

# Quality improvement for General Practice

A guide for GPs and the whole practice team



Created with the busy primary care professional in mind, this guide details QI techniques that will see you and your team through a cycle of improvement time after time

CLINICAL INNOVATION AND RESEARCH CENTRE PILOT VERSION 1.0, SEPTEMBER 2015

The Royal College of General Practitioners was founded in 1952 with this object:

‘To encourage, foster and maintain the highest possible standards in general practice and for that purpose to take or join with others in taking steps consistent with the charitable nature of that object which may assist towards the same.’

Among its responsibilities under its Royal Charter the College is entitled to:

‘Diffuse information on all matters affecting general practice and issue such publications as may assist the object of the College.’

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Dr Joanna Bircher, Chris Gush, Dr Matt Hoghton, Samina Ladhini\*, Megan Lanigan\*, Nicola O'Reilly, Sarah Pollet, Dr Imran Rafi, Ruchi Sivaganesh, Dr Bill Taylor.

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**Professor Derek Bell.** President Royal College of Physicians, Edinburgh. Director of NIHR CLAHRC for Northwest London and Professor in Acute Medicine, Imperial College, London.

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**Professor Amanda Howe.** RCGP Vice Chair, Professional Development.

**Professor Roger Jones.** Editor, British Journal of General Practice.

**Dr Terry Kemple.** RCGP President-Elect.

**Professor Simon De Lusignan.** Chair in Health Care Management and Professor of Primary Care and Informatics, University of Surrey.

**Professor Martin Marshall.** Professor of Healthcare Improvement, University College London, and Lead for Improvement Science London.

**Dr Kevin Stewart.** Clinical Director, Clinical Effectiveness and Evaluation Unit, Royal College of Physicians, London. Consultant Physician, Hampshire Hospitals.

**Dr Robert Varnam.** Head of General Practice Development, NHS England.

This guide was authored by Dr Bill Taylor, Clinical Lead for Quality Improvement, and Dr Joanna Bircher, Clinical Support Fellow for Quality Improvement, with the support of Sarah Pollet, Programme Officer at CIRC, RCGP.

# Foreword

General practice is at the heart of the UK healthcare system. The scope, quality and innovation in UK primary care is recognised internationally. The challenge of improving the effectiveness and efficiency of the service we offer to our patients is continuous and ours to take up, to lead on and to achieve.

Improvement science as described by Martin Marshall *et al*<sup>1</sup> offers a systematic and evidence-based, health services approach to quality improvement. However, one of the many current challenges faced in primary care is having the time and commitment to evaluate initiatives in practice even if the potential exists for systematic improvement.

Our quality improvement experts in the Clinical Innovation and Research Centre at RCGP have highlighted these tools, produced in this guide, specifically to support primary care practitioners to plan, implement, evaluate, and embed new approaches more effectively and efficiently into practice.

The tools demonstrated in this guide are accessible and workable at the practice level for interventions locally. The evidence it generates, through your work and shared experience, will provide support for improvements in general practice at scale. It also has the potential to influence upstream changes in the health system and in policy-making.

The potential improvements that could be made using this guide are a significant step towards implementing improvement science. It will help us to make the most of our systems, organisations and our talents and expertise to deliver better outcomes for patients.



**Maureen Baker**  
Chair of RCGP Council



**Imran Rafi**  
Chair RCGP Clinical Innovation  
and Research Centre

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1. Marshall M, Baker M, Rafi I and Howe A. What can science contribute to quality improvement in general practice? *Br J Gen Pract* 2014 May; 64 (622): 254 -256

# Introduction

As GPs, we strive to deliver the highest quality of care to our patients. There is a pressing need to harness this aim with ‘evidence-informed’ quality improvement (QI).

## What is quality improvement?

The term ‘quality improvement’ describes a commitment to continuously improving the quality of healthcare, focusing on the preferences and needs of the people who use services. It encompasses a set of values (which include a commitment to self-reflection, shared learning, the use of theory, partnership working, leadership and an understanding of context); and a set of methods (which include measurement, understanding variation, cyclical change, benchmarking and a set of tools and techniques).

## Why QI?

As members of primary care, we don’t have the time or resources to spend on things that don’t work, don’t serve our patients, and that could be done either more efficiently or effectively. However, we need ways of identifying whether things work, how well they work, and the reasons why this is. What’s more, these ‘ways’ need to be simple, straightforward and effective. The methodologies and techniques of quality improvement provide us with these skills and insights.

## QI in practice

As members of primary care, we are already ‘doing QI’ in the form of clinical audit and significant event analysis. College members have been pivotal in the development and promotion of these instruments. In the face of the pressures on general practice, RCGP Council has agreed that members, and primary care generally, would benefit from advice, support and training in how to take advantage of what a wider approach to quality improvement has to offer us. A first step towards that goal is this Guide to quality improvement.

## QI support

This guide provides the essential information about a select range of approaches and tools that we are likely to be able to use time and again to the benefit of our practice and patients. The tools are chosen for being simple and straightforward – even enjoyable, revelatory and rewarding – and, taken together, they will support you through the full circle of continuous improvement. They help to unravel the knottiest of system and process problems; to generate ideas for solving them; and they provide a methodology for testing those ideas, revealing the ones that merit further time investment, and those that should be dropped forthwith. They are drawn from ‘evidence-based’ materials from the emerging improvement science. We have devised a wheel to summarise the process. This guide will take you through it and the stages you will work through in your intervention.

## Improving together

QI is a good place to direct team efforts. New models of working, such as federations or localities, will discover many benefits from engaging with QI work to share knowledge, skills and best practice.

We would appreciate hearing your improvement stories and case analyses so that we can learn from them and inspire others. Please send them to [qualityimprovement@rcgp.org.uk](mailto:qualityimprovement@rcgp.org.uk)



**Bill Taylor and Joanna Bircher**

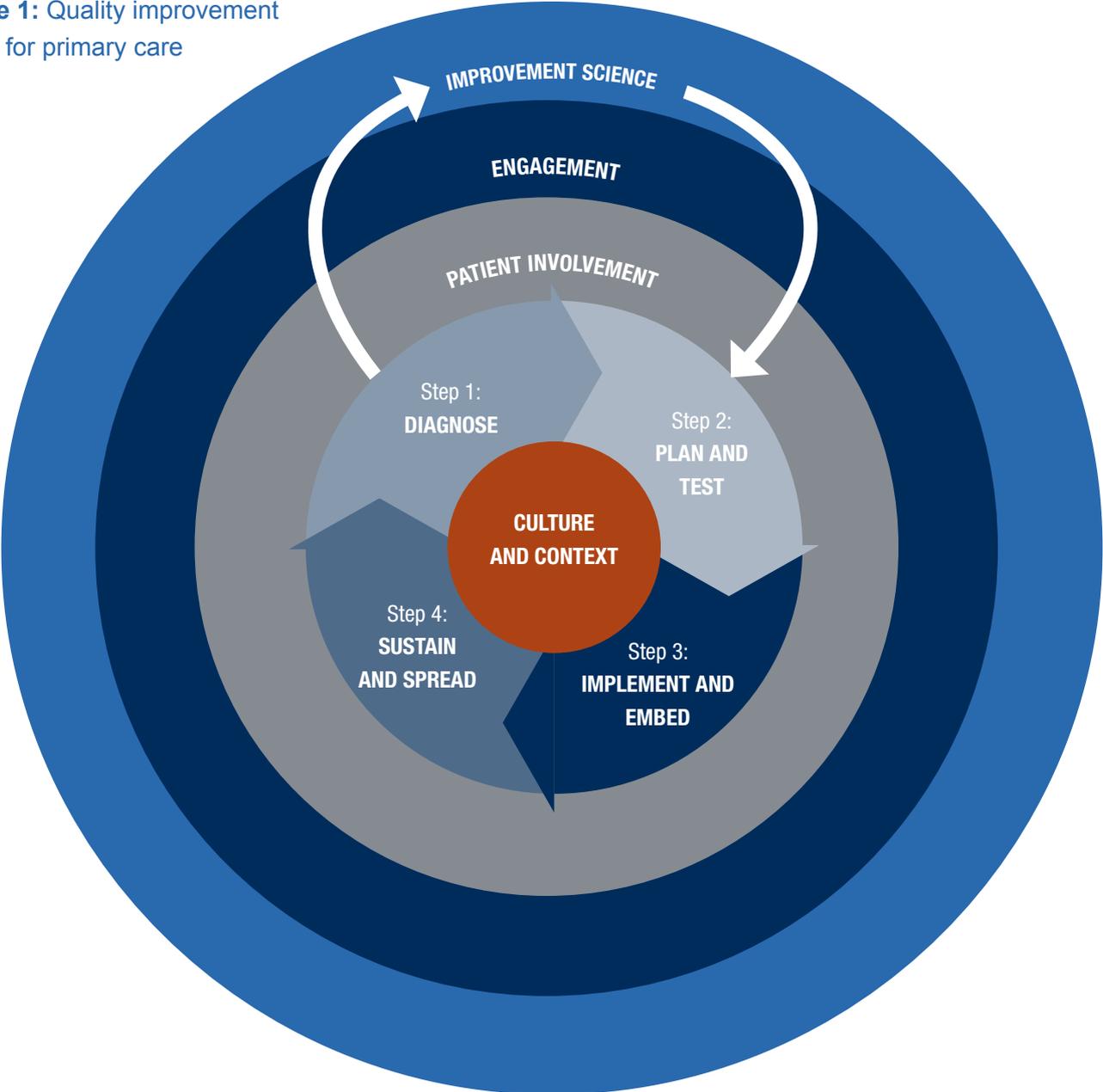
# Introducing the QI wheel for primary care

The aim of this guide is to make the principles and tools of quality improvement as accessible as possible for GPs and their practices teams.

We have created a simple visual representation of quality improvement for primary care to give you an overview of your quality improvement journey. It illustrates the main elements for you to consider

in the design, delivery and evaluation of a QI project and acts as a guide to the stages you will work through during implementation.

**Figure 1:** Quality improvement wheel for primary care



## EXPLAINING THE QI WHEEL FOR PRIMARY CARE

The QI wheel is made up of five rings:

1. **Culture and context.** Helps you to create the right conditions for a successful project.
2. **QI cycle.** Guides you through project implementation
3. **Patient involvement.** It provides ideas on harnessing vital patient input for successful improvements
4. **Engagement.** It provides ideas on which stakeholders to engage and how to involve them.
5. **Improvement science.** Provides you with the big picture context that your QI work fits into.

### THE HUB OF THE WHEEL: CONTEXT AND CULTURE

**What is it?** You can consider your culture and context to be the soil in which the intervention will germinate. The soil needs to be as favourable as possible to allow the intervention to be successful. Context is the local and national environment in which you operate. Culture covers your practice values, attitudes and ways of working. It includes your practice team, patients and stakeholders: how you involve them and interact together on a daily basis. Your patients and stakeholders are therefore included at the heart of this wheel.

**Why is it there?** We have placed 'Context and culture' at the centre of the wheel as without a culture and context that is keen to experiment, and supportive of trying something new, it will be hard for change to occur, or be sustained, regardless of what tools or methods you use.

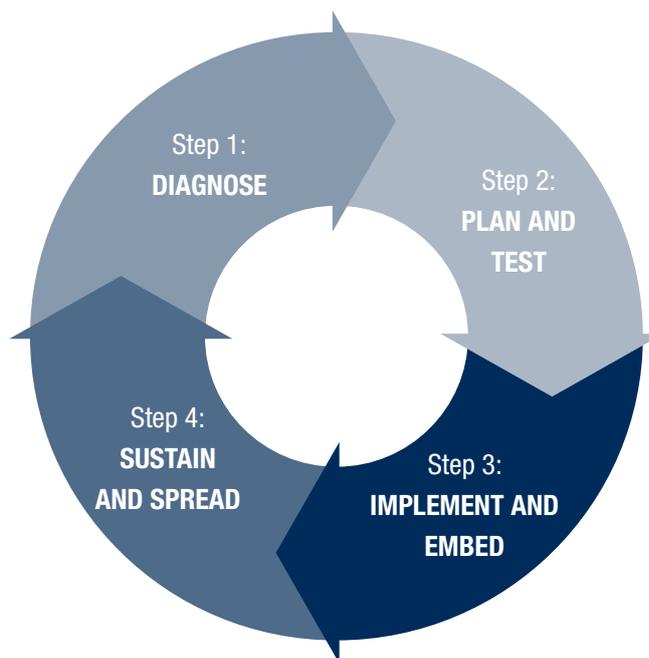
**How do you use it?** This section of the guide provides you with tools to analyse your own context and culture, which you can then use to find the best way to create a context that is supportive of the change(s) you wish to make.

### THE INNER RIM OF THE WHEEL: THE QI CYCLE

**What is it?** These are the implementation steps for a cycle of quality improvement. We have broken it down into four steps.

**Why is it there?** These are the stages you will work through in any QI project.

Figure 2: QI cycle diagram



### How do you use it?

This guide explains helpful tools for implementing each step:

- **Step 1: Diagnose** - assess the area of your practice or organisation that requires improvement, and generate some baseline data.
- **Step 2: Plan and test** – decide the aims, methods and monitoring of your change. You can also test your intervention in a graded fashion.
- **Step 3: Implement and embed** - make any successes part of your systems or processes.
- **Step 4: Sustain and spread** - consider how your aims or intervention can continue to be implemented on a larger scale, if appropriate, and how the conclusions can be made more widely available.

An overview of the QI tools is provided on page 20. Chapters 2 to 5 explain each tool.

## THE ESSENTIAL SUPPORTING RIMS:

### Patient involvement

**What is it?** Patients are part of your culture and context. Involving them in our QI work means we see our work through the eyes of the people who need our care. This helps us to design, implement and evaluate each individual quality improvement project.

**Why is it there?** The position of the patient involvement ring indicates it acts as scaffolding, to support any QI project.

**How to use it?** This section of the guide provides you with ideas on how to harness patient input into the design and delivery of your projects and their measures of success.

### Engagement

**What is it?** Engagement represents all stakeholders relevant to your project. You will have internal stakeholders in your own practice and external stakeholders such as pharmacists, social care services, and health infrastructure bodies at the local and national level.

**Why is it there?** In a similar way to patients, your stakeholder involvement can support the different stages of your QI project.

**How to use it?** This section helps you to consider the who, when and how of involving your stakeholders.

### Improvement science

**What is it?** Improvement science is research to identify and demonstrate the best and most appropriate methods for improvement in the quality and safety of health services.

**Why is it there?** Improvement science is the 'containing' ring because it is the big picture context for your QI work.

**How to use it?** Once you have made progress on your QI journey and have gained confidence using the approach explained in this guide, the Improvement science section signposts you to other improvement methodologies that you and your team may wish to explore.

## HOW TO USE THIS GUIDE

This guide has been designed to get you started on your QI journey. You do not need to read it from cover to cover.

Be inspired. Read the example QI project described overleaf. It provides an overview of what a cycle of improvement in primary care might look like in practice.

Orientate yourself. Read chapter 3 to gain a broad overview of the QI approach we advocate.

Prepare your culture and context. Start at the hub and read chapter 1: analyse your own culture and context and make it as pro-change as possible.

Get started: try your first QI project. Follow the four steps in the QI cycle, starting with diagnosing an area for improvement. Page 20 provides a summary of the tools we recommend for each step. There is a menu to choose from. Pick the ones most relevant to your project. You will find that the tools can be re-used in later steps.

*If you're reading the guide on screen, you can use the bookmark menu on the left to navigate to and from other sections.*

# QI in action: a practical example

What does a cycle of quality improvement in general practice look like? Here is an example from Dr Joanna Bircher which was undertaken in her practice in Tameside and Glossop, England.

## Diagnosis of an area for improvement

The GPs at our practice attended a local GP education event where they heard a presentation from the local consultant in substance misuse. She presented compelling and disturbing data about the rise in prescribing of opiate medication and the challenge facing her service of helping people to come off these addictive prescription painkillers.

We had been aware of a general rise in prescribing within our own practice, and had also recognised we were sometimes reaching for the prescription pad when a multi-modality approach to chronic pain management might have been more appropriate. We made a plan to see if we could reduce our prescribing.

## Plan and test

As described in this guide, we adopted the Institute for Healthcare Improvement's 'Model for Improvement' to steer our activity.

## What are we trying to accomplish?

It was hard to set a clear aim, as we couldn't predict what would be an appropriate level of prescribing for our patients; but we hoped to reverse the upward trend in our prescribing. We therefore chose as our aim: a reduction in the number of prescriptions for strong opiate medication (drugs of the equivalent strength of codeine 30mg or above) issued per month.

## What changes will result in an improvement?

We had two ideas to test.

The first was to write to all patients who receive a repeat prescription for these medications, excluding those coded as 'palliative' or 'end of life' care. One of the GPs would design the letter and test out the wording with the practice team and two patients on such a repeat prescription. The letter would explain the long-term problems that can be caused by the medication and the possible benefits of reducing or stopping the drugs, as well as the issue of withdrawal symptoms.

The second idea (implemented at the same time) was to reduce the quantity of medication issued the first time a prescription for a strong opiate for pain was prescribed to 50 tablets and attach a leaflet to that prescription explaining the value of the drug for acute pain as well its addictive potential and the issue of withdrawal symptoms following prolonged use. Again this leaflet would be drafted and shared with the practice team and a few patients to 'fine tune' the wording.

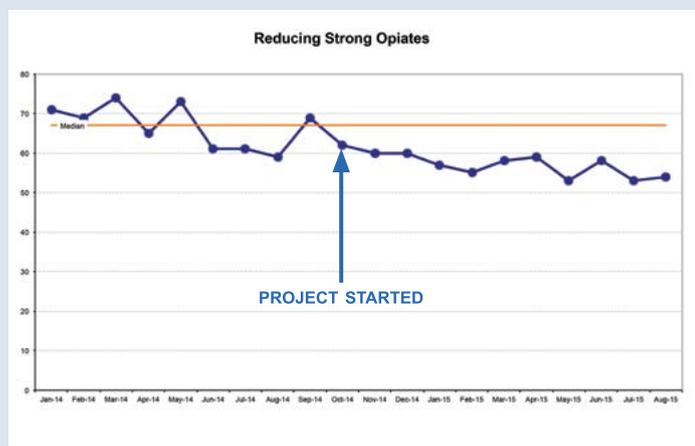
## How will we know if a change is an improvement?

We would use a run chart to monitor our monthly data of the number of prescriptions of strong opiates issued. It was easy to gather retrospective data for the ten months prior to the project and provide ourselves with a baseline for comparison.

## Implement and embed

We were delighted to see positive results with an overall reduction in the number of prescriptions issued for strong opiates.

**Figure 3:** Run chart for reducing strong opiates



Discussing the results in our practice meeting, it was felt the initial letter to patients on a repeat prescription had made the most difference because most of us had been forgetting to implement the second idea (prescribing smaller quantities when first issuing a prescription and to attach the leaflet to that prescription).

We had decided to gather any negative comments from patients about the project as our balance measure (which checks for negative impact of a project) and were surprised to find there were none. We wondered if this was because of patient involvement in the design of the letter.

We decided to repeat the first idea on an annual basis (letter). After our experience of the difficulties of implementing the second idea (leaflet), we will look for ways to make it easier for the doctors to remember and then see if it generates a further reduction.

## Sustain and spread

We continue to run the search for the number of strong opiates issued per month and plot it on the run chart. This allows us to track if our change has been sustained. The chart is displayed on our practice 'Performance board': a visual display in our meeting room, where we all eat lunch. This helps to keep the goal in everyone's mind.

We try to spread the ideas by sharing our project with medical students and visitors to the practice.

# PART I: The hub of the wheel

- [CULTURE AND CONTEXT](#)

# Context and culture in quality improvement



*Is the soil (context) fertile enough to allow the seeds of quality improvement to flourish?*  
(© Natural Resources Conservation Service)

Context can be defined as the ‘environment’ in which your quality improvement intervention is to be introduced. Variations in context influence the success or failure of your intervention, no matter how well planned it may be. Looking at your context at the very outset of your initiative will help it to thrive. Where you identify elements with the potential to be detrimental to your success, you will be able to devise strategies to accommodate or ameliorate them.

Breaking down ‘context’ into its component parts can help you to understand it. One way of doing this is to consider context as ‘Inner’ (related to the practice or organisation in which the intervention is introduced) and ‘External’ (related to factors in the world at large). Part of this analysis could include considering the behaviour and motivation of those involved. In order to give you multiple insights into your context we provide three tools for assessing it (see page 18): a checklist, forcefield analysis and SWOT analysis.

## 'INNER CONTEXT' FACTORS

The imposition of plans and ideas from above can create barriers to success. The following present an alternative to a top-down culture.

### Culture

Success is more likely if all members of the practice or organisation:

- Support each other.
- Are satisfied with their work.
- Give high priority to quality and are prepared to recognise when things could be improved.
- Welcome patient feedback in all its forms – compliments, complaints and experiences – as an opportunity to see their service through the eyes of the users, and to learn from this.
- Operate a 'no blame' system when looking for root causes when things go wrong.
- Are happy to be involved in looking for solutions.
- Are prepared to experiment with new ideas.
- Believe it is worth investing time to improve.

Questionnaires administered within the practice can help assess the culture. Although most have been designed with safety in mind, they are still relevant for quality as a whole. Examples like the Manchester Patient Safety Framework and Safequest tool can be found on the RCGP Patient Safety Toolkit webpage.<sup>2</sup>

### Leadership

Success is more likely if the leaders of the practice or organisation:

- Believe that involving staff and patients in planning improvements will create a better outcome.
- Have skills that allow for maximum participation and effective meetings.
- Inspire and motivate the team.

- Encourage members of the team to take the lead.
- Can support the team through challenging times that often accompany change.

### Team working

Success is more likely if the practice or organisation:

- Recognises that good teamwork is essential and that each individual has a role to play.
- Invests time in developing the skills of the whole team.

### Capacity

Success is more likely if the practice or organisation has:

- The financial and human resources needed to undertake the improvement. Costing of the change will include: the quantification of the costs of the intervention; the quantification of the outcomes; the differences between options; and the differences between costs and outcomes. Calculating costs can be difficult and rough estimates often have to be used.
- Methods of identifying those resources.
- Suitable equipment available.
- The time available for the programme to realistically achieve its goals. You may need to consider your time management.

## 'EXTERNAL CONTEXT' FACTORS

### Evidence base

Success is more likely when:

- Planning the intervention has included looking for what has worked in other organisations. You may need to critically appraise such evidence, looking in particular at how a given context might differ from your own.
- Evidence-based guidelines are followed.

2. RCGP. *Patient Safety Toolkit for General Practice*. Available from: <http://www.rcgp.org.uk/clinical-and-research/toolkits/patient-safety>. [accessed 7 September 2015]

Using evidence-based quality improvement interventions is a developing field of research, see chapter 8: improvement science (page 53).

### Political/regulatory

Success is more likely when:

- Your quality improvement intervention is compatible with the wider political priorities. Consider, for example, changes to contracts, performance measures, national frameworks and policies.
- Your intervention is compatible with the requirements of regulatory bodies, such as the Care Quality Commission (CQC), General Medical Council (GMC), and GP contract.

### Technological

Success is more likely when:

- Effective IT and communication devices support your intervention, e.g. for data analysis and visual displays of progress.
- Wide use is made of all media systems to sustain and spread your learning.

### Social/demographics

Success is more likely when:

- Your quality improvement intervention is appropriate for the demographics of age, gender, race, religion, and socio-economic status of the population affected.
- It follows a social trend. An example of this would be a general move towards 'patient-centred' care either from multiple organisations or from a wave of enthusiasm on social media for patient involvement in service design.
- Your quality improvement intervention is appropriate for the prevailing economic climate.

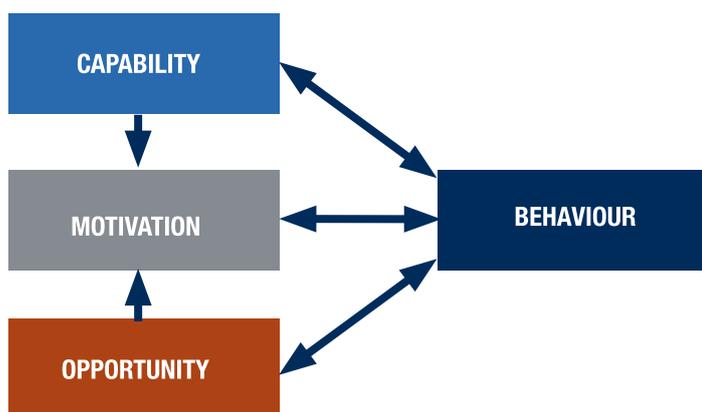
## BEHAVIOUR CHANGE AND HUMAN MOTIVATION

In addition to the 'Inner' and 'External' contextual factors, a good understanding of how to influence human behaviour is important for an effective quality improvement intervention.

There are many theories of behaviour change and human motivation. One way of thinking about it is that developed by Michie *et al.*<sup>3</sup> In their framework, capability, opportunity and motivation interact to create behaviour. 'Capability' is defined to include having the knowledge and skills needed to engage. 'Opportunity' refers to external factors that can influence the adoption of the intervention. 'Motivation' is creating the energy that will direct behaviour.

People are motivated by an array of factors. For some, improving the quality of care for their patients is enough, particularly if failure to take action will have dire consequences for their patients. For others, professionalism or interest in the subject matter might be key. Other possible levers include personal or organisational alignment with the goals of quality improvement; threat of coercion; or the offer of incentives (a gain in time, money or other resources). Identifying quick wins can motivate people in any of your projects.

3. Michie S, *et al.* The behaviour change wheel: A new method for characterising and designing behaviour change interventions. *Implementation Science* 2011; 6:42; DOI: 10.1186/1748-5908-6-42.

**Figure 4:** Behaviour change diagram<sup>4</sup>

Some of these elements you may be able to modify; for others you may have to change your approach to accommodate the context.

## CONTEXT TOOLS

Here are three tools to help you consider and understand your context and culture. Choose the one(s) you feel will work for your situation.

### CONTEXT CHECKLIST

The checklist (appendix one, page 56) breaks down context into eleven elements. Consider each in turn and decide whether they are applicable to your situation, and whether any action is required.

### FORCEFIELD ANALYSIS

A forcefield analysis assesses which aspects of context are aiding or hindering the project. The chart is made up of two columns: one for driving forces and one for restraining forces. Brainstorm what the forces are and score the strength of each from 1 – 10. Then use the forcefield analysis to devise a strategy that accommodates or increases the driving forces and that either mitigates or decreases the strength of the restraining forces. A Word template is in appendix two, page 57.

### SWOT ANALYSIS

In this analysis there are four headings:

- strengths
- weaknesses
- opportunities
- threats.

Consider which contextual elements fit under each heading. They may fit under more than one. You can then use the identified strengths and opportunities to your benefit; and you may also try to mitigate your weaknesses and avoid the threats.

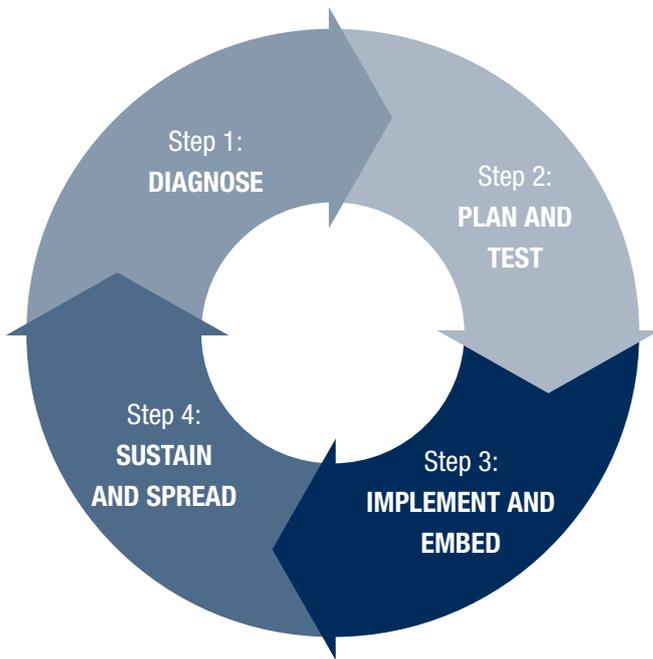
4. Michie S, *et al.* The behaviour change wheel: A new method for characterising and designing behaviour change interventions. *Implementation Science* 2011; 6:42; DOI: 10.1186/1748-5908-6-42.

# PART II:

## The inner wheel

- QUALITY IMPROVEMENT  
TOOLS AND CYCLES

**Figure 5:** QI cycle and menu of tools



This diagram summarises the steps of a QI cycle and sets out a menu of tools that you can choose from for each step. You will find you will reuse some of the tools from earlier steps later in the cycle.

<p><b>Step 1: DIAGNOSE</b></p> <p><i>Examining a system or process</i>  <b>Process mapping:</b> Visual representation of a process  <b>Value stream mapping:</b> More detailed than process mapping  <b>Fishbone diagram:</b> Diagram to identify the root cause of a problem  <b>Clinical audit:</b> Criterion and standard based study  <b>Significant event analysis:</b> Reflection and learning from a case  <b>Enhanced significant event audit</b></p> <p><i>Externally-sourced data</i>  <b>National audit:</b> Use results obtained nationally  <b>Benchmarking data:</b> Data may illustrate variation in practice  <b>CQC:</b> Areas for improvement identified</p> <p><i>Creating new sources of data</i>  <b>Gathering:</b> Data can be used to identify a problem  <b>Survey:</b> Can identify needs of targeted group  <b>Diagnostic analysis:</b> Focus group(s) to identify areas for improvement  <b>Appreciative inquiry:</b> Improving processes that work well</p>	<p><b>Step 2: PLAN AND TEST</b></p> <p><b>Model for improvement:</b> defining purpose and measure of success  <b>Driver diagrams:</b> Used in planning a project  <b>PDSA:</b> Cyclical testing and implementing ideas in project  <b>Run charts:</b> Charts to analyse data and look at variation  <b>Care bundle:</b> Grouping of indicators measured collectively  <b>Communication matrix:</b> Identifying who and what to tell about project  <b>Gantt chart:</b> Action planner  <b>Theory of constraints:</b> Identifying constraints and eliminating them  <b>Experience-based co-design:</b> Patients and staff design services together</p>	<p><b>Step 3: IMPLEMENT AND EMBED</b></p> <p><b>Run charts:</b> Charts to analyse data and check if improvement  <b>Visual display:</b> Display to all involved</p>	<p><b>Step 4: SUSTAIN AND SPREAD</b></p> <p><b>Evaluation:</b> Elements required for evaluation  <b>Networks:</b> The 5C wheel to add value to networks  <b>Communication strategy:</b> Plan communication  <b>Collaboratives:</b> Grouping of practices and or disciplines  <b>SPC charts:</b> More sensitive run charts</p>
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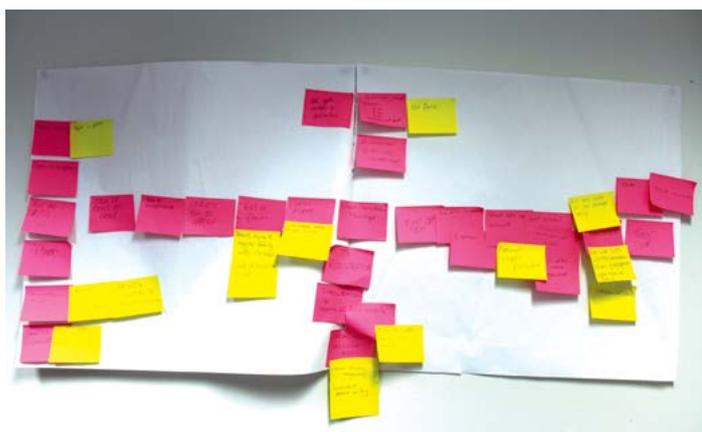
# Diagnosis

Having understood your culture and context, you can identify areas of practice that could be improved or would benefit from change. This section contains a variety of tools that enable you to do this. You can choose to use one tool or several together. We have grouped them into system or process analysis tools (below), externally-sourced data (pages 26) and creating new data sources (pages 27).

## SYSTEM OR PROCESS ANALYSIS TOOLS

When you think of a process in your practice, you might be able to think of some 'solutions' off the top of your head. Tools, however, enable you to examine an area as a team and drill down to uncover useful pieces of information – such as false assumptions – that can help generate new solutions and provide the order in which to address them. They include tools you will already be familiar with, such as clinical audit and significant event analysis.

**Figure 6:** Photo of process map



## PROCESS MAPPING

### What is process mapping?

Process mapping creates a visual representation of all the steps in a process. It is best created by a group of people involved in the process. This can include patients or individuals from organisations that your practice works with. It can be used for any practice process that consists of multiple steps, e.g.:

- the repeat prescribing system
- dealing with results
- processing incoming and outgoing mail
- making a referral
- registering as a new patient
- registering as a patient for online services.

### Why use process mapping?

The objective is to design a more efficient process, plan changes and free up time for other activities. The benefit of using process mapping for the practice team is that it can help everyone to:

- Understand each stage in the process, including those with which they are not directly involved.
- Quickly identify bottlenecks and steps that appear to be a waste of time.
- Engage in change, contribute to improvements and take ownership of the new or revised process, which will help with buy-in.

### The steps in creating a process map

#### Before the session:

1. Decide which process is to be mapped and arrange a date to meet that all can make.
2. Choose a facilitator. This person needs to be able to explain the exercise to the rest of the team. They do not need to have a detailed understanding of the process that is to be mapped.
3. Collect the materials. You will need post-it pads of different colours and pens.

#### In the session:

The map can be constructed on a wall, on paper or on a table-top. A lot of horizontal space is required.

4. The facilitator explains process mapping to the participants, making it clear that each step needs to be broken down. The more detailed the better because this will identify waste.

#### Figure 7: Process map: sequential steps in a process



5. Define the start and end point of the process. For repeat prescribing, the start point could be the patient requesting a repeat prescription; the end point could be the patient collecting the prescription (fig. 7).

6. If one step can be done in several ways, this is added vertically. e.g. in the repeat prescribing process the patient may request a script in different ways (fig. 8).

#### Figure 8: Process map: how to display options in the process



7. Once the map is created, the facilitator asks the group where the problems arise. The participants then attach these to the map using a different coloured post-it note.
8. Participants are then asked to identify solutions. These are attached to the map using another different coloured post-it note. They are stuck over the problems that were identified.
9. This process will then have identified areas for improvement and generated new ideas to try out. The group should decide if they will try out the changes either one at a time or several together, and agree which measurements they will use to identify whether or not there is an improvement over time. The section on run charts (pages 34) offers you a method of measuring and tracking change that will help you to identify process improvement and show you which actions should be sustained.
10. A further process map is then created by the group to illustrate the agreed new process.

Depending on the complexity of the process to be mapped, the exercise can take as little as 20 minutes or up to 2 hours.

*After the session: the outcome*

By the end you will have created a visual display of an improvement to an existing process. On occasions there may be so many problems with the process that you need to start from scratch. At these times, creating a driver diagram (plan and test section, page 30) could be a useful starting point.

It might be a good idea to leave the map on display for a few weeks so that any issues that arise during implementation can be more easily discussed.

**VALUE STREAM MAPPING**

This is a visual map of a process or system from Lean methodology (improvement science, page 53). Its purpose is to identify waste to help streamline

processes. It has similarities to process mapping, but is generally done in more detail. It is also similar to a flow diagram.

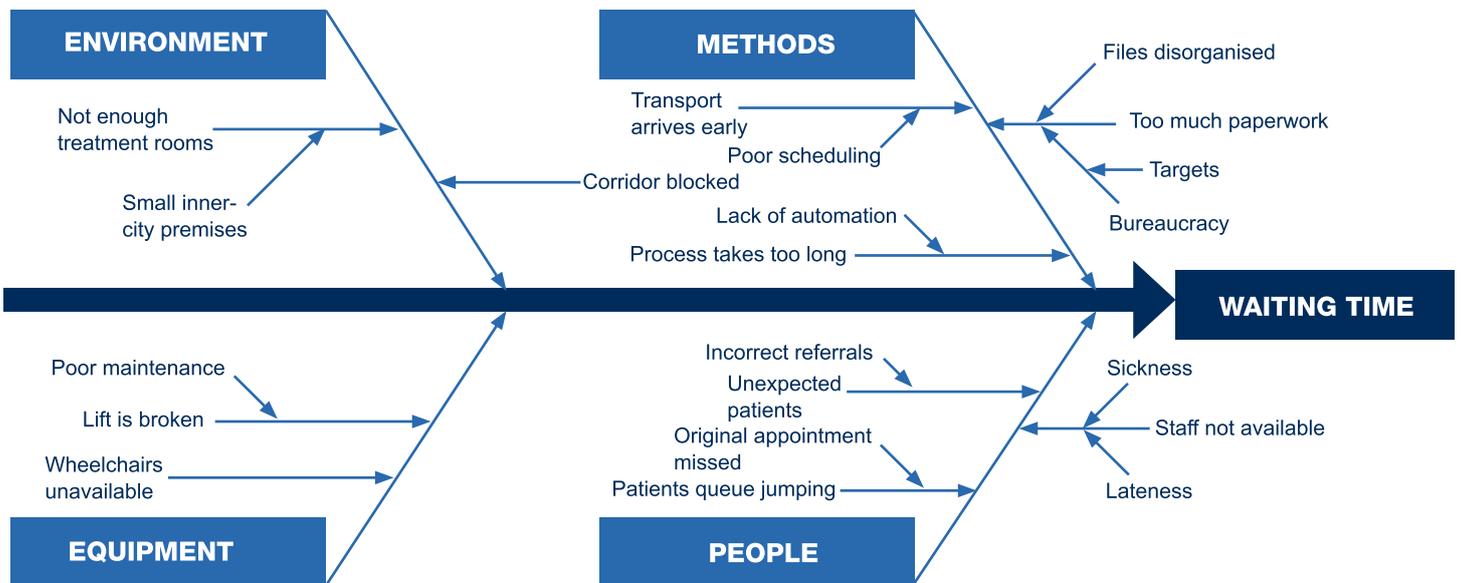
In value stream mapping, steps are divided into those that are value-added, value-enabling and non-value added. Value-enabling activities do not add direct value, but are necessary to the process. On this map, the time for each step is recorded together with the time taken between steps. The objective is to reduce or eliminate non-value added activities.

**FISHBONE DIAGRAM**

Fishbone diagrams (also called cause and effect analysis) look at identifying the root causes of a problem. They are useful when there are multiple causes of a problem and because of this may be complex. The example below, taken from the Institute for Innovation and Improvement, shows a diagram for the problem of waiting time<sup>5</sup>.

The first stage is to identify the problem, which becomes the head of the fish.

**Figure 9:** Fishbone diagram for waiting time



5. Fishbone diagram: Adapted from TIN, now the East Midlands Improvement Network, and Dave Young. Cause and Effect (Fishbone). *The Handbook of Quality and Service Improvement Tools*. NHS Institute for Innovation and Improvement, 2008. [http://www.institute.nhs.uk/quality\\_and\\_service\\_improvement\\_tools/quality\\_and\\_service\\_improvement\\_%20tools/cause\\_and\\_effect.html](http://www.institute.nhs.uk/quality_and_service_improvement_tools/quality_and_service_improvement_%20tools/cause_and_effect.html) [accessed 28 May 2015].

Once your head is in place, you can brainstorm the major categories of the potential causes or use generic headings such as ‘environment’, ‘people’, ‘equipment’ and ‘measurement’. These form the spines of the fish.

You can then discuss each major category, adding the ideas generated as sub-branches. Each sub-branch may be further broken down into its contributing factors.

For every spine and sub-branch identified, ask yourself ‘Why does this happen?’ and consider the question from different perspectives - such as patient, administrator, nurse, doctor, clinical commissioning group. This will produce the layers of causes that will help you to fully understand the root of the problem and its dependencies.

The exercise is best conducted in a group comprising everyone involved or affected by ‘the problem’. Once you have your diagram, you can decide which cause is tackled first.

## CLINICAL AUDIT

Undergraduates, postgraduates in training and those in long established practice have used clinical audit to meet their needs for summative and formative assessment as well as for the purposes of meeting professional obligations such as appraisal. Clinical audit can also be a means of diagnosing areas of practice that would benefit from improvement, but do bear in mind that it needs to be used in conjunction with other tools in the ‘plan and test’ phase of a quality improvement project. This is because a full cycle audit only measures two points in time, while effective quality improvement requires measurement to be ‘little and often’. Frequent small-scale measurement will lead you to understand whether the variations in measurements can be attributed to the changes made through the QI interventions or whether they could be caused by something else instead (e.g. common cause variation due to natural or ordinary causes, see run charts on page 34).

Clinical audit differs from a survey because the data in a survey is not presented with reference to criteria or standards. The guidance below provides the standard headings for a clinical audit report and gives tips on how to define and fulfil each section. It attempts to keep the process simple and will satisfy the requirements of revalidation. [Example audits](#) are available on the RCGP website.<sup>6</sup>

### 1. Title

This will be the heading on your document.

### 2. Reason for the audit

Topics chosen can be identified from many sources. There may be a new guideline circulated and you may wish to see how your practice performs against new recommendations. A problem may have been identified from a complaint or significant event review and an audit would establish if there is a more widespread problem. You may be aware from your clinical work that there is scope for improvement in an area of care. The condition or treatment could be one that affects patients in a significant way or it may be one that affects many patients. What matters here is that in your opinion there is scope for improvement.

### 3. Criteria or criterion to be measured

You can help to keep your audit simple and effective by choosing just a small number of criteria. The criterion should pose an easy ‘yes’ or ‘no’ question so that you will know whether or not it has been met. Where possible, you will benefit from selecting your criterion from a well-evidenced guideline or piece of research, which you can then reference. It is better if it contains only one element so that it is clear which element is not being met. A criterion with two elements would be that “All patients with IHD are on aspirin and have had their blood pressure checked”. For some quality improvement work you may wish to bundle elements together in one indicator to assess your care of patients with a clinical condition, for example, diabetes.

6. Example clinical audits: <http://www.rcgp.org.uk/clinical-and-research/our-programmes/quality-improvement/clinical-audit.aspx>

#### 4. Standard(s) set

A 'standard' is the level of performance achieved and expressed as a percentage. It can be derived from external sources, such as audits that have been done elsewhere, or determined internally from discussion with clinicians in the practice. The standard should be realistic rather than idealistic and so you will usually wish to avoid a standard of 100%.

#### 5. Preparation and planning

Planning your audit as a paper exercise prior to commencing data collection will help you to ensure that it is achievable and that it will answer the question you have set. You will want to decide how to identify your patients. This can often be done by a search on your database of patients. If you select this method, can you set up a search or do you need to talk to someone who can? Ask yourself, will the search criteria identify whom you want? Do you wish to include all the patients or a sample? This will obviously depend on the numbers involved. Most audit projects need not be as rigorous as a research project, so statistical methods of deciding sample size are not usually necessary. The number sampled needs to be practicable. Simple randomisation may suffice (e.g. choosing every second or third patient on a list). You can then decide how you will record your results, whether by using a software package or a simple paper checklist that records Yes/ No/ Not applicable. How might you inform members of

the practice team that you are conducting an audit without this influencing the result?

#### 6. Results and date of collection one

You will want to record the date. The collection could be one point in time, either retrospective or prospective. You might want to present your results in table format for ease of presentation (fig. 10).

The criterion may need to be abbreviated or numbered to fit in the table.

#### 7. Description of change(s) implemented

From your results it will be easy to see whether or not your criterion or criteria have been met. Based on this, a decision can be taken on the changes to be made. This may be done once results have been presented to others to gain their opinion, especially if the change(s) will affect more than just you. It can be beneficial to share your audit results with the whole practice team since this will increase the likelihood of the change being sustained. A decision might then be taken as to when a further data collection is to be made. When setting a date, do allow sufficient time for the changes to have had an effect.

#### 8. Results and date of data collection two

This can be presented in an extension of the previous table, with an additional column for the second data collection (fig. 11).

**Figure 10:** Template for clinical audit results (collection one)

Criterion	Number sampled	Achievement	Standard

**Figure 11:** Template for clinical audit results (collection two)

Criterion	Number sampled (Date one)	Data one achievement	Number sampled (Date two)	Data two achievement	Standard

## 9. Reflections

This is where you present the conclusions of your audit project. It would include any lessons learned; any further steps of change required; and you may wish to state when the audit will be repeated.

### SIGNIFICANT EVENT ANALYSIS (SEA)

Another source for identifying areas for improvement can be significant event analyses. These are usually done when any event is thought to be significant in patient care or in the running of the practice. Whether clinical, administrative or organisational, the SEA process enables the following questions to be answered:

- What happened and why?
- What was the impact on those involved (patient, carer, family, GP, practice)?
- How could things have been different?
- What can we learn from what happened?
- What needs to change?

Further guidance can be found on the former National Patient Safety Agency webpages.<sup>7</sup>

### ENHANCED SIGNIFICANT EVENT ANALYSIS (eSEA)

Enhanced significant event analysis is a further improvement to the existing SEA structure. A 'human factors' approach was taken in an NHS Education for Scotland (NES) pilot funded by the Health Foundation Shine programme. It considers contributory factors to an event and their interactions under headings of People factors, Activity factors and Environment factors. Human factors addresses problems by modifying the design of the system to better aid people: to understand and limit conditions in the system that predispose an individual to make an error and

to reduce the risk of errors leading to harm. Further details on this study can be found on the NES website.<sup>8</sup>

### EXTERNALLY-SOURCED DATA

Performance reports can be sources for identifying best practice and areas for improvement. They include national audits, benchmark reports and CQC data. We have created a [list of data sources relevant to primary care](#), organised by UK country, which you may use to support your QI activity.<sup>9</sup> It is available to download from the RCGP website.

### NATIONAL AUDIT

National audits exist in many clinical areas in England and Wales. Increasingly, data is being collected from primary care. This can be useful for highlighting areas for improvement. Primary care data is collected as part of the [National Diabetes Audit](#).<sup>10</sup> RCGP contributes as a stakeholder to a number of other [external audits](#) such as COPD, continence care and dementia care.<sup>11</sup>

### BENCHMARKING DATA

Data can be presented to enable comparisons between practices, between primary care organisations or between nations. If the variations are statistically significant then an opportunity for improvement may exist. Often this type of data is presented in a bar

7. Bowie P, Pringle M. *Significant event audit: guidance for primary care teams*. London: National Patient Safety Agency, 2008. <http://www.nrls.npsa.nhs.uk/EasySiteWeb/getresource.axd?AssetID=61501> [accessed 31 Jul 2014].

8. NHS Education for Scotland (NES). *Enhanced significant event analysis*. Edinburgh: NES, Mar 2014. <http://www.nes.scot.nhs.uk/education-and-training/by-theme-initiative/patient-safety-and-clinical-skills/enhanced-significant-event-analysis.aspx> [accessed 3 June 2015].

9. RCGP. *Data sources for undertaking quality improvement activity in primary care*. [http://www.rcgp.org.uk/clinical-and-research/our-programmes/~/\\_media/Files/CIRC/Quality-Improvement/RCGP-Data-sources-for-undertaking-QI.ashx](http://www.rcgp.org.uk/clinical-and-research/our-programmes/~/_media/Files/CIRC/Quality-Improvement/RCGP-Data-sources-for-undertaking-QI.ashx) [accessed 2 July 2015]

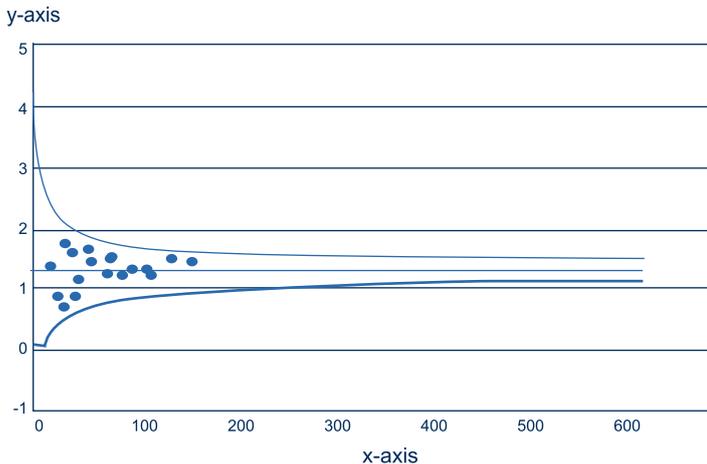
10. Health and Social Care Information Centre (HSCIC). *National Diabetes Audit*. Leeds: HSCIC. <http://www.hscic.gov.uk/nda> [accessed 12 August 2015].

11. RCGP. *External audits. Clinical audit*. <http://www.rcgp.org.uk/clinical-and-research/our-programmes/quality-improvement/clinical-audit.aspx> [accessed 12 August 2015].

chart, ranking the participants. Examples include the national GP survey and NHS England Primary Care Webtool and your practice QOF data. One criticism of this method is that it encourages mediocrity: being in the middle range is acceptable. Further, bar charts do not reflect differences in sample size from each practice or organisation. In bar charts, small changes in a small sample can therefore seem to show great variation in performance compared with organisations with large sample size. Funnel plots provide one statistical approach that can take account of the sample size or the prevalence of a condition being measured. Hence, before drawing conclusions from benchmarking data, do consider how the data is presented and how that is affecting the results. As with any data, check that it is complete and reliable.

Learning can also be made when the data reveals best practice. If your practice or organisation is above average, you could ask yourselves, 'How have we managed it?' 'Is it sustainable?' 'Could we use this method of success in a different area?'

**Figure 12:** Funnel plot diagram



## CARE QUALITY COMMISSION (CQC)

In England, practices are being provided with and may review updated 'intelligent monitoring data' that incorporates some QOF data as well as prescribing data. Some practices may find the feedback report from the CQC visit useful in deciding improvement priorities.

## CREATING NEW SOURCES OF DATA

The data you need may already be available from established sources and does not always need to be collected de novo. However, if you do want or need to generate new data, your options include conducting a survey, undertaking a diagnostic analysis or leading an appreciative inquiry.

## DATA GATHERING

Before collecting any data, you will want to plan the data gathering exercise to ensure that the data to be collected will help you to measure and monitor the area you want to improve. You can collect the data over time so that any variation can be explored. The frequency and duration of data collection can then be decided. Do consider the resources of time, money and personnel when data collection is planned. Will there be any unintended consequences in collecting this data? How will you ensure participants are clear that the measurement is not being made to criticise their performance? Data collected for quality improvement can differ from that collected for accountability or research.

## SURVEY

In quality improvement, surveys are frequently used to identify the needs of the target group. Considering the following will help you to produce a well-designed survey.

Ensure your objectives for conducting the survey are clear and are clearly stated on the questionnaire, together with instructions on how it is to be completed and by when.

Do keep the questionnaire as short as possible while also allowing enough information to be collected. Asking two or more questions about the same aspect can increase the reliability of the results, but you will want to balance this against creating too long a survey that no-one completes.

Try to ensure each question is clear, concise, covers only one idea, avoids jargon and is unbiased. You can ask open or closed questions. A closed question can be answered with either a single word or a short phrase. For example, you may wish to discover how the respondents rate their knowledge on a subject from 'very knowledgeable' through, say, five stages to 'no knowledge'. If presenting a selection of answers, check that you have covered all possible answers or added an 'Other' option. An example of an open question would be to ask respondents to complete free text comments to a question. This can be a source of new information, but will take longer to analyse.

You might benefit from testing your survey with a few people before it is launched.

If a sample is used, check that it is large enough in size to allow meaningful analysis, and that its selection is bias-free.

You can employ free-to-use internet survey websites and their webpages provide further guidance on designing a questionnaire and on conducting a survey.

## DIAGNOSTIC ANALYSIS

In this method, one or more focus groups are formed. A facilitator has a guide to prompt discussion, if needed. An audio recording of the discussion can be made or written notes taken instead. Common themes can be identified as important to your project and can be a source for identifying areas for change.

## APPRECIATIVE INQUIRY

This is based on the idea that something in a system is done well, but can still be improved. The most common model consists of four elements:

1. *Discover*. Identify what works well.
2. *Dream*. What could work better in the future?
3. *Design*. Prioritise processes that would work well.
4. *Deploy*. Implement design.

The identification of the processes can be done by interview or by forming a group of stakeholders. It is an approach that differs markedly from a problem-solving approach.

# Plan and test

From the diagnosis phase of your project you will have identified areas to learn from that you already do well, and areas where there is scope for improvement. With some of the diagnostic techniques you will have also generated ideas for change and potential ‘solutions’. You can now plan your changes and how they will be tested. This starts with identifying a clear purpose and measure of success (the Model for Improvement, below) and the actions that will deliver that purpose (driver diagrams, page 31). You will then plan out how each individual cycle of change will be implemented (‘Plan-Do-Study-Act’ approach, page 31) and measured (run charts, page 34) to identify which changes result in an improvement or not. Further planning tools that aid implementation are communication matrices (page 38) and Gantt charts (page 38). If you decide to measure multiple indicators at one time, this can be done as a care bundle (page 37).

**Figure 13:** Model for improvement diagram



## MODEL FOR IMPROVEMENT

Before embarking on an intervention, ensure that you and the team are very clear and specific about what you want to improve and how you will know if you have been successful. The Model for Improvement gives you three questions to answer before you start testing changes.<sup>12</sup>

This section explains how to use the Model for Improvement approach to clarify your aim and measure of success by referring to a common GP issue - antibiotic prescribing.

**Question 1:** What are we trying to accomplish? This needs to be specific and include ‘by how much?’ and ‘by when?’ For example: “*reduce the number of antibiotics we prescribe at the practice*” is not very specific.

12. Langley GL, et al. *The Improvement Guide: A Practical Approach to Enhancing Organizational Performance* (2nd Edition). San Francisco, CA: Jossey-Bass Publishers; 2009. ISBN: 978-0-470-19241-2 and is the source of the diagram on this page.

A more specific aim would be: *“reduce our antibiotic prescribing to be in line with the national average in 6 months’ time”*

**Question 2:** How will we know if a change has been an improvement?

Decide what you are going to measure so that you know whether your ideas for change are working. Some organisations provide us with external data about our practice, and this can be very helpful in deciding on the overall success of a project; however, this data is often slow to arrive and may not be provided frequently enough for judging the success of a change.

Continuing the antibiotic example:

*Data about antibiotic prescribing compared to national averages is being provided every three months by the local CCG Medicines Management Team and this will be used to assess the overall success of the project after six months.*

However, this externally collected data is not useful for judging whether our small changes have been

successful. Another data source is required to measure each of those individually.

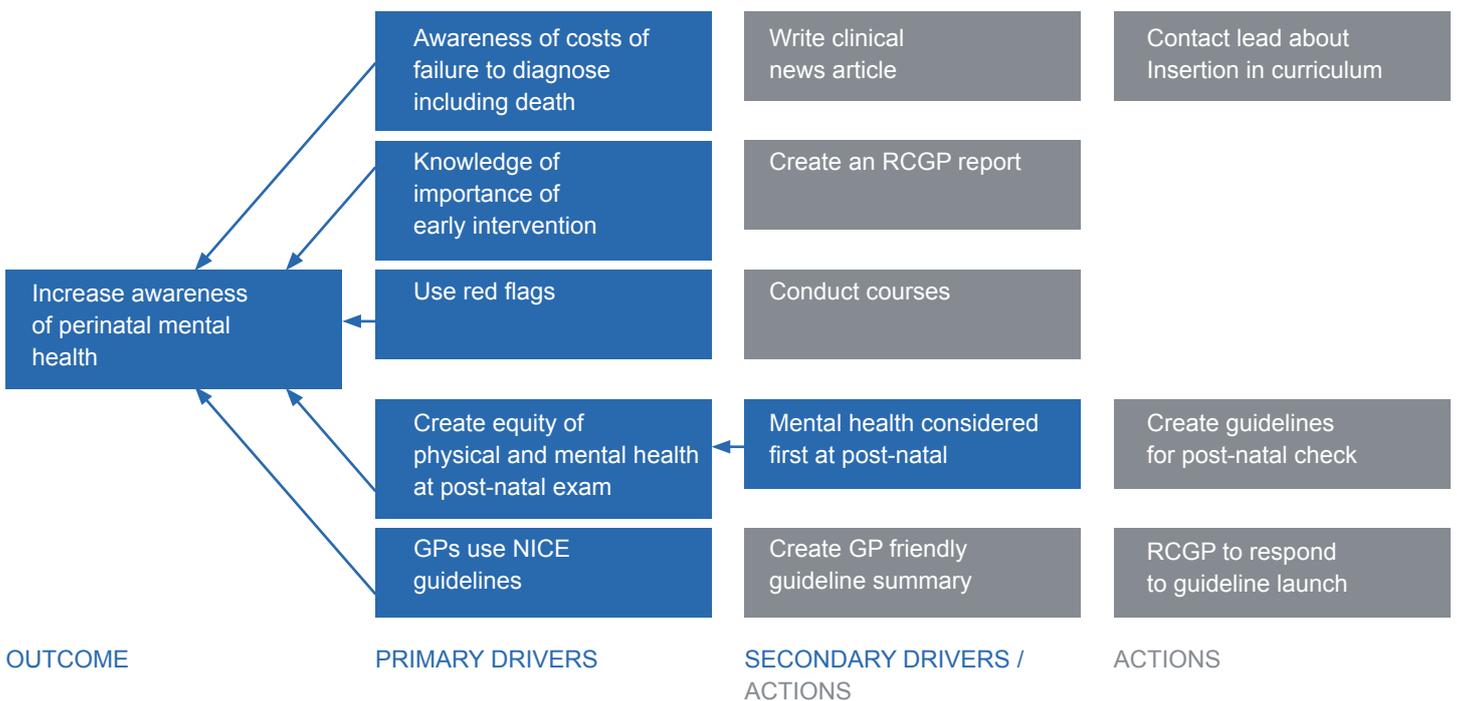
**Question 3:** What changes can we make that will result in improvement?

To answer this question, consider all of the ideas for change that were generated in both the diagnosis and the plan and test stages so that you can select those that you would like to test. In our example, the practice agrees to test three ideas:

- Put a poster in the waiting room explaining to patients why antibiotics are not useful for most coughs and colds.
- Benchmark the prescribing habits of the individual GPs in the practice – number of antibiotics prescribed per ten consultations.
- Provide all COPD patients with a leaflet explaining that most exacerbations should be treated with steroids first, and only use antibiotics if sputum becomes purulent.

These changes can be further considered using a driver diagram, a tool that is illustrated below and explained overleaf using the example of raising awareness of perinatal mental health.

**Figure 14:** Driver diagram



## DRIVER DIAGRAMS

A driver diagram is a powerful mapping tool that helps you to translate a high-level improvement goal into a logical set of underpinning goals and projects: it identifies the actions that will achieve your aims. They are particularly useful when your aim has many components or subsidiary objectives. They can also serve to decide the direction of your practice or organisation following development of a vision or mission statement.

Driver diagrams consist of three columns: outcome, primary drivers and secondary drivers.

The outcome covers the aim(s) of your project or the impact you wish to make. It should be stated as simply as possible.

The primary drivers describe the set of high-level factors/areas that need to be addressed or influenced in order to achieve the outcome. They can often be derived from answering the first question in the Model for Improvement: 'What are we trying to accomplish?'

The secondary drivers contribute to at least one primary driver and cover areas in which to take action and plan for change.

Actions or specific projects that could generate the drivers can then be added.

Figure 14 is an example of a driver diagram for raising awareness in perinatal mental health.

It shows that the goal can be achieved in five different ways, either individually or concurrently. It identifies a means (an action/project) of achieving each driver. As a whole, the diagram provides a change strategy for 'increasing awareness' that can be shared and understood, and can provide the basis for planning the individual projects or interventions.

## PLAN-DO-STUDY-ACT (PDSA)

### Why use PDSA?

The 'Plan-Do-Study-Act' approach is part of the 'Model for Improvement'.<sup>13</sup>

When we want to improve things in our practices, we often come up with a lot of ideas, but cannot be sure which will result in the change we want to see. Sometimes we try something different and we continue to do things the new way even if it does not actually result in improvement. It is easy to lose motivation and start to believe that we cannot make a difference.

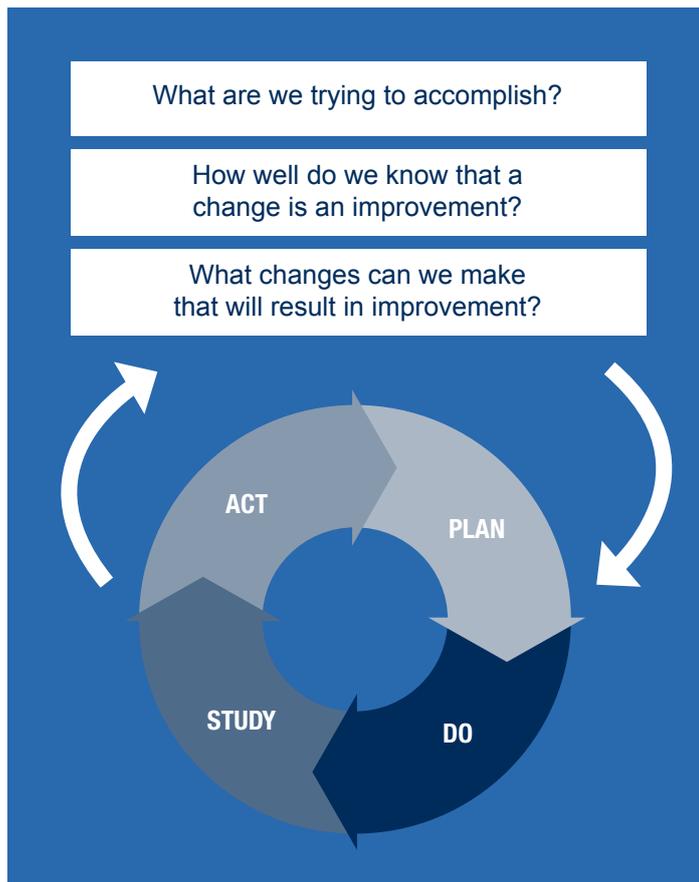
The PDSA approach accepts the fact that not all of our ideas will work and allows us to test them out in a controlled way. We can then continue the ideas that work, and stop doing those that do not. It starts at small scale and so is a cost-effective approach.

Each change we identify from answering the third question of the Model for Improvement should enter a 'PDSA cycle' in turn.

We continue with the example of antibiotic prescribing to explain this approach.

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13. Langley GL, et al. *The Improvement Guide: A Practical Approach to Enhancing Organizational Performance* (2nd Edition). San Francisco, CA: Jossey-Bass Publishers; 2009. ISBN: 978-0-470-19241-2; and is the source of the diagram on page 32.



### The PDSA cycle

**Plan:** In this stage you identify the change you wish to implement in order to bring about an improvement. For each idea or change you can use the three questions from the Model for Improvement and driver diagrams to clarify your aim and measure. Planning will also include identifying who will be responsible for the change; when it will be carried out; over what timescale; and how the measurement will be conducted. Involve all stakeholders in the process and do persuade any reluctant team members to participate. Consider how you might look out for the unexpected – for example, checking that a reduction in antibiotic prescribing does not cause an increase in COPD admissions. This is called a ‘balance measure’.

In our example, the practice identified three changes it would test out: *a poster in the waiting room; benchmarking the GPs’ prescribing habits; and a leaflet for COPD patients.*

**Do:** First collect your baseline data to monitor the existing state of play. You might do this as part of ‘planning’ or ‘doing’. Ensure that all individuals who are conducting the measurements understand what data is being collected and how to collect it. After sufficient time, continue to collect the data but introduce the agreed change. If you are considering implementing several changes, you would usually introduce one change at a time so that the effect of each can be measured. By introducing only a small change you are likely to encounter less resistance, and, if unsuccessful, adaptations can be made more quickly. The scale at which you test your change should also be kept small at first. Any problems encountered, and any unexpected consequences, can be recorded as implementation progresses.

In our example: *For the second change, the practice decided to run a search every Friday at 17:00 to gather the number of antibiotic prescriptions issued that week.*

**Study:** The success or failure of the change is assessed at this stage, both quantitatively (by looking at the data collected) and qualitatively (by discussing how everyone experienced the change). Run charts (pages 34-37) could be used for numerical data. You should compare the results with the predictions you made and document any learning, including a record of the reasons for success or failure. Not all changes result in improvement, but learning can always be gleaned.

In our example: *The practice first tested having the poster in the waiting room and, once that PDSA cycle had completed, the practice tested benchmarking GP prescribing habits.*

Figure 15 shows the number of antibiotic prescriptions issued per week before and after the poster was displayed in the waiting room:

**Figure 15:** Run chart for reducing antibiotic prescribing (poster in waiting room)

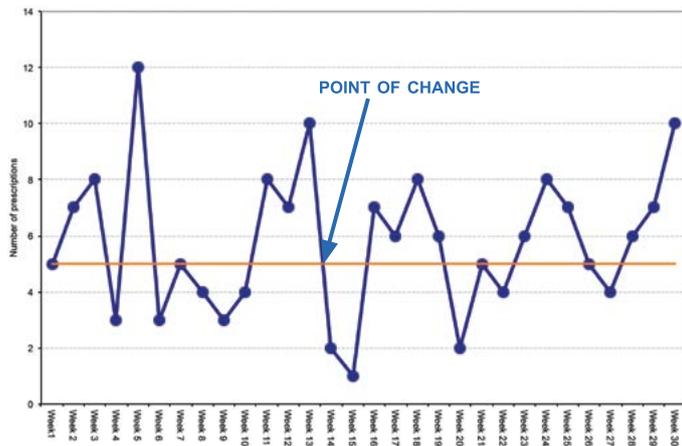
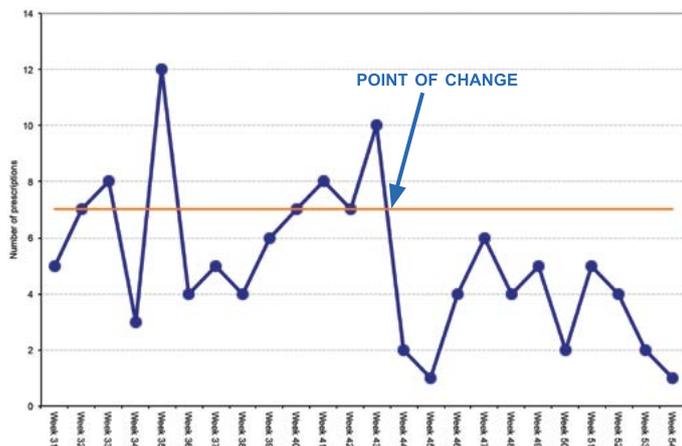


Figure 16 shows the number of antibiotic prescriptions issued per week before and after the GPs prescribing habits were benchmarked:

**Figure 16:** Run chart for reducing antibiotic prescribing (benchmarking GP habits)



From these charts the practice determined that the poster made no impact on the number of antibiotic prescriptions issued, but the benchmarking of GPs' prescribing habits did reduce the number issued.

The next section provides some simple rules for interpreting run charts like those above.

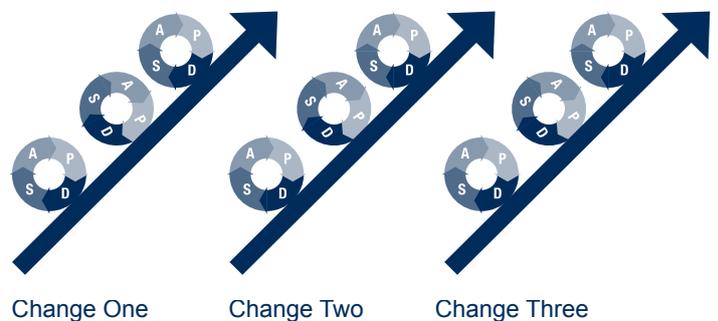
**Act:** In this stage, decide whether you just need to adapt what you have tried or whether you might try something completely new instead.

In our example: *The decision was made not to keep the poster in the waiting room, but to continue the benchmarking exercise every two months.*

**Summary:**

It is best to test small changes and then do multiple cycles. Learning from one cycle informs the next.<sup>14</sup>

**Figure 17:** Sequential PDSA cycles for learning and improvement



This method allows fairly rapid assessment of any intervention in a cost-effective manner.

**MEASUREMENTS AND ANALYSIS**

Data measured can be qualitative or quantitative. They can be an outcome measure (e.g. number of amputations in patients with diabetes), a process measure (e.g. blood pressure recorded), or a balancing measure (e.g. unintended consequences). Your measurements need to be able to assess the impact of your change. Common tools used for quantitative data are run charts (below) and statistical process control charts (SPC charts, pages 45). The latter are more advanced and are therefore discussed in sustain and spread (chapter 5), although both types of chart can be used for both the testing and sustaining phases of a project.

14. Multiple PDSA cycle diagram. Institute of Healthcare Improvement. Science of Improvement: Testing Multiple Changes. Cambridge, MA: IHI. <http://www.ihl.org/resources/Pages/How-toImprove/ScienceofImprovementTestingMultipleChanges.aspx> [accessed 3 March 2015].

### RUN CHARTS

Run charts help you to analyse any numerical data gathered to see whether a new initiative results in an improvement and whether the improvement is sustained over time.

There are many ways of analysing data. Run charts are useful when looking at data that varies from day-to-day (e.g. the number of days to the next routine appointment or the number of 'extra' patients seen each day). The charts enable you to study the variation and identify times when things appear to be 'out of the ordinary'.

The following fictional QI project shows how a run chart can be used to analyse the data.

#### Run chart example project – Reducing the number of 'extra' patients seen each day

Every practice has to deal with patients who need to be seen on the same day once all the routine and urgent appointments have been filled. For the purposes of this example these are called 'extras'.

Unpredicted peaks in the number of extras seen can cause stress for GPs and their staff, as well as leaving less time for other important work. The example practice would like to study the number of extras. They want to understand the existing variation over time before they experiment with new ways of doing things.

#### Inputting the data into a spreadsheet to create a run chart

All that is needed to create a run chart is a basic knowledge of MS Excel and a look at the useful tips described below. However, to make this even easier, the Institute for Healthcare Improvement USA (IHI), has created an Excel template.<sup>15</sup> To access this template you will need to register with the IHI, but this is free and straightforward. It is best to gather at least 15 days of data before constructing your chart.

15. Scoville, R. Run Chart Excel Template. *Run Chart Tool*. Cambridge, MA: Institute for Healthcare Improvement. <http://www.ihl.org/resources/Pages/Tools/RunChart.aspx> [accessed 28 May 2015].

In our example, the lead receptionist gathers data about the number of extra patients seen over 20 working days. This is inputted into the IHI spreadsheet: dates in the left-hand column and the numbers seen in the 'value' column.

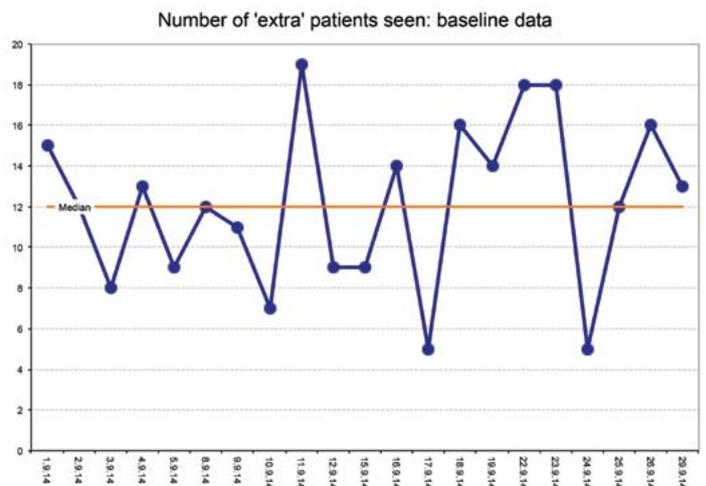
The IHI spreadsheet looks like this:

Figure 18: Data for 'extras seen' (baseline)

Date / Observation	Value	Median	Goal	End Median
1.9.14	15	12		
2.9.14	12	12		
3.9.14	8	12		
4.9.14	13	12		
5.9.14	9	12		
8.9.14	12	12		
9.9.14	11	12		
10.9.14	7	12		
11.9.14	19	12		
12.9.14	9	12		
15.9.14	9	12		
16.9.14	14	12		
17.9.14	5	12		
18.9.14	16	12		
19.9.14	14	12		
22.9.14	18	12		
23.9.14	18	12		
24.9.14	5	12		
25.9.14	12	12		
26.9.14	16	12		
29.9.14	13	12		

The IHI template automatically calculates the median number of extras and creates the chart:

Figure 19: Run chart for 'extras seen' (baseline)



The median line is drawn on the chart to help you check whether the data is random or not.

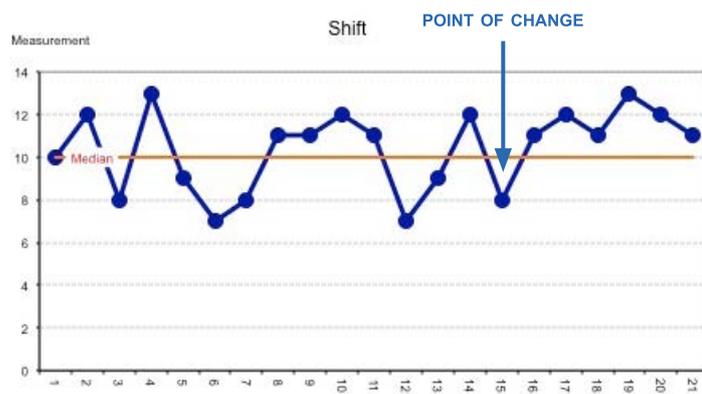
You will need to know that it is random variation so that you can make sense of any changes that happen when you experiment with a new way of doing things (your QI intervention).

**How to tell if the data is random**

It is important to check that your baseline data shows random variation. If the variation is not random it may be that there are already things happening to change it (for example, a media campaign), and this will prevent you identifying whether changes you may see later are being caused by your intervention or by something else.

**Figure 20: Run chart rules**<sup>16</sup>

**Rule 1**



A shift has six or more data points above or below the median. For this rule, do not count a data point on the median line. In the example above the shift happens after the change is implemented.

**Rule 3**



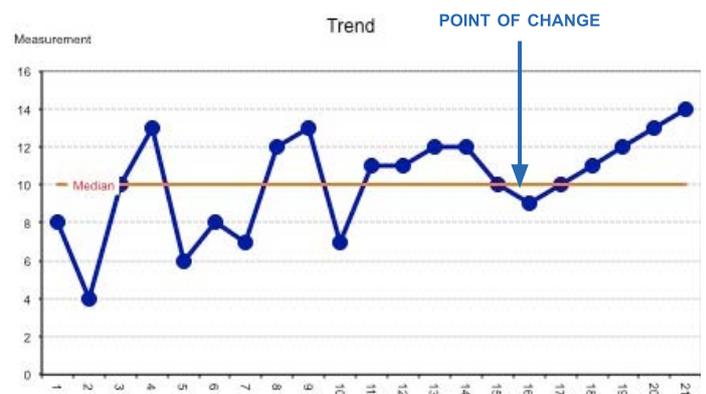
16. Scoville, R. Run Chart Excel Template. *Run Chart Tool*. Cambridge, MA: Institute for Healthcare Improvement. <http://www.ihl.org/resources/Pages/Tools/RunChart.aspx> [accessed 28 May 2015].

Here are some ‘run chart rules’ to help you make sense of your chart.

If your data is random:

- The graph line crosses the median line frequently.
- There are no ‘trends’ (five or more data points going up or down).
- There are no ‘shifts’ (six or more points in a row either above or below the median).
- The number of runs in a chart are within the expected lower and upper limits.

**Rule 2**



A trend has five or more data points ascending or descending. The trend may cross the median and data points on either side of the median should be counted. For this rule, if two or more points are the same, only count as one. In the example above, there is a trend occurring just after the change.

Too many or too few runs. In the example left, there are 14 data points that are not on the median but only two runs, which are too few runs for the number of data points. This is explained in more detail in the next section. No ‘change’ is marked on this chart because it illustrates baseline data collected before any intervention has been trialed.

**Counting runs**

A run is a set of points that are on one side of the median. You can calculate the number of runs by counting the times the line crosses the median and adding one.

### Expected number of runs

If your data is random, there is an expected lower and upper limit of runs you should see for the number of data points collected, illustrated by the expected number of runs table below. Too few or too many

runs may mean your process is already changing. This will make it hard to know if your project is successful and will require investigation before you embark on your project.

**Figure 21:** Expected number of runs table<sup>17</sup>

Number of observations / data points not falling on the median	Lower limit for number of runs	Upper limit for number of runs	Number of observations / data points not falling on median	Lower limit for number of runs	Upper limit for number of runs
15	4	12	30	11	20
16	5	12	31	11	21
17	5	13	32	12	22
18	6	13	33	12	22
19	6	14	34	12	23
20	6	15	35	13	23
21	7	15	36	13	24
22	7	16	37	13	25
23	8	16	38	14	25
24	8	17	39	14	26
25	9	17	40	15	26
26	9	18	41	16	27
27	9	19	42	17	28
28	10	18	44	18	30
29	10	20	46	19	31

In our example, the number of data points will be the number of days surveyed, which was 20 days. If we look at the table, for 20 data points we should expect between six to 15 runs if the data is random. Our example has 11 runs with no shifts or trends and so it does seem to be random variation.

### What next?

The practice has now gathered its baseline data and decided that the variation is random. They would like to reduce the number of extras seen in the surgery.

The first experiment is a GP telephone triage of all requests for same-day appointments. This involves significant change to the working day for the GPs and has the potential for fewer routine appointments to be made with them. However, it is seen by the practice as an experiment and they are confident that the run chart will help them to see if it makes a difference.

17. Scoville, R. Run Chart Excel Template. *Run Chart Tool*. Cambridge, MA: Institute for Healthcare Improvement. <http://www.ihl.org/resources/Pages/Tools/RunChart.aspx> [accessed 28 May 2015].

They continue to gather the data and input it into the spreadsheet:

**Figure 22:** Data for ‘extras seen’ (post-change)

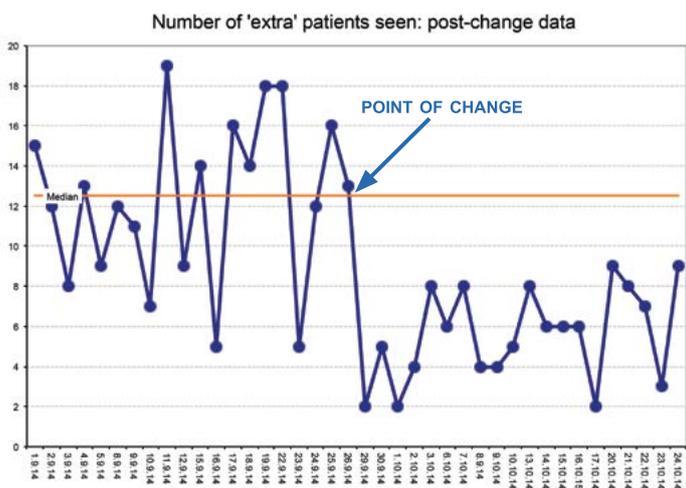
Date / Observation	Value	Median	Goal	End Median
1.9.14	15	12		
2.9.14	12	12		
3.9.14	8	12		
4.9.14	13	12		
5.9.14	9	12		
6.9.14	12	12		
7.9.14	11	12		
8.9.14	7	12		
9.9.14	19	12		
10.9.14	9	12		
11.9.14	9	12		
12.9.14	14	12		
13.9.14	5	12		
14.9.14	16	12		
15.9.14	14	12		
16.9.14	18	12		
17.9.14	18	12		
18.9.14	5	12		
19.9.14	12	12	x	
20.9.14	16	12		
21.9.14	13	12		

Mark with an ‘X’ the last number from the baseline data. This ‘freezes’ the median. Everything after this point came following the introduction of GP telephone triage for same-day appointment requests (‘the intervention’).

**So what happened?**

Here is the chart that was created by the IHI Excel template once the new data was inputted:

**Figure 23:** Run chart for ‘extras seen’ (post-change)



This graph shows that all the data points collected after the intervention fall on one side of the median. There is only one run after the intervention and there has been a definite shift (more than six points consecutively on one side of the median). As the shift

coincided with the intervention, it suggests to the team that the intervention has generated a change.

**Further information**

If you are interested in finding out more, then the Health Service Executive (Ireland) provides useful guidance<sup>18</sup>, which covers:

- how to check for ‘special cause variation’
- how to use ‘statistical control lines’ to spot when something odd is happening
- the limitations of run charts.

**CARE BUNDLES**

An accepted method of measuring more than one indicator is known as a care bundle. The definition of a care bundle from the Institute for Healthcare Improvement is as follows: “A bundle is a structured way of improving the processes of care and patient outcomes. A small, straightforward set of evidence-based practices - generally three to five – that, when performed collectively and reliably, have been proven to improve patient outcomes.”<sup>19</sup> Care bundles are applied to a defined patient population and care settings over a defined time period and it is important that they are not seen as simple checklists.

Care bundles are useful when you wish to implement a series of indicators that are all important in achieving the outcome. They provide an all or nothing measurement and the achievement should be

18. *Measurement and improvement: Guidance note on key concepts*. Produced for the Pressure Ulcers to Zero collaborative, Dublin North East region, part of the National Quality Improvement Programme, supported by the Health Service Executive, Ireland, and the Royal College of Physicians Ireland.

[http://www.hse.ie/eng/about/Who/qualityandpatientsafety/safepatientcare/Pressure\\_Ulcers/Pressure\\_Ulcer\\_Information/Measure\\_and\\_Improvement\\_Guidance\\_Document.pdf](http://www.hse.ie/eng/about/Who/qualityandpatientsafety/safepatientcare/Pressure_Ulcers/Pressure_Ulcer_Information/Measure_and_Improvement_Guidance_Document.pdf)

19. Resar R, Griffin FA, Haraden C, Nolan TW. *Using Care Bundles to Improve Health Care Quality*. IHI Innovation Series white paper. Cambridge, Massachusetts: Institute for Healthcare Improvement, 2012. <http://www.ihl.org/resources/pages/ihlwhitepapers/usingcarebundles.aspx> [accessed 22 June 2015].

measured over time. Taking the example of diabetic indicators, all of the following would have to be achieved: BMI measurement, BP measurement, HbA1c measurement, cholesterol measurement, record of smoking status, foot examination, albumin: creatinine ratio, and serum creatinine measurement. Examples of care bundles used in healthcare include the National Diabetic Audit in England and Wales and some enhanced services in Scotland.

### COMMUNICATION MATRIX

An essential part of planning for your intervention includes identifying who will be affected by your project and what they need to know about it to facilitate their participation and support. Using a simple communication matrix can help you to avoid sending out a blanket email and to generate both the targeted messages and instructions that will enhance adoption.

Along the top horizontal axis you write the groups or individuals who need to know about your project. Along the vertical axis you list the main themes that need to be known. Then, in each box you place specific details of what that group or individual needs to know about that theme. Below is an example for a project to reduce the number of dirty cups in a practice (fig. 24).

A detailed communication plan that considers the key messages for all your stakeholders at the different stages of the project is included in the sustain and spread section (page 43).

### GANTT CHART

Determining a realistic timeframe is another part of planning the successful implementation of an intervention and a PDSA approach.

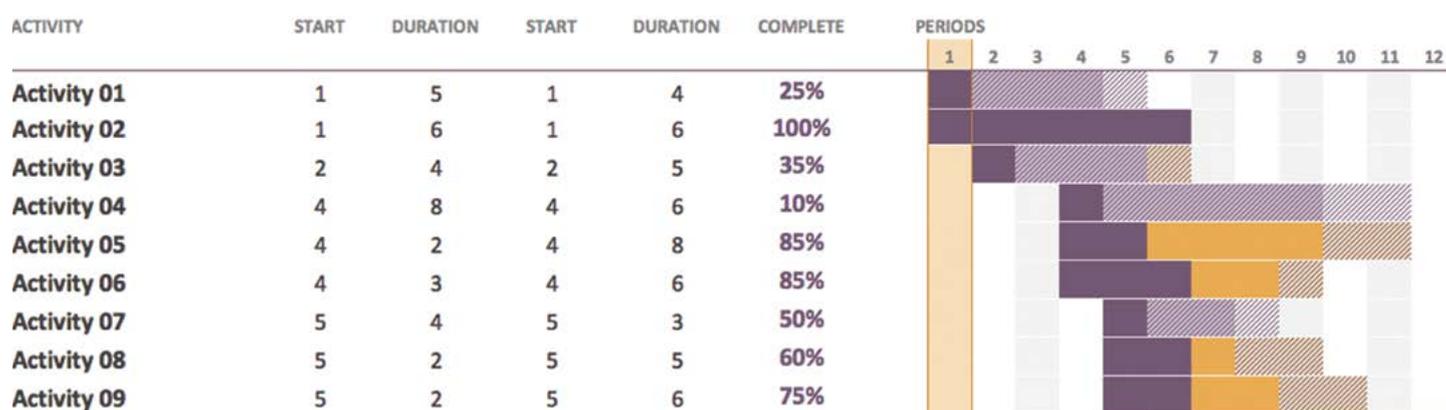
For this, think about all the milestones to be achieved for the project; the tasks involved in delivering each milestone; who will be responsible for each task; how long each will take; any problems the team might encounter in implementing them; and which tasks are contingent on another. A Gantt chart provides a visual representation of this information and helps you to establish whether the schedule is workable; how to make any necessary adjustments so that it does work; and later to review progress towards your milestones. Once your intervention is underway, it helps you to keep track of the next 'to do' that needs to be actioned (fig. 25).

Milestones and constituent actions (tasks) are listed on the vertical axis; and the time - in days, weeks or months - is given on the horizontal axis. The proposed start point is identified, and then a horizontal line is drawn from that point to the point

**Figure 24:** Communication matrix to reduce the number of dirty cups in a practice

Task / item	GP	Practice Nurse	Admin	Cleaner
Washing liquid	May need instruction in use	Reinforce not to be hand maiden	To order if need more	To check if need more
Rota for clean up	In GP rooms		Review in 1 month	
Penalty system	Where do profits go?			
Named cups	To decide name on cup			Leave dirty cups on shelf

**Figure 25:** Gantt chart



when the action is due to be completed. It can be created on Excel by customising a stacked bar chart. In Excel 2013 a template can be downloaded free from Microsoft.

The plan should be monitored and reviewed regularly.

**THEORY OF CONSTRAINTS AND FLOW**

The theory of constraints seeks to identify the weakest link in the chain and then to eliminate it. The theory provides a methodology for identifying the most significant limiting factor – the constraint – which stands in the way of the organisation’s goal being met. The methodology then provides a way to systematically reduce the constraint until it is no longer the limiting factor. The constraint is commonly referred to as a ‘bottleneck’.

Constraints are often categorised as:

- physical – lack of equipment, people or space
- policy – required and recommended ways of working
- paradigm – deeply engrained beliefs or ways of working
- market – production exceeds demand.

The Theory of Flow has developed from the Theory of Constraints. To promote Flow you:

- separate scheduled and unscheduled flows
- transform unscheduled work into scheduled
- eliminate artificial variation in scheduled work
- match skills and resources to meet needs.

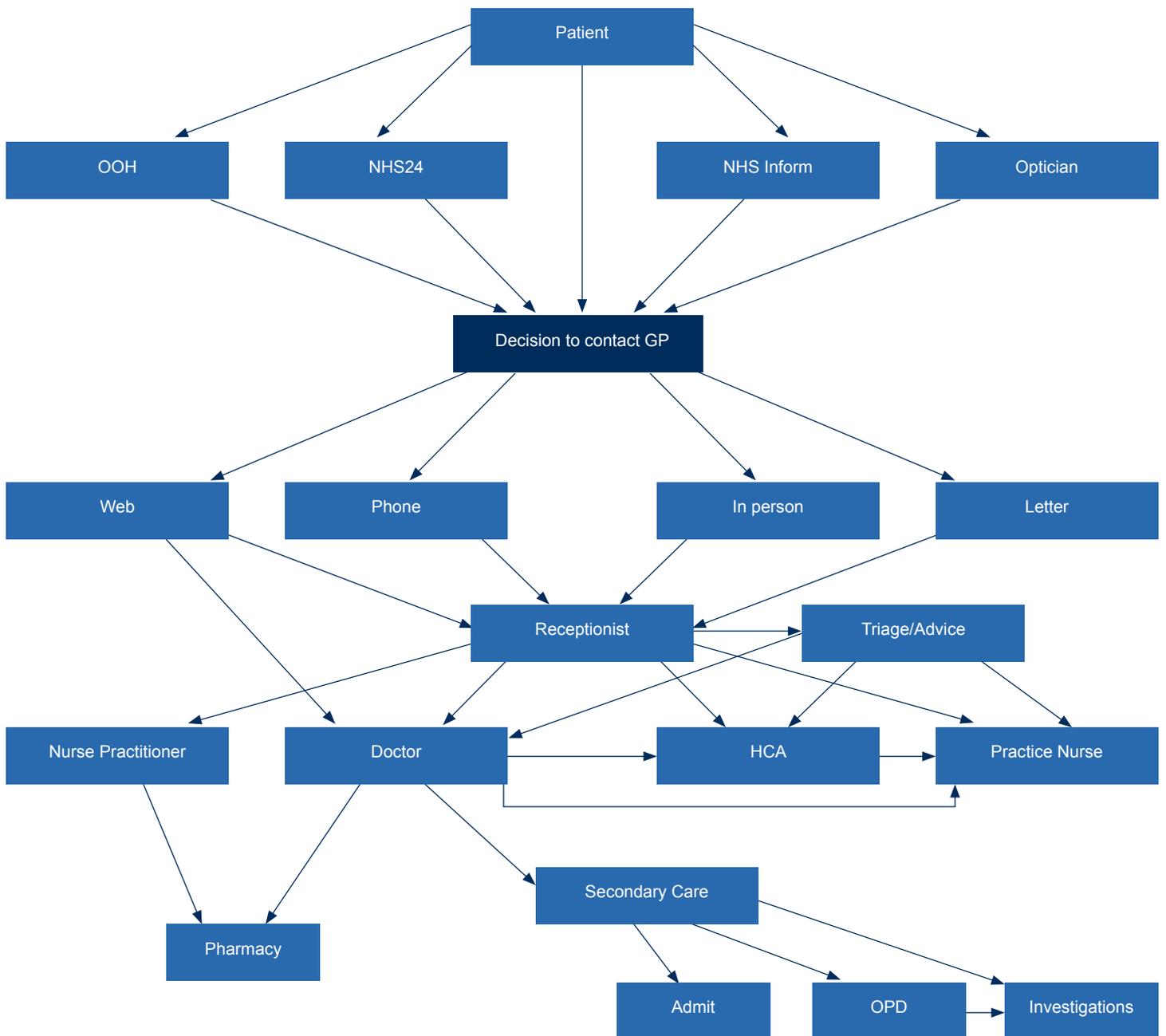
Examples of scheduled work in general practice would include chronic disease management clinics and advance-booked appointments. Examples of unscheduled work could include acute presentations of illness, such as respiratory tract infections.

In general practice it is possible to move some unscheduled work (acute presentations) to be scheduled. For example, a pathway can be designed for people who have depression.

Artificial variation is often created by the people involved in the systems and by those who design them. An example of system design failure would be dysfunctional timetabling.

Flow diagrams can be constructed to map or track a patient’s journey through the system in order to identify bottlenecks and delays.

**Figure 26:** Flow diagram of a patient's journey through the system<sup>20</sup>



20. The Scottish Government. PPT flow diag. pptx [Embedded PowerPoint slides]. DC20140502 documentation [Embedded Word file]. Section 10: Appendix A: Supporting documentation for QS002(S). *Quality and Outcomes Framework (QOF): Guidance for NHS Boards and GP practices. Scottish Quality and Outcomes Framework guidance for GMS contract 2014/15.* The Scottish Government, 2014; 184. <http://www.sehd.scot.nhs.uk/publications/DC20140502QOFguidance.pdf> [accessed 10 June 2015].

**EXPERIENCE-BASED CO-DESIGN (EBCD)**

This is an approach that allows patients and staff to analyse and design services together. It involves in-depth interviews, observations and group

discussions. The King’s Fund has developed a toolkit for using this technique.<sup>21</sup> The toolkit identifies the following stages:

**Figure 27:** Stages of experience-based co-design



**Project steering group meets at critical stages**

- 1. Before the project starts
- 2. Before feedback events
- 3. After first co-design group
- 4. After celebration event

Further information can be obtained by clicking [this link](#).

21. The King’s Fund. Stages in experience-based co-design. *Experience-based co-design toolkit*. London: The King’s Fund, 2013. <http://www.kingsfund.org.uk/projects/ebcd/experience-based-co-design-description> [accessed 3 June 2015].

# Implement and embed

Having tested your change, you will know whether or not it has been successful; whether it needs modification; and whether or not it should be continued. If it was successful, you can demonstrate the success to your team and ensure that the change becomes part of your regular systems or processes.

## RUN CHARTS

You can continue to use run charts once the improvement has been identified and once plans for its wider implementation have been made.

See the section on run charts in plan and test (pages 34).

## VISUAL DISPLAY

Visual displays are powerful motivators. You might benefit from creating a dedicated space for collecting

and displaying material you generate in the course of your quality improvement project. These displays are sometimes called 'storyboards'. Storyboarding should commence as soon as the activity is started. It allows all staff and visitors to know what is going on; can become a talking point within the organisation; and can help build team ownership, engagement and motivation. The waiting room and staff room are good places. As illustrated below, simple run charts can form a powerful part of an engaging storyboard.

**Figure 28:** Display board in a practice



# Sustain and spread

You will want to sustain any improvement within your practice or organisation. This can be supported by the same methods and measurements that you originally used to test the changes, as seen in the plan and test section of this guide (pages 29-41). If by now you feel confident with run charts, you might like to try using the more sophisticated SPC charts to measure your progress, which we describe below. It would be good if you could share any improvement stories with colleagues in primary care – whether this be locally, regionally or nationally – as their application could be of wider benefit. You could do this by devising a communications strategy (pages 44), producing an evaluation report (below) and by circulating your report or story via networks (page 44) and collaboratives (page 45) or presenting at meetings and in publications.

## EVALUATION

You may have to present an evaluation to help spread the results of your quality improvement. If this needs to be formally presented, it is best to consider this at the outset of your project. In an evaluation you will describe your programme's aims, its background, the intervention(s) made, your implementation and monitoring methods, the data collected, the costing, and the outputs you achieved. Remember to consider the audience to which it will be delivered. There are various methods of conducting a formal evaluation, e.g. process evaluation or economic evaluation. You can use some of the quality improvement tools in the guide to help you. For example:

- **Aim:** Use driver diagram (page 31) and Model for Improvement (page 29)
- **Background:** From reviewing the context section (pages 15).
- **Intervention(s):** Use actions from your driver diagram. The interventions need to be fully described: say whether or not they changed as your programme progressed; identify who your target audience was; demonstrate whether or not they engaged; and share their experience.

- **Methods:** Use tools of quality improvement (page 20) to implement and monitor.
- **Data:** Baseline data from diagnosis section and continued monitoring using, e.g. run charts.
- **Costings:** From reviewing context section and part of the description of the intervention(s).
- **Outputs:** Can use run charts (page 34), SPC charts (page 45) for quantitative data and also describe qualitative results. Also the third part of PDSA cycles (page 32), the study section, involves considering whether the change has brought about improvement or not.

An evaluation should explain what you planned to do; whether or not it worked; and why the actions taken were or were not successful. You also need to consider any side-effects or unintended consequences of your programme.

By sharing your work through the RCGP or the NHS system you can make recommendations for wider implementation.

## NETWORKS

Networks can give you access to information; they can allow you to share representative duties; raise your profile; and can offer you good support. The Health Foundation has shared a “5C wheel”<sup>22</sup> model and this model enables a network to add value especially in quality improvement. The Cs are:

- **Common purpose.** The purpose needs to be clear and stated at the start.
- **Co-operative structure.** The style of leadership is important. It is often facilitative and can come from a respected figure. Members should be encouraged to get involved in the network’s development.
- **Critical mass.** Membership can be encouraged by offering members something they would value. An engagement strategy needs to be in place and resourcing needs must be considered.
- **Collective intelligence.** There needs to be an easy way to share experiences and results within a safe environment. Feedback on any impact needs to be given.
- **Community building.** Personal contact should be encouraged and smaller sub-groups may need to be established.

A [short film](#)<sup>23</sup> from the Health Foundation explains the 5C model further.

## COMMUNICATION STRATEGY

Once an improvement has been tried it is important to communicate this regardless of whether or not it has been successful. A short key message can be used to attract attention. You will want to use language which is accessible for the various target groups. Resources need to be identified to implement the strategy.

A strategy can include:

- **Objectives.** What is the aim of your communication?
- **Team involved.** Who needs to be involved in delivery?
- **Target audiences.** Who needs to know about the project?
- **Messages.** The message needs to be tailored to the audience.
- **Methods.** Which channels will you use?
- **Timescale.** When do you wish to achieve delivery of your message?
- **Evaluate.** Consider the effectiveness of your strategy.

A template of a plan to be included in the strategy is in appendix 3 (pages 58).

22. The Health Foundation. *Effective networks for improvement: Developing and managing effective networks to support quality improvement in healthcare*. London: The Health Foundation, March 2014. <http://www.health.org.uk/publication/effective-networks-improvement> [accessed 3 June 2015].

23. The Health Foundation. *Effective networks for healthcare improvement: explaining the 5C wheel*. [video file]. London: The Health Foundation, April 2014. <http://www.health.org.uk/multimedia/video/effective-networks-for-healthcare-improvement-explaining-the-5c-wheel/>

## COLLABORATIVES

Practices can improve care by collaborating with each other. This can improve access to a greater number of experts and means that good practice can be exchanged between peers. Collaboratives usually involve a central learning event followed by local implementation using quality improvement tools, such as PDSA cycles. These are supported by regular communication between the expert(s) and the participants as well as through the sharing of results, feedback and learning. Greater success has been found where the learning events have been facilitated and where dedicated time has been given to all. Collaboratives are an ideal tool for Federations and general practices at scale to benefit from.

## STATISTICAL PROCESS CONTROL CHARTS (SPC CHARTS)

Like run charts (pages 34), SPC charts are a technique for monitoring and assessing the impact of the changes that you implement. SPC charts are more complex to create than run charts and require an understanding of statistics.

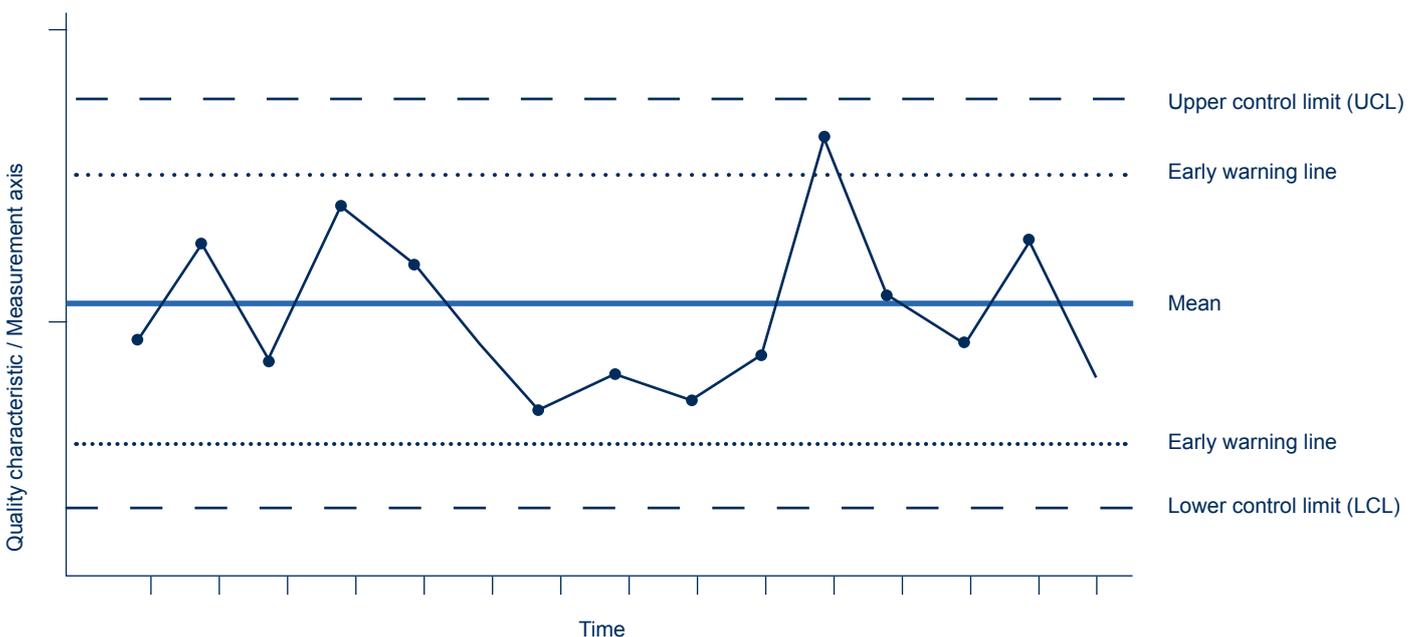
### How do SPC charts differ from run charts?

Run charts are convenient, easy to understand, and can help you to identify whether your quality improvement intervention is leading to improvements. SPC charts are better than run charts for identifying 'freak' points that are far above or below the majority of the data points. This is because SPC charts use the mean for their centre line and using the mean makes freak points stand out, giving a clear signal that something unusual has happened. This is known as 'special cause variation'. It is harder to spot special cause variation in a run chart because it uses the median for its centre line. Instead it can look deceptively like normal variation. SPC charts include 'control lines' above and below the mean, which tell you when your process may be starting to perform in an unexpected way.

### What are control lines?

Control lines are created by using the data you have gathered about your performance so far. The standard deviation (SD) of the data is calculated and the lines are drawn at values that would represent 3 SDs away from the mean, one line above (the 'upper control limit'), and one line below (the 'lower control limit'). This means that 99.73% of all future data would

Figure 29: An example of a SPC chart



be expected to fall between these two control lines. The inner dotted lines are plotted 2 SDs away from the mean and can be used as 'early warning' lines, indicating that something might be changing and may need further investigation. If a data point is outside of the upper or lower control limits (<99.73% likelihood that this has happened by chance), this is either a concern to be investigated, or a sign that your intervention is making a difference.

Different types of data (e.g. continuous or discrete) require different mathematical techniques to create the SPC chart, and statistical packages can be bought to help with this. [Baseline©](#) is an example of such software that is designed for use by novices and is recommended by NHS Improving Quality (NHS IQ).<sup>24</sup> It allows you to cut and paste in time-series data that it then converts into a chart. This gives you an image of how things are changing.

### SPC charts vs run charts for quality improvement work in general practice

Most general practice quality improvements can be monitored using a simple run chart and the run chart rules as previously described. A greater understanding of statistics (e.g. calculation of standard deviations and understanding discrete and continuous data) is required to create an SPC chart.

Once you are happy with your improved performance, SPC charts can be useful for quality assurance purposes since you can use them to monitor for unexpected deterioration. The control lines allow you to make predictions about the range of values you might expect if there are no changes to the process. For example, using them to predict the number of visit requests per day might be useful in your practice's workforce planning.

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24. SAASoft. Baseline©. <http://www.saasoft.com/baseline/baseline.php> [accessed 13 August 2015].

# PART III:

## The supporting rims of the wheel

- PATIENT INVOLVEMENT
- ENGAGEMENT
- IMPROVEMENT SCIENCE

# Patient involvement

As patients will be impacted by your changes, it is important to include them at all stages of your programme from diagnosis through to sustain and spread; and then again in determining which interventions ‘work’ and are to be embedded.

## UMBRELLA PATIENT GROUPS

The RCGP has the following patient groups and they have resources that can contribute to how patients can be involved:

- Patients and Carers Partnership Group (PCPG)
- Patient Partnership in Practice (P3), Scotland
- Patients in Practice (PiP), Northern Ireland
- Patient Partnership in Practice (PPiP), Wales.

Some resources can be found on the [RCGP website](#).<sup>25</sup> You could also contact the [National Association for Patient Participation \(NAPP\)](#).<sup>26</sup>

## WHO TO INVOLVE

Who you involve will depend on your objectives for patient involvement. You may have already established ways of involving patients and these could be utilised in your quality improvement intervention.

## TYPES OF INVOLVEMENT

Ask yourself: How could you involve patients? How will you know if it ‘works’ for them? Could any of the following methods be useful?:

- patient participation groups
- focus groups
- surveys, including using data from the national patient GP survey
- patient shadowing
- patient stories / case studies
- patient interviews
- engagement with self-help groups
- patient journey maps.



25. RCGP: *Information for Patients*. London, RCGP. <http://www.rcgp.org.uk/information-for-patients.aspx> [accessed 12 August 2015].

26. NAPP website. <http://www.napp.org.uk/> [accessed 12 August 2015].

# QI and patient involvement: a practical example

Patients can help us to generate ideas for new quality improvement approaches. Joanna Bircher, RGCP Quality Improvement expert, talks about how practice teams and patients can and should work together to improve quality.

## **Together we can make a difference**

One of the fundamentals of quality improvement methods used in industry is for companies to view their service or product through the eyes of their customers. We should do the same. It was with this in mind that I recently decided to explore how to do this with a group of practices and their Patient Participation Groups (PPGs) from my CCG area.

A number of important themes emerged, both about how patients can contribute to improving their practice and about some of the barriers to this happening effectively. The themes included how patients can work with practices to help us to:

- identify areas that need improving and uncover problems
- create a positive culture for quality improvement
- generate ideas for trying out new approaches and think outside the box.

## **Involving patients in identifying areas for improvement and uncovering problems**

Feedback from our patients about what hasn't worked well for them can help us to redesign our systems and processes. However both giving and receiving feedback can be fraught with difficulties. Patients often feel they need courage to criticise, as they are concerned it might jeopardise their care in the future. Also, if we usually get things right, and they like us, they can be very forgiving of our inefficiencies and unresponsive systems. When they do give feedback it is often to our reception staff, who can feel very vulnerable. As a result the patients are often met with a leaflet on how to use the formal complaints process, when this isn't what they wanted to do at all. This could be a missed opportunity to capture valuable feedback and ideas.

Winston Churchill once said, "Courage is what it takes to stand up and speak. It is also what it takes to sit down and listen". Real listening is allowing yourself to be changed. Patients who are brave enough to tell us their stories when things didn't go well can provide us with gems of information that we may not get from any surveys or friends and family tests. We need to be genuinely curious about exactly what they experienced – it may uncover a flaw that we never realised existed.

One of the QI methods we have described in chapter 2 of this guide is process mapping. This involves creating a visual display of all the stages of a practice process, for example the repeat prescribing system or the managing of investigations and results. The map helps practices to identify wasted steps and problem areas to maximise efficiency, saving time and money. It encourages 'system thinking'. Giving patients easy and rewarding opportunities to share their experience is valuable to the practice.

At our recent session with patients and practice teams we 'process-mapped' the repeat prescribing system; we couldn't have done it as efficiently without the input of the patients and what went on 'behind the scenes' was a huge revelation to them. It's a great exercise for PPGs and is likely to lead to some real changes to current processes.

### **Patients can help to create a practice culture that promotes quality improvement**

Your practice culture (i.e. your values, how you communicate, how you feel about your work, whether you are functioning as a team etc) is of vital importance in determining whether your quality improvement efforts will be successful. The more positive view the practice team has of the practice and the future, the more likely you are to be successful. The Greek writer and philosopher Nikos Kazantzakis (1883-1957) said, "In order to succeed we must first believe that we can". In this way the lovely things patients say about us can really boost our QI efforts. In our session the patient group recognised how positive feedback on NHS Choices and Friends and Family can make practices feel their efforts are worthwhile and means that future improvement work can have more impact.

### **Patients help us to try new approaches and think outside the box**

Chapter 3 of this guide and the QI resource page on the RCGP website describe how we can use the 'Model for Improvement' as a tool to improve our practices. It describes the '3 questions and a wheel':

1. What are we trying to accomplish?
2. How will we know if there has been an improvement?
3. What changes can we make to drive an improvement?

The final question generates ideas that you can then test out using PDSA (Plan-Do-Study-Act) cycles. Patients have a valuable role to play in coming up with ideas for testing. In our joint session, the patients and practice staff worked together to generate ideas for reducing the number of patients who failed to show up for their appointments. The idea that works is not always the one you expect and patients help us to really think outside the box.

PPGs are developing their role over the whole country, and some CCGs are developing support structures for them. There are so many patients interested in making a positive contribution to the NHS – lets 'let them in' and allow them to make a real difference.

# Engagement

All stakeholders need to be engaged, not just the patients. At the beginning of your project, identify the relevant stakeholders for your quality improvement and revisit this as necessary. For example, if you are aiming to improve continuity of care, involve all staff who book appointments for patients. If you are trying to improve the way tests are requested and handled, you are likely to benefit from involving a manager from your local pathology lab.

The Health Foundation's *Overcoming Challenges to Improving Quality* suggests the first stage is to convince people there is a problem.<sup>27</sup> A persuasive case can be built from hard data, patient stories and through peer-led discussion. If you also have a solution to propose, you may need to convince them it's the correct one. Clear facts and figures and involving respected figures will help with this.

## IDENTIFY YOUR STAKEHOLDERS

A number of tools you have used (e.g. your communication strategy) and the scoping you have done for your project will help you to identify the relevant stakeholders for your quality improvement project. This should be done at the beginning of your project, but you may find that you will need to update this as your project progresses, for example as you build or link into new networks. You will need to consider both internal stakeholders - those inside your practice (e.g. all types of practice staff, patients); and external stakeholders – those outside of your practice (e.g. other practices, your CCG, your networks, RCGP).

27. The Health Foundation. *Overcoming challenges to improving quality: Lessons from the Health Foundation's improvement programme evaluations and relevant literature*. London: The Health Foundation, April 2012. <http://www.health.org.uk/publication/overcoming-challenges-improving-quality#sthash> [accessed 12 August 2015].

## WHEN TO ENGAGE YOUR STAKEHOLDERS

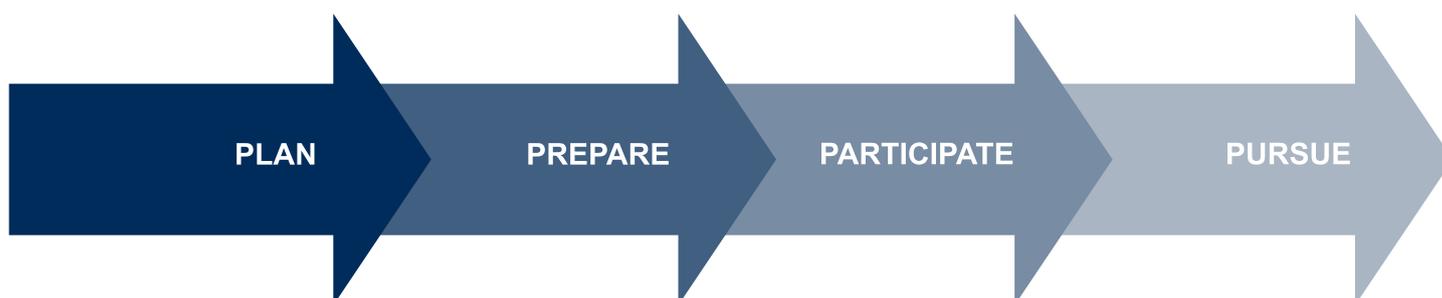
You will need to think about when to engage your stakeholders so that you get the maximum engagement from that group. Engaging practice staff at the beginning of their participation in the intervention is critical to its success. Your communication strategy (page 44) and your Gantt charts (page 38) can help you to identify the best time to engage a particular stakeholder.

## EFFECTIVE MEETINGS

In any quality improvement project there will be meetings, e.g. project team meetings. If held effectively they will improve engagement as well as aid the development of the project. The NHS Institute for Innovation and Improvement describes the 4Ps of an effective meeting.<sup>28</sup> The following is an adaptation of their work.

28. NHS Institute for Innovation and Improvement. Meeting management. The Productive Leader. *The Productive Series*. 2013. [http://www.institute.nhs.uk/quality\\_and\\_value/productivity\\_series/the\\_productive\\_nhs\\_leader\\_ship\\_team\\_-\\_making\\_time\\_to\\_lead.html](http://www.institute.nhs.uk/quality_and_value/productivity_series/the_productive_nhs_leader_ship_team_-_making_time_to_lead.html) Retrieved from the Faculty of Allied Health Professions and Health Care Scientists <https://www.heftfaculty.co.uk/content/meetings-management> [accessed 3 June 2015]

**Figure 30:** The 4Ps of an effective meeting



**PLAN.**

**The role of organiser:**

- Consider whether meeting is necessary.
- Define objectives.
- Choose effective chair.
- Invite only those who need to be there.
- Ask for agenda items.
- Create agenda.
- Complete timings.
- Allocate owner of item.
- Circulate pre-meeting information.
- Appoint minute taker.
- Check venue appropriate.

**PREPARE.**

**The role of all:**

- Read material.
- Consider your contribution.
- Check actions assigned previously to you have been completed.

**PARTICIPATE.**

**The role of all with chair facilitating:**

- On time to start and keep to time.
- Stick to subject.
- Share your ideas.
- Listen to others.
- Chair to summarise clear actions and person attached to action.

**PURSUE.**

**The role of all:**

- Actions circulated as soon as possible.
- Action decisions promptly.

**EXPERIENCE-BASED CO-DESIGN**

See EBCD above (page 41). This tool is both an excellent mechanism for engaging stakeholders and a process that facilitates planning for an improvement.

**PERSONALITY TYPING**

When working in a team and delivering change together it can be beneficial to identify the different styles of the people involved. There are various ways of identifying these styles. The Merrill and Reid test identifies four personal styles: analyst, amiable, expressive and driver. The Belbin Inventory of Team Roles is used to score people on how strongly they express the behavioural traits from nine different team roles.<sup>29</sup> It is not a personality typing system since people often exhibit strong tendencies towards multiple roles. However, it is widely used and is a useful tool for gaining a better understanding of the strengths of your team and building on them.

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29. Belbin Associates. Belbin® Team Roles. <http://www.belbin.com/> [accessed 13 August 2015]

# Improvement science

Improvement science is a relatively new academic field that aims to identify the best methods for improving the quality and safety of healthcare. It incorporates evidence from many academic disciplines and offers a systematic and evidence-based health services approach to quality improvement.

You can use published work from improvement science to provide you with ideas to try out. The majority of the tools described in this guide derive from various quality improvement approaches. A few of these are described below.

## TOTAL QUALITY MANAGEMENT (TQM)

TQM is often used interchangeably with the term Continuous Quality Improvement (CQI). The principles of this approach include: strong leadership, continuous activity, attention to systems rather than individuals and Importance of measurement.

## LEAN

'Lean' is a systematic approach to reducing waste through a process of continuous improvement. Any improvement must be made by those who are using the service. Waste is defined as non-value added activities or otherwise unnecessary activity. Many of the tools in this guide can form part of a Lean approach. Another tool is 5S (sort, set, shine, standardise, and sustain). Practices have used this tool for activities such as standardising the layout of consulting rooms. This approach has been adapted for use by the NHS Institute for Innovation and

Improvement to create the Productive series, one of which is Productive General Practice.<sup>30</sup>

## SIX SIGMA

The Six Sigma approach evaluates the needs of patients and identifies variations in meeting those needs. One of the methods it uses is DMAIC: Define, Measure, Analyse, Improve and Control.

## MORE ON IMPROVEMENT SCIENCE

Further reading on improvement science includes work by Professor Martin Marshall, Lead in Improvement Science at University College London.<sup>31</sup> Professor Marshall advocates the need to ensure that health services research has an impact on quality improvement and calls for an evidence-informed approach to service improvement with better working relationships between academia and health services. A researcher-in-practice, working on a well-designed service improvement initiative, offers the potential for scientific rigour.

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30. For Scottish practices the link is <http://www.qihub.scot.nhs.uk/quality-and-efficiency/outpatient-primary-and-community-care/productive-general-practice.aspx>  
For practices in other UK countries it is [http://www.institute.nhs.uk/productive\\_general\\_practice/general/productive\\_general\\_practice\\_homepage.html](http://www.institute.nhs.uk/productive_general_practice/general/productive_general_practice_homepage.html)

31. Marshall M. Bridging the ivory towers and the swampy lowlands; increasing the impact of health services research on quality improvement. *International Journal for Quality in Health Care* 2014; 26 (1): 1-5.

# Conclusion

The concept of 'QI', or using a systematic approach to quality improvement, is quite new to general practice. It is an exciting development with the potential to improve the working lives of GPs and our teams, as well as improving patient care and how patients experience our services.

This guide is extensive and contains lots of tips, information and tools for you to start your own improvement journey. The guide will evolve over time and we welcome all feedback in making it as useful as it can possibly be to everyone working within UK general practice. You can contact us at [qualityimprovement@rcgp.org.uk](mailto:qualityimprovement@rcgp.org.uk)

We are continuing to add to the QI webpage of the RCGP website to link you to further resources.<sup>32</sup>

Taking a QI approach to changing practice often needs to start with a 'culture-shift' whereby all team members decide to work together to try doing something differently. It needs everyone to be prepared to experiment in a controlled way and with the appropriate measures in place. It requires all team members to open their minds to the possibilities of new ways of working; for us all to take more active steps to hear what our patients are saying about our services; and for us to use their thoughts to drive our improvements.

Our suggestion is not that you implement the whole guide, but rather that you use the information to get started, choosing which methods and tools suit your improvement priorities.

Healthcare is a complex area: it is often hard to know what will make a difference, and hard to know how to get started. We recommend you keep things simple at first and embrace the concept of 'small cycles of change'. You will become more confident at experimenting with new things as you see results. You will also get better at using the methodology until you find the whole team are motivated to embark on a new project.

Investing your time in QI can make general practice both a great place to work and a great place to access care. Good luck!

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<sup>32</sup>. RCGP. *Quality Improvement*.  
<http://www.rcgp.org.uk/clinical-and-research/our-programmes/quality-improvement.aspx> [Accessed 13 August 2015].

# PART IV:

## Appendices

# Context checklist



Element	Applicable? If so, what aspect?	Action	Timescale
Culture			
Leadership			
Team Working			
Evidence base			
Political/Regulatory			
Technological			
Capacity			
Social/demographics			
Capability			
Opportunity			
Motivation			

# Forcefield analysis



Driving forces	Score /10	Restraining forces	Score /10

# Communication strategy



**Project Scope:** \_\_\_\_\_

1. ....
2. ....
3. ....

**Key Messages:** \_\_\_\_\_

**Initial stages** (to be added to as the project progresses)

**Messages for** \_\_\_\_\_

- .....
- .....
- .....

**Messages for** \_\_\_\_\_

- .....
- .....
- .....
- .....

**Messages for:** \_\_\_\_\_

- .....
- .....
- .....
- .....

**Messages for:** \_\_\_\_\_

- .....
- .....

**Communication Goals:** \_\_\_\_\_

- .....
- .....

**Team involved:** \_\_\_\_\_

**Target Audiences/Stakeholders:** \_\_\_\_\_

**Communication/media options:** \_\_\_\_\_

**Plan** (detail who, what, when and how):

No	Message event	Comm-unication purpose	Target audience	Sender	Media planned	Content due date	Date planned	Date completed	Status

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# Your notes

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General Practitioners

**Royal College of General Practitioners**

30 Euston Square, London NW1 2FB

Telephone: 020 3188 7400

Fax: 020 3188 7401

Website: [www.rcgp.org.uk](http://www.rcgp.org.uk)

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