way is in line

Key learning points

- A small interprofessional team from within the practice was able to design and implement changes that resulted in measurable improvements in service to patients and increased staff satisfaction
- A CQI framework and methodology allowed staff to share understanding of their current ways of doing things and to use this knowledge to generate ideas for change
- Simple measures and audit undertaken within an improvement context provided valuable information from which the team could learn, as well as confirming improvements in practice

with current thinking that measuring and reducing variation in performance is one of the most important dimensions of improving quality.^{11 15}

Choosing appropriate measures of change is crucial, and the practice learnt about the need for better data and information gathering—particularly before any changes are implemented. The team's experience deepened their understanding of the importance of reliable information to help them focus their work and learn from the results of their actions. Their increased confidence about using audit measures in a productive way has encouraged them to take a more rigorous approach when beginning subsequent projects.

The lack of patient focused measures was referred to earlier. When discussing the results and their possible value to patients, it became clear that the absence of such measures reflected an important gap in the team's knowledge and hence their ability to learn from what they had done. It is worth noting that when the practice established a team to tackle a second, different, project, one of their first steps was to do a patient survey as part of their approach thus improving their knowledge of the topic under examination.

Key factors in achieving success included leadership by the GP and the establishment of an interprofessional team with a clear purpose whose members between them had overall knowledge of the repeat prescribing process. Using improvement tools helped team members to understand how many different assumptions and potentially contradictory instant solutions they shared between them. Although they had no previous experience of multidisciplinary team working, the structured approach to building knowledge about an area that they all felt to be important proved to be an integrating and stimulating experience that generated many ideas for change. It emphasised the importance of developing a shared understanding of the repeat prescribing process and of the need to gather knowledge that helped them to decide jointly where improvement effort was likely to have the greatest impact. Using the PDSA learning cycle gave the practice confidence about their new work-

ing arrangements. The “act” part of the cycle was to confirm these arrangements as practice policy and to undertake annual audits to check that the gains have been maintained.

Working together in an open and respectful way was crucial and helped individuals to gain a better understanding of their mutual interdependence. The emphasis was therefore more focused on learning about their processes than blaming others for what was wrong. Their experience had a positive impact on individual staff members as well as the practice as a whole, and encouraged them to begin a second project.

The time spent in meetings and undertaking work in between was considered to be a good investment and not felt to have been excessive. This was reinforced when the practice began to experience the benefits of the changes that the team had designed and staff reported a considerable reduction in daily stress. This is supported by the survey results that figure 7 shows, although it must be acknowledged that it was undertaken retrospectively.

The role of the facilitator warrants special mention. The team felt that the presence of a facilitator who was not part of the practice was important to their success. His role included providing guidance about methodology and keeping the team’s attention focused on the task at hand. This would be more difficult if the person involved had prejudices and feelings about the way things were done within the practice, and it was felt unlikely that a member of the practice staff would have been objective enough.

Because the project was undertaken as a learning exercise in collaboration with Bournemouth University there were no facilitation costs. However, such activity could not be sustained if it always needed external facilitation with its attendant costs. This project and other similar local initiatives have raised important questions about how to provide such support in cost effective ways. One avenue being explored is the potential for using the local MAAG audit facilitators also as quality improvement facilitators. Another alternative is to create a network of experienced staff from local

practices so that they can be available to facilitate each other.

This was a real life project, undertaken by practice staff and fitted into the working day, rather than being a textbook illustration implemented under “laboratory conditions”. The results clearly illustrate the value of using the methodology to improve performance. The practice has to tackle the challenges inherent in achieving the right balance of structure and rigour, and to clarify the relation between audit and improvement. The team’s experience suggests that a combination of audit and improvement methodology offers a powerful way to learn about, and improve, practice. More fundamentally, it raised questions about the way the practice can introduce more formalised and structured quality improvement activities into its ordinary working practices.

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