Quality Improvement Toolkit For Early Diagnosis Of Cancer

Contents

QUALITY IMPROVEMENT TOOLKIT FOR EARLY DIAGNOSIS OF CANCER

INTRODUCTION

This toolkit is to help GPs and their practice teams to improve their early diagnosis of cancer principally by using the findings from the National Cancer Diagnosis Audit (NCDA). The NCDA is an audit of primary and secondary care data of patients diagnosed with cancer. It helps us understand patterns of cancer diagnosis for all cancer types. The audit looks specifically at clinical practice in order to understand:

- Interval length from patient presentation to diagnosis
- Use of investigations prior to referral
- The referral pathways for patients diagnosed with cancer

Practices that took part in the first audit round, which gathered data on patients diagnosed in 2014 received a tailored feedback report with their data. Additionally, aggregate regional reports were produced, and the national results are published as an academic paper. The practice-level, regional and national findings from the NCDA provide unique insights into patient pathways to cancer diagnosis, highlighting areas of good practice and flagging issues for quality improvement.

All those involved with the planning and implementation of the audit are acutely aware of the incredible pressures faced by General Practice on a daily basis, however we believe that engagement with this programme will be both interesting and stimulating. Previous research has shown that engaging in such activity results in a statistically significant improvement in patient outcomes. The audit and any Quality Improvement (QI) work that results has the potential to impact upon your patients, wider societies and beyond.

The QI toolkit for Early Diagnosis of Cancer

Stage at diagnosis is the key factor in cancer survival, and many services across the healthcare system have a part to play in achieving early diagnosis. Within General Practice factors such as ease of access to appointments or telephone consultations and effective safety netting can all play their part in speed of diagnosis.

This toolkit is to help GPs and their practice teams to improve their early diagnosis of cancer principally by using the findings from the NCDA. It will help you reflect and learn from the results from the NCDA detailed in your practice report as well as use well-recognised QI principles and tools to implement positive change.

It can also be used if you have not participated in this audit but wish to understand and improve processes related to cancer diagnosis. You may find the NCDA regional and national reports useful.

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.

What is Quality Improvement?

The term 'quality improvement' (QI) 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 use this toolkit?

This toolkit will help you find areas for improvement in cancer diagnosis and gives you tools to plan any changes you wish to make and to test whether your change has been successful. At a time when everybody in practice is under stress, using this toolkit will ensure that you accurately identify problems, make effective changes and don't waste time on interventions that make no difference.

Structure of the toolkit

The toolkit has been based on the successful RCGP guide, Quality improvement for General Practice[1] but is re-presented through a cancer early diagnosis lens. In this guide, we present the QI wheel, a simple visual representation of quality improvement for primary care. It illustrates the main elements to consider in design, delivery and evaluation of a QI intervention. The QI wheel is made up of five rings:

1. **Culture and context –** to help you create the right conditions for a successful project
2. **QI cycle -** to guide you through implementation of an intervention
3. **Patient involvement -** providing ideas to harness vital patient input for successful improvements
4. **Engagement -** to provide ideas on which stakeholders to engage and how to involve them
5. **Improvement science –** to provide you with the big picture context that your QI work fits into
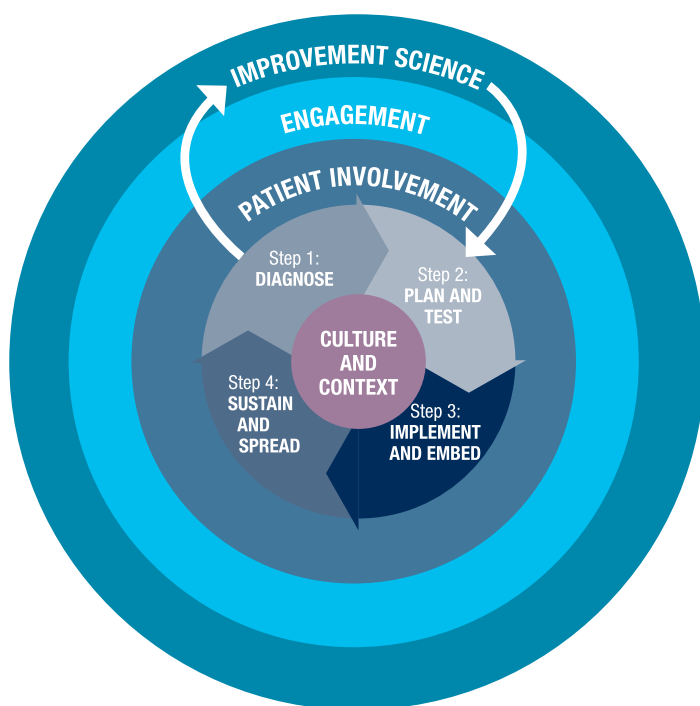
1. Context and Culture

'Context and Culture' is at the centre of the wheel as without this element being 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.

1. http://www.rcgp.org.uk/clinical-and-research/our-programmes/quality-improvement.aspx

2. The QI Cycle

These are the implementation steps for a cycle of quality improvement. It is broken down into four steps. Consider each of the 4 steps as a way of framing the implementation of your change:

Step 1: Diagnose – In QI work, this section relates to 'diagnosing your improvement needs'. Assess the area of your practice or organisation that requires improvement, in cancer diagnosis and generate some baseline data. Participation in audits, such as the NCDA, can support this process.

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.

3. Patient Involvement

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 intervention.

4. Engagement

Engagement represents all stakeholders relevant to your project. You will have internal stakeholders in your own practice and external stakeholders such as Cancer Research UK facilitators, Macmillan GPs, social care services, and health infrastructure bodies at the local and national level.

5. Improvement Science

Improvement science is research to identify and demonstrate the best and most appropriate methods for improvement in the quality and safety of health services. Once you have made progress on your QI journey and have gained confidence using the approach explained in this guide, you may wish to read the Improvement science section in the Quality improvement for General Practice[2] guide.

2. http://www.rcgp.org.uk/clinical-and-research/our-programmes/quality-improvement.aspx

CONTEXT AND CULTURE

Context can be defined as the 'environment' in which your quality improvement intervention is to be introduced.

It includes the culture of your organisation, which reflects the values, beliefs and behaviours of the people you work with, which have developed slowly over years.

There are many factors related to your work context that can both enable, and be barriers to making cancer diagnoses as early as possible. Variations in context influence the success or failure of your intervention, no matter how well planned it may be. 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).

'Inner Context' Factors

Culture – A culture that is conducive to quality improvement is one where people:
- 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. This is particularly important when you are looking back at new cancer diagnoses to see if there is anything that may have resulted in an earlier diagnosis.
- Are happy to be involved in looking for solutions.
- Are prepared to experiment with new ideas.
- Believe it is worth investing time to improve.

Leadership – Quality improvement 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.
- Understand and can explain to team members the challenge we face in primary care when trying to pick up cancers early, but at same time avoid over-diagnosing or over-medicalising.

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. If the whole team has an understanding of issues related to cancer diagnosis, for example tips for patients when providing their bowel screening samples, they can encourage patients to return their kits.

Capacity - Success is more likely if the practice or organisation has:

- The financial and human resources needed to undertake the improvement.
- Methods of identifying those resources.
- The time available for the programme to realistically achieve its goals. This includes the time to frequently review cases and measure indicators as markers of improvement (see 'Step 2, Measurements and Analysis). It can be useful to release time for improvement activities by looking for efficiencies in other aspects of practice work, for example release GP time managing medication queries by employing a practice-based pharmacist. This time could then be allocated to add extra appointments, which could in turn improve access for patients who may be presenting with cancer symptoms.

'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. We are fortunate to have NICE Guidance NG12[3] and Scottish Cancer Referral guidelines[4] to inform your decision-making around cancer early diagnosis.

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, and Public Health campaigns related to the symptoms of cancer. It is helpful for example, that NICE/HIS has acknowledged there will be many cancer fast-track referrals for people who do not have cancer, but have assessed this as being a cost-effective use of NHS Resources.

- 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.
- Most Electronic medical records systems allow for the programming of automatic alerts, for example the use of Q-Risk cancer. This technology can prompt clinicians to consider cancer as a diagnosis once symptoms are coded.
- 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.

Understanding 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 can devise strategies to accommodate or ameliorate them.

Organisational culture can sometimes be slow to change, but a consistent approach from the leaders of the organisation will have a positive impact over time.

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3. https://www.nice.org.uk/guidance/ng12
4. http://www.cancerreferral.scot.nhs.uk/Home

Influencing your Context to promote early Cancer Diagnosis

Taking part in practice-based exercises to explore your context can help to influence organisational culture positively. Time spent on these exercises provides an opportunity to achieve a shared understanding of the challenges facing the organisation so that people at all levels can feel heard and valued.

During the exercises it is important to allocate enough time to explore the solutions to the context challenges. Optimism is an important driver for a successful outcome.
Choose one of these exercises that are most relevant to the given situation:

1. Context Checklist
2. Force-field Analysis
3. SWOT Analysis
4. Questionnaires

1. CONTEXT CHECKLIST:

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

2. FORCE-FIELD ANALYSIS:

This 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 force-field analysis to devise a strategy that accommodates or increases the driving forces and that either mitigates or decreases the strength of the restraining forces.

Factors that prevent emergency presentation of cancer		Factors that push patients to present their cancer symptoms to the Emergency Department (ED)	
Effective practice triage system to prioritise cancer symptoms	Score 1-10	Practice phone lines engaged	Score 1-10
Fast access to GP appointments		Too long to wait until next appointment	
Effective safety netting		Patients not sure what symptoms need to be seen in ED	
Patients clear what to do if symptoms persist or new red flag symptoms appear		Patients still worried after seeing GP	
Patients trust their own GP more		Patients have greater trust in hospital doctors	

3. SWOT ANALYSIS:

This involves considering your organisation or team in terms of its 'Strengths', 'Weaknesses', 'Opportunities' and 'Threats'. This exercise is very useful in bringing together individuals with different viewpoints, so that they can air their opinions and concerns and at the same time hear why others are excited by a project. It gives all involved a chance to try to address the weakness and avoid the threats. With a focus on cancer diagnosis, ask the group to answer the following question and write their response down, one per post-it note.

"When trying to diagnose cancer at the earliest opportunity…

What are our strengths?
What are our weaknesses?
What opportunities can we see?
What threats can we see?

Then collate the post-it notes on a flip chart divided into 4 quadrants, asking for clarification about what is written if necessary, so all views are heard.

Example: "When trying to diagnose cancer at the earliest opportunity…

STRENGTHS

- Admin staff keen to get involved with improvement
- Good practice IT system with automatic alerts
- Fast chest x-ray reporting service
- Fast track referrals all electronic

WEAKNESSES

- GP Vacancy
- Trainees unfamiliar with referral guidance and pathways
- Local Trust was in Special Measures and patients not confident in the care, despite improvements

OPPORTUNITIES

- New straight-to-test referral pathways at local trust
- New TV and local press campaign on cancer symptoms
- New waiting room electronic screen
- Patients email addresses allows targeted campaigns

THREATS

- Practice closing nearby, increasing our list
- All patients with a 3-week history of cough might consult even if low-risk
- CCG pressure to reduce referrals

4. QUESTIONNAIRES:

You can use a questionnaire to assess your practice culture. Many of the published questionnaires have been designed with safety in mind, although they are equally relevant to a culture of improvement. Examples include the Safequest tool and the Manchester Patient Safety

Framework which can be found on the RCGP Patient safety Toolkit webpage. They can be useful to identify if practice staff feel unable to speak up if they think a system or process isn't working well and may need to be changed.

DIAGNOSE

In the context of QI, this section refers to 'Diagnosing your Improvement needs'. Having understood your culture and context, you can identify areas in the early diagnosis of cancer that could be improved or would benefit from change. This chapter contains a variety of tools that enable you to do this. For those of you who have completed the NCDA, the feedback on your results can be a good place to start. This is discussed in the externally sourced data section below.

Your NCDA results may alert you to an area for improvement, but you may need to look at the problem in more detail. This could include repeating the audit looking at cancers that have been diagnosed more recently, to see if you have already improved your diagnosis by implementing the latest NICE/HIS Guidelines. In addition you may want to look at areas not covered by the audit, for example continuity of care. If you consider there may be a problem with a process that is affecting the early diagnosis of cancer, then process mapping is useful. Where your NDCA data has revealed there may be multiple causes for the problem then a fishbone diagram can be used.

NCDA is a national clinical audit and there still may be a place for a clinical audit to be conducted in the practice. This could give more up to date data than the NCDA has provided. Your feedback from the NCDA may indicate the need for an SEA to be conducted. But even if your practice did not take part in the NCDA, the regional and national reports from the audit may be a helpful starting point for discussions about potential issues that can then be investigated further at practice level.

A survey of patients or staff may give you information that is not available from externally sourced data. You need to be certain you have diagnosed the problem accurately before you go on to introduce a change.

EXTERNALLY SOURCED DATA

The best external data source for exploring your practice performance in diagnosing cancer is your National Cancer Diagnosis Audit (NCDA) report. The factors analysed include:

- Stage of diagnosis
- Number of days between presentation of symptoms at the practice and referral
- How the diagnosis was made (using the suspected cancer referral pathway, as an emergency presentation, via screening or otherwise.
- Detailed breakdown of types of emergency presentations
- The number of consultations between presentation and referral
- The number and type of diagnostic tests arranged in primary care prior to referral
- Cases in which the GP thought there had been an avoidable delay in the patient pathway, including the location and reason for the delay

If your practice participated in the audit (the first round assessed performance for cancers diagnosed in 2014, prior to the updated NICE Guidance NG12/ Scottish cancer referral guidelines May 2015) then you will receive a report that allows you to compare your performance with the national cohort of practices in the NCDA, as well as a cluster of practices with a similar demographic.

If your practice did not take part in the NCDA, you may find the regional NCDA report for your area (obtainable through your local Cancer Research UK facilitator) a good starting point to give you an idea of issues that may need action locally, which you can then consider in the context of your practice. The national NCDA results may also be of interest.

Other organisations also gather data related to your registered patients and compare your processes and outcomes both against the performance of other practices locally and nationally and also compare current performance with previous data. Many of these sources can give us information on aspects of care related to cancer diagnosis, for example whether patients feel they have timely access to care, cancer screening uptake, and the proportion of cancers diagnosed using the fast-track route.

The data is drawn and collated from your QOF submissions, public health databases, and national surveys such as the GP patient survey in England.

These data sources are accessed on-line. It is hard to maintain an up-to-data comprehensive list of sources but some found to be useful include:

For England:
• The Primary Care Webtool
• National GP patient survey
• QOF Database
• Public Health England Fingertips for National General Practice Profiles and cancer practice profiles (also known as 'Fingertips')
• CQC Intelligent Monitoring/Insight reports
• Local cancer Intelligence network (CCG level information)

For Scotland:
• SPIRE (Scottish Primary Care Information Resource, currently in development)
• Scottish Public Health Observatory
• PRISMS (Prescribing Information System for Scotland)

For Wales:
• QOF Database
• Audit-plus
• CASPAR (prescribing data)
• Public Health Wales Observatory

In addition to these quantitative data sources, you will be aware of qualitative information gathered about your practice such as on the NHS Choices website and external inspection reports, for example CQC in England, HIW in Wales.

It is important to be aware of the limitations of this type of data. Although it allows you to compare your practice with others (a process called 'benchmarking') there are many reasons to explain variations in outcomes and performance between practices. It often relates to deprivation levels and can reflect local service provision. However, exploring how your practice performs compared to other local practices can give a clearer idea of what areas of care you would like to improve.

One criticism of using 'benchmarking' to decide if improvements are needed is that it may encourage mediocrity: being in the middle range is acceptable. The national outcomes for cancer are not as good as other high-income countries with comparable health care systems and so just using benchmarking may prevent the good performers from improving further. It is important therefore to not only use benchmarking data to decide if your practice has room for improvement.

Externally sourced data may be12-18 months old by the time it reaches the public domain, so may not reflect any recent changes or improvements you have made. The NCDA round in 2016/17 looked at diagnoses in 2014 and your practice may already have made changes following the publication of NG12 in 2015. Also some variation between GP practices in performance may not be statistically significant. Some databases (for example the Primary Care web tool in England) use funnel plots in order to identify if you are a statistical outlier.

What to do with your NCDA data?

Explore the data and then get your Practice Team together to try to make sense of areas where you are not performing as well as similar practices, not reaching the agreed standards or where there has been a change over time.

Number of days between presentation and referral
Practice discussion points could include access to NICE referral guidelines for suspected cancer/ Scottish Cancer Referral guidelines[5], fear of too many referrals, fear of generating patient anxiety by referral, access to appointments, inadequate safety-netting, patient behaviour.

How the diagnosis was made (using the suspected cancer referral pathway, as an emergency presentation, via screening or otherwise)
Practice discussion points could include use of referral guidelines, use of diagnostic tests, access to appointments, practice referral systems and administrative processes.

Diagnostic tests arranged in primary care prior to referral
Are patients being investigated when a fast-track suspected cancer referral was indicated? How does your use of common diagnostic tests (e.g. chest X-ray) compare to others.

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?

What to do with other external data?

You can use the other sources to support you when working out the issues that may be affecting your performance in early cancer diagnosis. For example, in England, the National GP Patient Survey will give you an indication as to whether patients are finding it difficult to make an appointment at the practice and the Public Health England Website can tell you how you are performing in cancer screening uptake and use of the fast-track suspected cancer referral system.

Internally-collected Data

There are limitations to externally-collated data when trying create a very specific improvement aim as it cannot provide the level of detail you are likely to need to focus your improvements.

Internally collected data can provide a better level of detail on factors that may influence early cancer diagnosis, such as continuity of care or access to appointments.

In this example on page 14, your benchmarking data suggests patients are struggling to access timely appointments because the phone lines are always busy.

It will be up to your Practice Team to use the data, alongside other data sources, to decide on improvement aims, possibly by using more QI 'Diagnosis' tools, for example:

1. Process-mapping
2. Fish-bone diagrams
3. Clinical audit
4. Significant event analysis
5. Diagnostic survey

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5. https://www.nice.org.uk/guidance/ng12

Example of internally collected data

The practice may decide their first priority for improvement should be improving phone access. They decide to try to reduce unnecessary calls. They gather data 'in house' to try to work out how best to tackle the problem by creating a tally chart (one by each phone) to gather data about the reasons for each phone call.

Example of the tally chart:

Example of a Pareto chart:

This chart helped the practice team to focus their efforts on the issues that seem to be the most important or wasteful. In the example shown the practice decided to focus on the number of patients who were phoning to check their prescription is ready.

The data gathered was then be organised according to how frequently the issue occurs and arranged in a bar chart from 'most frequent' to 'least frequent'. This is called a Pareto chart.

1. PROCESS MAPPING
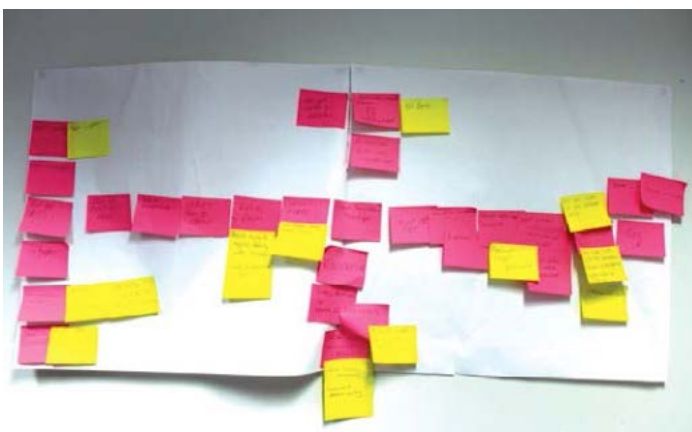
Day-to-day general practice work involves very many processes to ensure safe, effective delivery of care for patients. There are many processes that are

relevant to achieving a cancer diagnosis at the earliest opportunity including the process of accessing care (e.g. how patients book appointments) and the referral process for suspected cancer. Case reports from the NCDA have shown that other processes, e.g. following up abnormal test results, are also important to achieve early diagnosis.

A GP, Buckinghamshire reported, *"When doing the audit we realised our follow up process for abnormal blood test results could be tightened up. We're now looking at this in our practice to see how best to approach it."*

Each process includes many steps, involving many people, including your patients. There is a possibility

of error at every stage, and errors can lead to harm to patients, though more often, they lead to inefficiencies and wasted time. Process mapping is a group exercise to create a visual representation of all steps in a process.

Changing processes, especially those that may be well-established, but inefficient, can be complex and difficult. For effective improvement the first step is for all people involved to fully understand the existing process.

Process mapping can help everyone to:
- Understand the stages of a process they are not directly involved in.
- Quickly identify bottlenecks
- Identify steps that appear to be a waste of time
- Co-design revisions to a process
- Engage in change
- Contribute to improvements
- Take ownership of the new or revised process - which will help with buy-in.

Preparation Stage:
Step 1: Decide which process is to be mapped.

Step 2: Arrange a date to meet that all can make. Invite anyone involved in the process to participate in the mapping exercise, including patient representatives where relevant.

Step 3: 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.

Step 4: Collect the materials. You will need post-it pads of different colours and pens.

During the Session:
Step 5: 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.

Step 6: Define the start and end point of the process. For the process of accessing care, the start point

could be the patient recognising they have new or unusual symptoms. The end point could be the patient being assessed by a clinician at the practice within a safe timescale for their presentation. To explore the referral process you may start from the decision to refer and the end point being the patient attending their appointment. If you have time you may choose to map the whole process from the patient identifying symptoms up to their first hospital appointment.

Step 7: If one step can be done in several ways, this is added vertically e.g. patients may contact the practice in a variety of ways, by phone, on-line, by presenting at the reception desk.

Step 8: Once the map is created, the facilitator asks the group where the problems arise. The participants then note the problems on a different coloured post-it note and attach these at the appropriate point on the map.

Step 9: Participants are then asked to identify solutions. These are noted on another different coloured post-it note. They are stuck over the problems that were identified.

Step 10: 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 one at a time or several and what measurements they will use to identify if there is an improvement over time. Using run charts is one way you might measure and track change to identify those which improve the process and should be sustained.

Step 11: A further process map is then created by the group to illustrate the agreed new process.

After the Session:
By the end you will have created a visual display of an improvement to an existing process. This often highlights the more steps there are in a process, the more likely there is inefficiency. It is 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.

Process map example – handling results

A missed blood result, for example of anaemia, can lead to a delayed diagnosis of cancer. The yellow squares map the process and the purple squares show where there could be improvement.

Blood results appear in GP Inbox	GP looks at results	Blood results normal and filed with comment 'Normal'	Pt continues to have symptoms but delays seeking help
	Results seen by the wrong GP who doesn't know the context	Results abnormal GP sends task to reception for patient TCI	Pt gets message and phones practice for appt	Phone engaged
		Results abnormal, GP texts patient asking them to book in	Pt gets message and books on-line	Long wait before next available appt
			Pt doesn't get the message	Patient phones in for their results
				Patient doesn't phone in for their results	Delayed diagnosis
		Results abnormal, GP phones patient	Nest steps planning including referral if needed	

2. FISHBONE DIAGRAM

Fishbone diagrams (also called cause and effect analysis) are used to help to identify and display the root causes of a problem. They are useful when there are multiple causes of a problem and help to ensure important potential factors are not ignored.

This example shows the use of a Fishbone diagram to understand why a high proportion of cancers in patients at the practice are diagnosed as an emergency presentation.

Fishbone diagram example

1. Identify the problem. This becomes the head of the fish: For example, too many cancers are diagnosed as an emergency

Too many cancers are diagnosed as an emergency
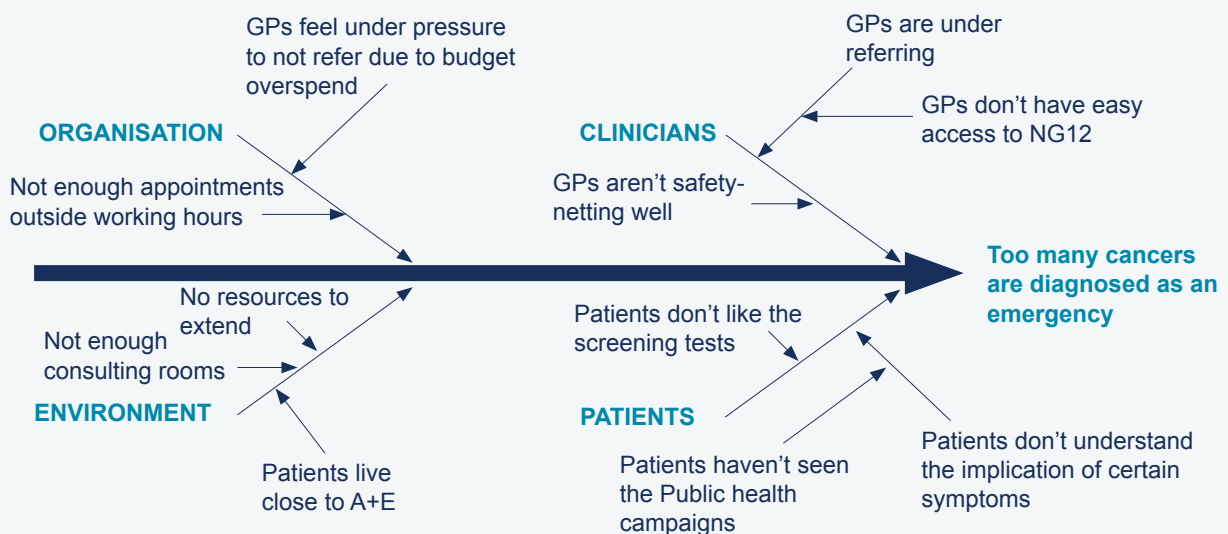
2. Gather the relevant people together and generate the major categories of potential causes. In the example shown these are Environment, Organisation, Clinicians and Patients. Other useful categories could include Equipment and Time. These form the spines of the fish.

ORGANISATION   **CLINICIANS**

Too many cancers are diagnosed as an emergency

ENVIRONMENT   **PATIENTS**

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

4. 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 (or equivalent). This will produce the layers of causes that will help you to fully understand the root of the problem and its dependencies.

5. Use your completed Diagram to help you to generate ideas for improvement which may then result in the development of a Driver Diagram to plan your improvements.

GPs feel under pressure to not refer due to budget overspend

GPs are under referring

ORGANISATION

GPs don't have easy access to NG12

CLINICIANS

Not enough appointments outside working hours

GPs aren't safety-netting well

Too many cancers are diagnosed as an emergency

No resources to extend

Patients don't like the screening tests

Not enough consulting rooms

ENVIRONMENT

PATIENTS

Patients live close to A+E

Patients haven't seen the Public health campaigns

Patients don't understand the implication of certain symptoms

3. CLINICAL AUDIT

Clinical audit is a way to measure and improve the quality of clinical care by assessing performance against one or more criteria. The NCDA is a national audit which uses the same criteria for all participating practices. It can stimulate further smaller audits

within the practice. Results of audits are analysed and change implemented. With these small practice audits it is best if a re-audit is conducted. In the case of the NCDA, further audits are planned for the future which will give practices the opportunity to review their patients' cancer diagnosis pathways post implementation of NG 12 guidance and to compare this to their NCDA 2014 results. Sometimes the term 'clinical audit' is erroneously used to describe a survey of current practice, with no criteria, standards or change implemented.

Clinical audit can be a means of diagnosing areas of practice that would benefit from improvement, but bear in mind it is better to use audit 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 (QI) 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 and if they are sustained over time.

The following are standard headings for a clinical audit report, with tips on how to define and fulfil each section. This process satisfies the requirements of General Medical Council revalidation.

Step 1: Title
The title should be clear and concise and describe the topic chosen

Step 2: Reason for the audit
Topics chosen can be identified from many sources. What matters here is that in your opinion there is scope for improvement:

- You wish to see how your practice performs against the NICE referral guidelines for suspected cancer[6] or the Scottish Cancer Referral guidelines[7].
- If you feel your performance has changed since the NCDA you may wish to audit one of the criteria or decide to wait for the NCDA re-audit.

- Through conducting a significant event review prompted by the cases in the NCDA a problem may have been identified and an audit would establish if there is a more widespread problem.

Step 3: Criteria or criterion to be measured
- Keep your audit simple and effective by choosing just a small number of criteria. Each criterion should pose easy 'yes' or 'no' questions so you will know if it has been met.
- Where possible, you will benefit from selecting criteria which are well-evidenced, which you can then reference. Examples of simple evidence-based criteria from the NCDA protocol include:
  1. The referral pathway for patients with cancer is the urgent suspected cancer (USC) pathway.
  2. All patients with a suspected ovarian cancer should have a CA125 blood test prior to referral.
  It is better to audit each element separately so it is clear which is not being met.
- For some quality improvement work you may wish to bundle elements (see care bundles) together in one indicator to assess your overall care of patients with suspected cancer. For example, using some of the NCDA criteria; "Patients in our practice with suspected cancer have all less than the national average for primary care interval and number of consultations, and are diagnosed at an early stage (Stages 0, I or II.)"

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6. https://www.nice.org.uk/guidance/ng12
7. http://www.cancerreferral.scot.nhs.uk/Home

Step 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. It may also be related to the average from all the practices that participated in the NCDA. In the NCDA protocol suggested standards for the criteria above on using the USC pathway for all patients with cancer and for older people with cancer are 50% and 60% respectively. The standard should be realistic rather than idealistic so try and avoid a standard of 100% to allow for issues such as patient preferences.

Step 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.
- 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? Will the search criteria identify the patients 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).
- 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?

Step 6: Results and date of collection 1

The collection could be one point in time, either retrospective or prospective. Presenting the results in a table makes them easier to understand.

Template with example for clinical audit results (collection one)

Criterion	Number sampled	% Achievement	Standard set
Patients with cancer are referred using an USC pathway	30	53%	60%
Patients with suspected ovarian cancer have a CA125 prior to referral	6	67%	80%

Step 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 other team members. Sharing your audit results with the whole practice team will increase the likelihood of improvements being sustained. Allow sufficient time for the changes to have had an effect before setting a date to repeat the data collection.

Step 8: Results and date of data collection 2

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

Template with example for clinical audit results (collection two)

Criterion	Number sampled (first data collection	% Achievement (first data collection)	Number sampled (second data collection	% Achievement (second data collection)	Standard set
Patients with cancer are referred using an USC pathway	30	53%	28	57%	60%
Patients with suspected ovarian cancer have a CA125 prior to referral	6	67%	7	86%	80%

Step 9: Reflections

Present the conclusions of your audit project including any lessons learned, any further steps of change required and when the audit will be repeated.

4. SIGNIFICANT EVENT ANALYSIS (SEA)

GPs recognised the value in learning from significant events many years ago. More recently the RCGP together with Macmillan and NHS England have created a toolkit to help us to evaluate cancer diagnoses, to prompt learning and achieve earlier diagnoses for your patients. The toolkit can be found at http://www.rcgp.org.uk/clinical-and-research/toolkits/early-diagnosis-of-cancer-significant-event-analysis-toolkit.aspx[8]

Significant Event Analysis(SEA) – also called Significant Event Review – is an increasingly routine part of general practice and can also be used for system wide learning. Some areas such as Thames Valley[9] have used SEA in their work to improve the early diagnosis of cancer It is a technique to reflect on and learn from individual cases to improve quality of care overall. An SEA is usually undertaken to prevent recurrence of an adverse event. Events are often "near-misses" and an SEA can serve to celebrate good practice while alerting colleagues to potential pitfalls.

Significant event audits can form part of an individual's and practice's learning and quality improvement. Cancer Research UK facilitators are able to support GP practices with SEA work (see page 47).

NCDA helps you objectively identify patients to conduct a case review or SEA. Looking at cases from your practice is valuable as found by a GP in Portsmouth: "*Themes identified from these case reviews included that the recording of safety netting advice was not done as well as it could be.*"

8. http://www.rcgp.org.uk/clinical-and-research/toolkits/early-diagnosis-of-cancer-significant-event-analysis-toolkit.aspx
9. https://www.england.nhs.uk/south/wp-content/uploads/sites/6/2017/01/tv-audit-emergency.pdf

Whether clinical, administrative or organisational, the SEA process enables the following questions to be answered:

1. What happened? Describe:
• The process of diagnosis in detail
• The presenting symptoms
• The key consultation when the diagnosis was made
• The consultations in the year before diagnosis
• The type of consultation
• The place of the consultation
• Any delays

2. Why did it happen? Include:
• Reflection on the process
• Any room for improvement.
• The type and speed of referral
• The follow up.
• Factors contributing to any delay
• Access to diagnostic services.

3. What has been learned? Include:
• Reflection and learning
• Any educational needs
• Any need for protocols
• The robustness of follow up process
• The effectiveness of teamwork
• The use of NICE guidelines

4. What has been changed? Describe:
• Agreed actions.
• Any new protocols.
• Responsibility for and monitoring of changes.
• The expected improvements.
• Interface issues.

5. What has been the impact/potential impact on those involved?
• Impact on patient, family and carer.
• Impact on practice clinicians.
• Impact on doctor-patient relationship.
• Impact on practice as a whole.

6. What was effective about this SEA?
• How valuable was it?
• Who attended?
• What was duration?
• How effective was process?
• How could it be more effective?

A template to aid in answering these six questions can be found in the early diagnosis of cancer SEA toolkit[10].

An example of the learning points in a case of ovarian cancer taken from the SEA toolkit is shown on page 22. The full report can be found on the website[11].

Cancer SEA is best done as a practice activity. SEA team discussions is an opportunity for the team to:

• Discuss each stage in detail.
• Use a no blame approach
• Identify any learning needs.
• Identify actions to be taken and changes to be made and agree how these will be processed.
• Any actions or learning undertaken can be re-assessed at a future date.

10. http://www.rcgp.org.uk/clinical-and-research/toolkits/early-diagnosis-of-cancer-significant-event-analysis-toolkit.aspx
11. http://www.rcgp.org.uk/clinical-and-research/toolkits/early-diagnosis-of-cancer-significant-event-analysis-toolkit.aspx

Learning points

What went well:
GP2 had rung the patient on hearing the diagnosis of DVT and the patient was able to voice concerns regarding the axillary lump. The patient had been reluctant to re-present at the surgery with another problem, and if GP2 had not called, then there may have been further delay before the patient made an appointment with a GP. When the patient mentioned the axillary lump, she was given an appointment the next morning to see the nurse then doctor and was referred quickly under the 2ww.

There was good communication between the nursing staff and GPs.

The patient had been given a follow up appointment and advice when she presented with an aching calf.

What didn't go well.
Earlier diagnosis could have been achieved if:

- The 'shotty lymph nodes' were investigated in June 2013.
- The patient had been reviewed by a Consultant Surgeon and our instinct is to trust that opinion. Shotty nodes are common and not all patients with shotty nodes have an underlying cancer diagnosis. If we did investigate and refer back every patient with shotty nodes, then this would overburden the NHS. GPs constantly need to balance the needs of the individual patient and the community as a whole with respect to NHS resources. In retrospect, it is easy to see what could have been done better, but at the time it is not so simple. It was very easy for the breast consultant to piece together symptoms and signs of ovarian carcinoma when she had the histological diagnosis in front of her!
- Another learning point was that if a GP considers a diagnosis of DVT and has taken a Well's score then a d- dimer should be requested to back it up.
- Our practice has now changed as we now have a protocol for managing DVT. The computer has a DVT template with a well's score.
- This patient had been referred to a Medical Physician as part of the Secondary care DVT treatment pathway. Even though the diagnosis had been already made, there was the back-up arrangement of referral to a medical physician to exclude an underlying malignancy or cause for the DVT. The new DVT enhanced service puts DVT diagnosis and management firmly in the hands of the GP and it is a concern that underlying causes for the DVT may not be looked for. It is written into our protocol for DVT, that the patients diagnosed with a DVT are reviewed in detail at the end of each quarter by one particular GP who makes sure the diagnosis has been coded correctly for claiming the enhanced service fee. Also it ensures that any positive diagnosis made have been appropriately followed up. In the last quarter for example, we scanned 8 patients for DVT and had no positive results. As the numbers are so few, it emphasizes the importance of one GP doing it on a regular basis. The DVT enhanced service may turn out to have a negative effect on the management of patients with DVTs if secondary diagnosis are missed. It is important that all GPs consider why the DVT had occurred and what investigations are necessary to exclude an underlying diagnosis.

We all agreed that patients with cancer may present repeatedly to GPs with symptoms, which in retrospect could have been due to that cancer, however it is not always possible to identify these patients prospectively. For example the umbilical tumour nodule is incredibly rare and we are unlikely to see another again. A pyogenic granuloma or even an amelanotic melanoma is more common.

At the meeting we agreed that any patient presenting with a pyogenic granuloma or indeed a suspicious lesion is referred to the dermatology GP within the practice for curettage and histology. GPs no longer cauterize lesions with silver nitrate sticks.

5. DIAGNOSTIC SURVEY

A diagnostic survey is a frequently used method to identify the needs of a target group. You may wish to survey the practice team on their knowledge of the NICE referral guidelines for suspected cancer[12], or the Scottish Cancer Referral guidelines[13], or of referral pathways or of safety netting. What are your patients' experience of being diagnosed with cancer?

Before embarking on any change, a survey can identify the opinions of your patients or team members in an area that could be improved. This can then identify the specific elements of that area that need to be improved, derived from the people that may be most affected.

Below are considerations when planning a survey:

- Ensure you have clear reasons for conducting the survey and these are stated on the questionnaire.
- Include instructions on how it is to be completed and by when.
- 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.

- 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.
- 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.
- Test your survey with a few people before it is launched. This helps you to find out if your questions make sense to people who may be less familiar than you with the subject matter.
- You can employ free-to-use internet survey websites. Their webpages provide further guidance on designing a questionnaire and on conducting a survey.

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12. https://www.nice.org.uk/guidance/ng12
13. http://www.cancerreferral.scot.nhs.uk/Home

PLAN AND TEST

From the diagnosis step, 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'. These ideas for change may arise from the practice team, from other practices or from national initiatives. One national initiative is the RCGP primary care cancer toolkit[14] which has a section on early diagnosis and referral. This toolkit gives links to guidance on symptom recognition and referral. There is also information on decision support, safety netting, and patient information.

No matter where you find a change or changes that you could introduce, you need to plan their introduction and test them to see if they are effective. This is particularly important in an area such as diagnosis of cancer. When practices are under pressure, you cannot afford to continue an intervention that is not working to solve the problem you have identified.

This section includes tools to allow you to plan and test a change. You will not need to use all these tools listed but choose what is useful for you.

1. Model for Improvement
2. Driver diagrams
3. Plan, Do, Study, Act (PDSA)
4. Measurement and Analysis
5. Run Charts
6. Communication Matrix
7. Constraint and Flow

The Model for Improvement, driver diagrams and PDSA, are suitable tools to use prior to commencing implementation of your intervention. Measurement is very important in testing and the sections on measurement, run charts and care bundles give you guidance. The communication matrix is a simple tool to ensure the whole practice team are aware of

your changes. Finally, in this chapter, the use of flow charts to plot the patients' journey through their cancer diagnosis is described, which can help identify and eliminate bottlenecks as can the use of pathways.

MODEL FOR IMPROVEMENT
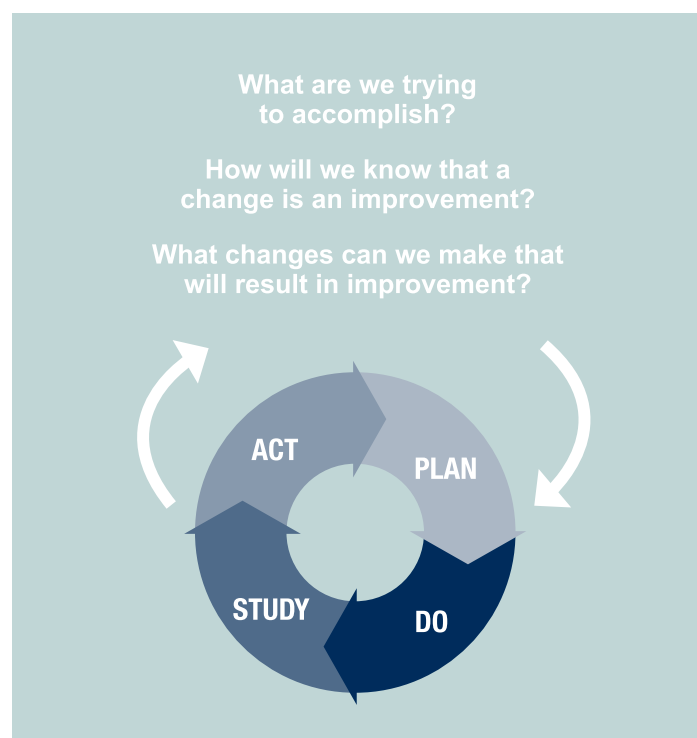
The Model for Improvement is useful once you have decided on what area of patient care or practice process you would like to improve. The Model for

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14. http://www.rcgp.org.uk/clinical-and-research/toolkits/primary-care-cancer-toolkit.aspx

Improvement gives you three questions to answer before you start testing changes:

- What are we trying to accomplish?
- How will we know if a change has been an improvement?
- What changes can we make that will result in an improvement?

Your changes are more likely to succeed if 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. This method ensures this is established before embarking on an intervention.

This example uses the Model for Improvement approach to increase cervical screening coverage:

Question 1:
What are we trying to accomplish? This needs to be specific and include 'by how much?' and 'by when?'

 "To increase our cervical screening coverage to 80% by 6 months' time"
They decided on this goal as it seemed achievable (they currently achieve 78%) and took into account that some women may not agree with cancer screening, or may not be eligible, for example if they have had a hysterectomy.

Question 2:
How will we know if a change has been an improvement?
Decide what you are going to measure. External organisations provide us with data, 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 each individual change. It is better to use real time date to assess if our interventions are making a difference.

Continuing the smear example:

The practice has a list size of 7500 which includes 1462 women aged between 25-49 and 730 women aged 50-64 years. As the programme for smears is 3 yearly for the younger age group and 5 yearly for the older age group the practice decided to measure them separately.
They decided to measure:
The number of women age 25-49 who had a smear in the last 3 years, with a goal of 1170 (80% of the total)
The number of women age 50-64 who had a smear in the last 5 years, with a goal of 584 (80% of the total).

The decided to use these simple measures as they were very easy to set on their medical system, and they could be set to automatically run on the last day of each month. Simple measures are often better for measuring for improvement, so that not too much time is spent on the detail that may not matter (for example in a large practice it may not matter about patients who are excluded from smears as they are in the minority and don't interfere with your overall measure too much).

On the first day of each month the number women in the age categories who had had a smear was transferred from the medical software system to an excel spreadsheet to create a graph with the goal line marked on. This graph is the 'measurement for improvement', to see if the changes (or 'interventions') had generated improvement.

Question 3:
What changes can we make that will result in improvement? Consider all of the ideas for change and you can select those that you would like to test. In our example, the practice agrees to test three ideas:
Create a display in the waiting room explaining to women why smears are important
Set to 'automatic check-in screen' to prompt women in the correct age group to check with reception when they last had their smear so they can be encouraged to book in.
Provide more smear appointments in the extended hours clinic after working hours.

You can take one of these changes into a Plan-Do-Study-Act (PDSA) prior to its introduction. There are more details about PDSA in this section.

DRIVER DIAGRAMS

A driver diagram is a tool to help you to organise your improvements in a logical way, so that everyone involved can see how the planned changes will lead to the desired improvement.

It is particularly useful when you are aware of several changes that need to happen before you are likely to see improvement.

Making a more complex project easy to visualise helps to engage others in the changes.

Achieving a diagnosis of cancer at an early stage can be a complex process. Improvement is likely to need multiple interventions. These can be collated and organised using a Driver Diagram to create a 'plan on a page'. This is particularly useful for people who are leading these improvements across a CCG, Health Board, neighbourhood or cluster.

Driver diagram to diagnose lung cancer at earliest opportunity

AIM	PRIMARY DRIVERS	SECONDARY DRIVERS
To diagnose at least 50% of lung cancers at Stage 1 or 2	Increase public awareness of symptoms	Social media campaign
		Local press/radio campaign
		Targeted mail outs to smokers age >50
	Increase GP awareness of referral guidance	Create a NICE Cancer guidelines smartphone app
		Switch on 'Q Cancer Risk' alerts on medical system and start coding symptoms
	Improve care pathways for suspected lung cancer	Named 'Cancer diagnosis' GP to review all CXR requests to see if suspected cancer referral more appropriate
		Create a 'safety netting' patient leaflet for patients who present with a cough

Driver diagram to Diagnose lung cancer at earliest opportunity

Step 1: Define your aim

Step 2: Generate ideas
Use the whole team to generate ideas (or 'drivers') that are likely to move you towards your aim.

Step 3: Group the ideas into themes
Once you've generated the ideas, group them into themes:
• 'Primary drivers' - an agreed set of high level factors that help you towards your aim. Make sure you use language like 'improve' or 'decrease' and that each driver is clearly defined (and potentially measurable).
• 'Secondary drivers' - ideas that help you to achieve your primary drivers. Arrange in the second column of your diagram. Each Primary Driver will be influenced by several Secondary Drivers.

Step 4: Add actions or interventions for each driver

Step 5: Add measurements
Finally, decide which drivers and interventions that you want to measure and add those to the diagram.

When completed the diagram provides a change strategy that can be shared and understood, and can provide the basis for planning the individual projects or interventions. It should not be considered 'fixed', and can change over time as improvements are generated.

Example actions and measures

| SECONDARY DRIVERS	ACTIONS/MEASURES
Named 'Cancer diagnosis' GP to review all CXR requests to see if suspected cancer referral more appropriate	Practice IT manager to contact radiology to see if all CXR results can be return to the practice under the name of single GP
	Practice Manager to set up the appointment system with one appointment per week blocked off specifically for 'CXR reviews' by the named GP
	Practice Manager to allocate a deputy for named-GP annual leave
	Practice Clinical team to design an easy electronic checklist for named GP to use to compare patient's symptoms/signs against NICE Cancer referral guidelines
	Patient Participation group meeting to discuss who best to communicate new process to patients

PLAN DO STUDY ACT (PDSA)

The PDSA process helps you to test out improvements in a controlled way so that change can occur gradually, with an awareness of unintended consequences. It is a cycle of four stages:

Stage 1: Plan: where introduction of your change is carefully planned
Stage 2: Do: where you carry out your plan
Stage 3: Study: where you analyse your measurements and decide if your change has been successful
Stage 4: Act: where you decide whether you implement your intervention fully, or make any changes to it, and/or consider introducing any further interventions.
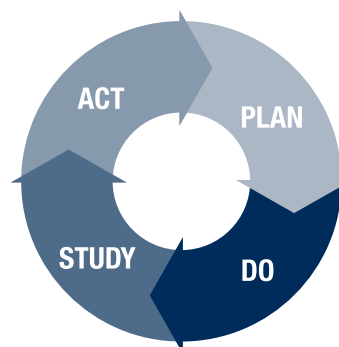
When you want to improve things in your practices, you often come up with a lot of ideas, but cannot be sure which will result in the change you want to see. The PDSA approach accepts the fact that not all of your ideas will work and allows you to test them out in a controlled way. You can then continue the ideas that work, and stop doing those that do not. It starts at small scale and so is a cost-effective approach.

Your NCDA feedback report may identify a clear area for improvement. The PDSA cycle will then provide a structured approach to generating the improvement.

PDSA Example – Reducing the interval between first presentation of symptoms and referral (known as the 'Primary care interval')

If your data demonstrates a longer than the median primary care interval, the problem may relate to:
- Patients being diagnosed with alternative conditions first based on their symptom profile?
- Patients had co-morbidities that masked the symptoms of cancer?
- Long delays for follow up appointments or diagnostic tests
- Patients did not attend follow-up appointments?

The change you wish to introduce should address the issue you feel is the main problem. In this example a case study review shows that a few patients did not attend for follow-up appointments at the practice.

Stage 1: Plan

- Identify the change you wish to implement in order to bring about an improvement.
- Identifying who will be responsible for the change.
- When it will be carried out.
- Over what timescale.
- How the measurement will be conducted.
- Involve all stakeholders in the process from the start as this helps to persuade any reluctant team members to participate.

- Look out for the unexpected – for example, checking that a reduction in the primary care interval does not cause an increase in patient anxiety. This is called a 'balance measure'.

In our example, the practice identified three changes it would consider testing out:

- Code those patients with suspected cancer
- Improve communication with patients on when to return.
- Check up to date contact details on patients with suspected cancer.

Stage 2: Do:

Collect your baseline data to monitor the existing state of play. This would depend on the change you are testing and at this stage may not be the primary care interval. 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.

- 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, adaptions 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 first change, the practice decided to run a search every two weeks to gather the number of patients who had been referred for suspected cancer that had been coded.

Stage 3: 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).
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 you will always learn something from the test.

Stage 4: Act:

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

It is best to test small changes and then do multiple cycles. Learning from one cycle informs the next. If coding patients with suspected cancer is successful then the system for checking if they attended needs to be tested.

PDSA cycle diagram[15.]

Change One   Change Two   Change Three
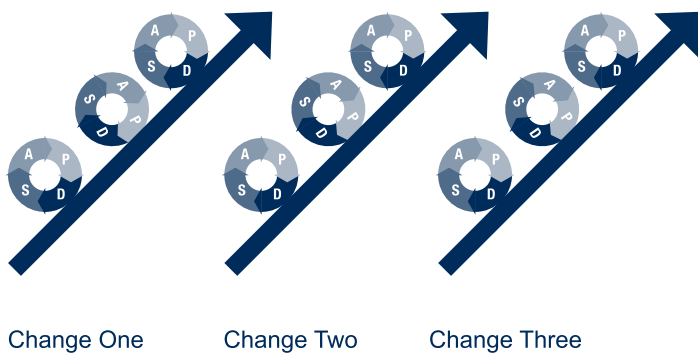
MEASUREMENT AND ANALYSIS

All Quality Improvement work involves both gathering and interpreting data.

In QI work data has 2 defined, but different roles. Firstly it can tell us what we need to improve (see diagnose section), then, once we've started to make changes, it can tell us if your efforts are making a difference.

Using Data to see if we're making a difference:

QI projects need to include some kind of measurement to see if your improvements are resulting in better care for patients.

This kind of data needs to be 'real time' and is best gathered at the practice level, rather than waiting for externally collected data to be published, as there is usually a significant time delay.

If your project is to increase the number of cancers that have been diagnosed using a 'suspected cancer referral' (or '2-week wait referral') then it is useful to keep a rolling graph that looks at the last 12 months of cancer diagnoses. To create a rolling graph, each

15. http://www.ihi.org/resources/Pages/HowtoImprove/ScienceofImprovementTestingMultipleChanges.aspx

data point uses data from the preceding 12 months. A rolling graph is best for this type of data as an average size practice is likely to have a relatively small number of new cancer diagnoses each year.

Because the number of new cancers per month is very small, analysing this data month-by-month will show a very variable pattern, and it may take years before a positive trend can be detected.

% cancers diagnosed via 2ww in the last 12 months (rolling)
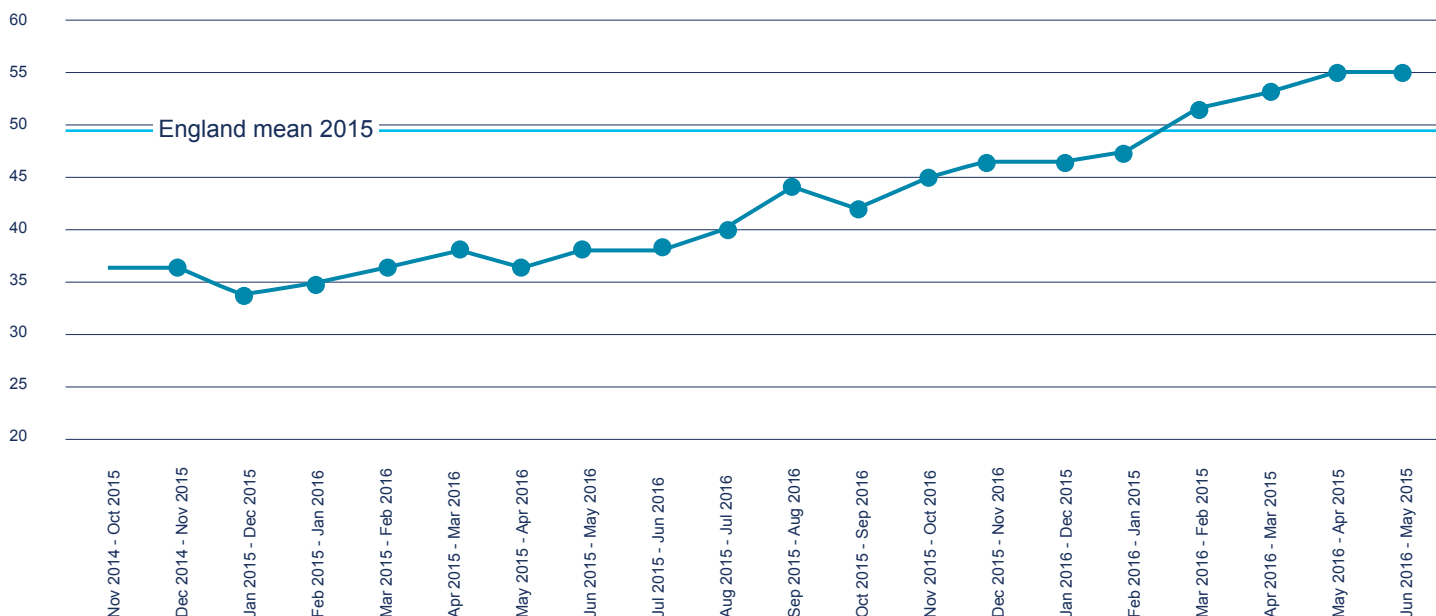
Analysing variable data:

Some data you might collect could be subject to a pattern of variation that makes it difficult to tell if you have made improvements.

If your project is to reduce the length of time patients spend waiting to be seen, then it would be normal for this to vary from day to day due to circumstances. If your data is likely to be variable, then you will need to develop an understanding of the normal variation so that you can see if your QI project has generated improvements.
Run charts are one way of presenting data to help differentiate between a changes produced by chance (random variation) and special cause (non-random). There are details on how to create and interpret run charts in the run chart section of this guide.

SPC charts are similar to run charts but include control lines so you can tell if your performance has varied significantly from the normal range. There are details on SPC charts in addition to run charts in the RCGP QI Guide for General practice[16].

Displaying your Data:

Visual displays of data can be very powerful when trying to engage colleagues with your improvements.

When presenting data to colleagues to bring about change it needs to be presented in a format that allows easy analysis. A table filled with many results may not achieve this aim, but large colourful line graphs displayed in a prominent place can remind everyone of the project and keep people working towards the improvements.

16. http://www.rcgp.org.uk/clinical-and-research/our-programmes/quality-improvement.aspx

RUN CHARTS

A Run Chart is a graph of variable data over time. For example, the number of referrals generated by your practice each week, the number of days until the next routine appointment and the proportion of patients who take up the offer of cancer screening each month. The run chart shows visually how the data varies so that you can start to understand the normal pattern. This understanding is important if you are hoping to generate changes as you will need to know if improvements are genuine or if they are part of normal (or 'common cause') variation. Here is an example of a run chart of the proportion of patients who respond to their bowel cancer screening invitation each month:
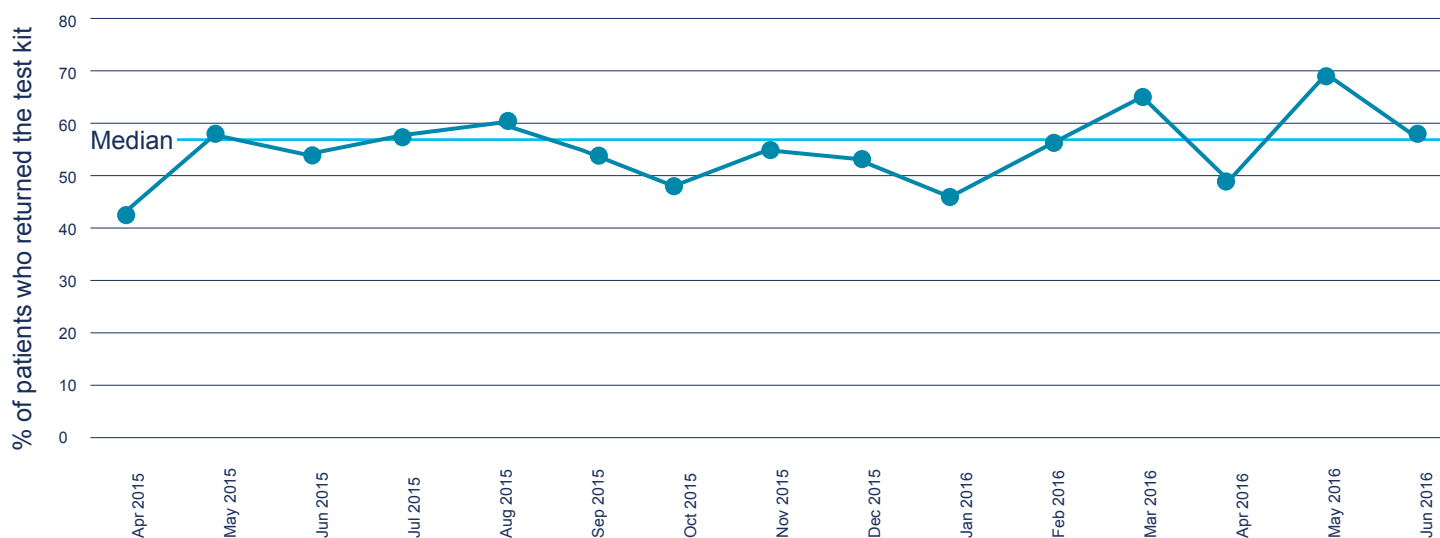
It's clear from the run chart above that the proportion of responses per month is highly variable. If you are trying to change your practice processes to improve the uptake of screening, then you need to understand the normal variation so you can tell if your intervention has worked. This median line is important and needs to be 'fixed' on your run chart before you introduce a change that is designed to improve things. Following your intervention you continue to plot your data and the chart will allow you to determine if your change has worked.

How to create and interpret a Run Chart

This worked example relates to bowel screening uptake and demonstrates how to use a run chart. A basic knowledge of MS Excel, alongside the useful tips in this document, are all that are needed to create a run chart. However, to make this even easier, the Institute for Healthcare Improvement USA (IHI)[17], have created an Excel template. 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 data points before constructing your chart.

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17. http://www.ihi.org/resources/Pages/Tools/RunChart.aspx

In our example, the lead receptionist each month asked the National bowel screening programme for data about how many of the patients at the practice have responded to the invitation for bowel screening. This is inputted into the IHI spreadsheet: dates in the left-hand column and the numbers seen in the 'value' column.

The spreadsheet looks like this:

The IHI template automatically creates the run chart:

Graph Label	% Bowel cancer screening uptake			
Y Axis Label	% Uptake			
X Axis Label	Month			

Date / Observation	Value	Median	Goal	End Median
Apr-15	43	57		
May-15	60	57		
Jun-15	56	57		
Jul-15	60	57		
Aug-15	64	57		
Sep-15	57	57		
Oct-15	49	57		
Nov-15	57	57		
Dec-15	55	57		
Jan-16	46	57		
Feb-16	57	57		
Mar-16	69	57		
Apr-16	50	57		
May-16	75	57		
Jun-16	60	57		
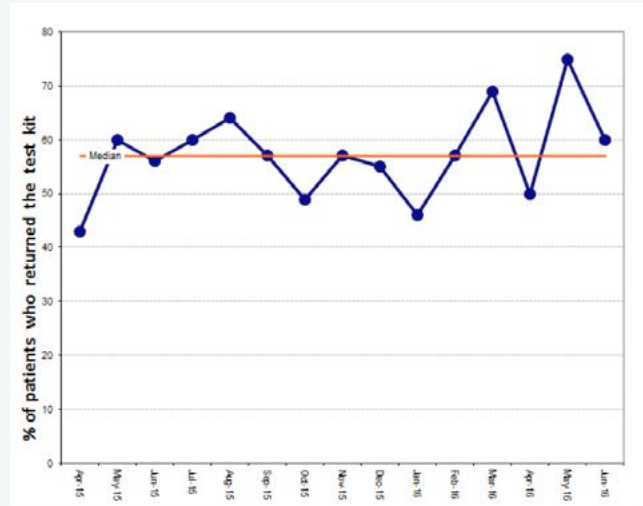
The median line is drawn on the chart in order to help you check whether the data is random or not. You will need to know that it is random variation so that you can make sense of any changes that happen when you experiment with a new way of doing things (which can be called a 'QI intervention').

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 if changes you may see later are being caused by your intervention, or by something else.

If your baseline data is random:

- The graph line crosses the median line frequently. This makes it more likely that the data is random.
- 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 line).
- The number of runs in a chart are within the expected lower and upper limits (next page).
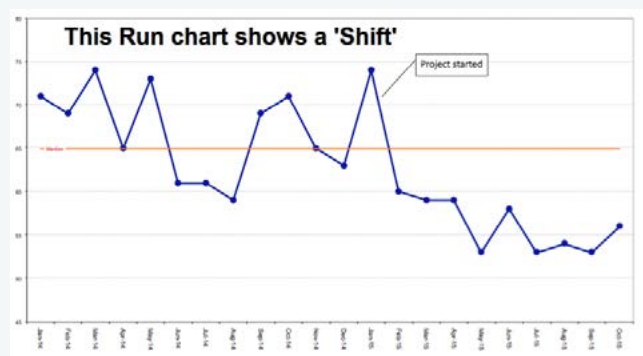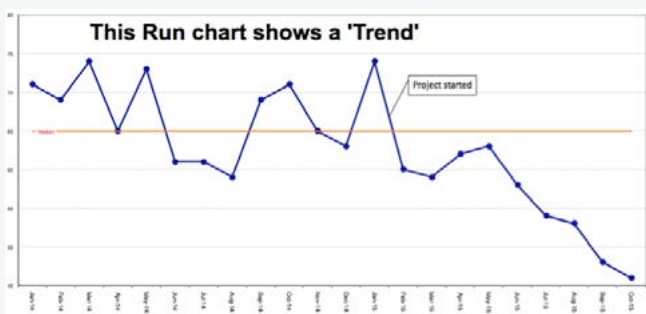
Next Steps

The practice has now gathered its baseline data and decided that the variation is random. They would like to increase the proportion of patients who return their bowel screening kit.

The first experiment is to 'switch on' a protocol build in to the electronic medical record system to alert practice staff to the fact that the patients has been invited for bowel screening, but failed to respond. The alert appears as a 'bubble' in the bottom right-hand side of the medical record as soon as it is accesses. Staff (clinicians and bon-clinicians) are then asked to respond to the alerts by recommending screening and passing the patient an information leaflet about how to access a new kit if they no longer have the one that was sent.

They continue to gather the data and input it into the spreadsheet. On the spreadsheet template they mark with an 'X' the last number from the baseline data. This 'freezes' the median. Everything after this point came following the introduction of the 'failed to respond' alerts ('the intervention').

So what happened?

Here is the chart that was created by the IHI Excel template once the new data was inputted:
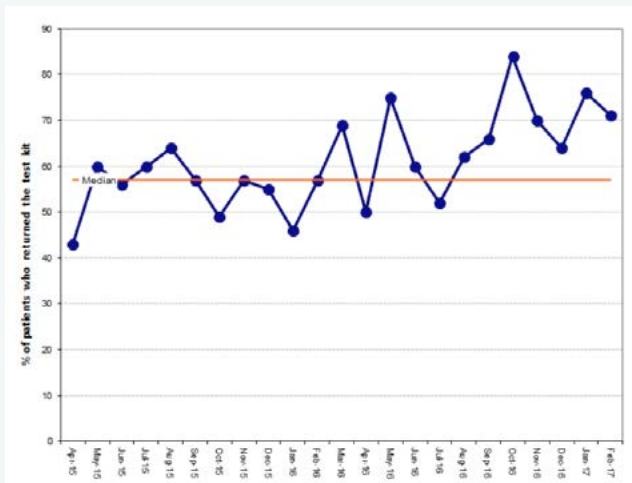
This graph shows that all the data points collected after the intervention fall on one side of the median. There is only one run and there has been a definite shift (more than six points consecutively on one side of the median). As the shift coincided with the intervention it tells the team that the intervention has generated a change.

CARE BUNDLES

The Institute for Healthcare Improvement[18] defines a Care Bundle as: "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."

Care bundles are useful when you wish to implement a series of interventions that are all important in achieving the outcome. They provide an all or nothing measurement and the achievement is measured over time.

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. The indicators ideally are evidence-based and relate to a specific patient group or condition.

18. http://www.ihi.org/Topics/Bundles/Pages/default.aspx

Taking an example of different aspects of a referral pathway for breast cancer:

- A patient who finds a breast lump is seen at the practice within 48 hours
- Referral for a suspicious breast lump is made through the suspected cancer referral pathway
- The referral is made within 24 hours
- The patient's phone number is on the referral letter

Each indicator is one that is routinely delivered or considered for every patient within a time period.

You then:

Step 1: Measure each indicator

Step 2: All measures must be achieved before the bundle is complete

Step 3: Reflect on the results

Step 4: Plan and test any changes required

Step 5: Monitor the change by continuing to use the bundle

It is usual for the level achieved for the bundle as a whole to be significantly less than for each individual indicator. Improvement is then mapped over time.

COMMUNICATION MATRIX

An essential part of planning change is to identify who will be affected by the project and what they need to know about it to facilitate their participation and support.

A communication matrix helps to identify the members of the team and the themes they need to know. This matrix can help to avoid sending out a blanket email and to generate both the targeted messages and instructions that will enhance adoption.

To construct a matrix:

- Along the top horizontal axis write the groups or individuals who need to know about the project
- Along the vertical axis you list the main themes that need to be known.

- In each box you place specific details of what that group or individual needs to know about that theme.

An example of identifying people who have not attended for bowel screening is shown right.

THEORIES OF CONSTRAINTS AND FLOW

The Theories of Constraints were developed within the manufacturing industry when it was recognised that bottlenecks led to an overall reduction in productivity. They can be applied to processes in a healthcare environment, especially to cancer diagnosis and treatment, when so many different factors are involved in diagnosing and managing the condition.

In terms of cancer diagnosis, if your NCDA data has identified avoidable delays prior to referral, then the tool described here will be of benefit. By constructing a flow diagram you may be able to be more specific about where a problem lies.

TASK/ITEM	GP	PRACTICE NURSE	ADMIN	RECEPTIONIST
Code those who DNA	Aware code exists	Aware code exists	Has system for coding	
Prompt on computer screen	Knows action to take when prompt appears	Knows action to take when prompt appears	Places prompt on IT system	
Information for patients	Knows where to obtain information for patients	Has information to give to patients	Creates information sheet for practice patients	Has information to give to patients
Patient says has conducted test	Aware who in practice can check if screening done	Aware who in practice can check if screening done	Can remove prompt if screening conducted	Can check if screening done

The theory provides a method for identifying the most significant limiting factor – the constraint – which stands in the way of the organisation's goal being met. The method 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'.

The Theory of Flow has developed from the Theory of Constraints. This guide will concentrate on the flow of patients through your practice and its immediate environment. Flow is about the how, where, when and who, and not the what, of clinical care.

You seek to identify the weakest link in the chain and then eliminate or improve it, making your practice more efficient and also better for your patients.

Flow diagrams can be constructed to map or track a patient's journey through the system in order to identify bottlenecks and delays. In these guides we have described illustrating a process by using process mapping whereas Flow looks at the patient journey.

In this example we will look at a journey of a patient with suspected cancer. This diagram looks at the patient's journey through the system. You should then try to identify bottlenecks and decide on any improvements.

Example of a cancer pathway‡

Maximum times

Day 0

GP via NICE guidelines

Local protocol for direct to CT?
- No → FAST TRACK referral (suspected lung cancer) → CT
- Yes → CT abnormal? → Yes → / CT not indicated

Hospitals referrals (A&E, internal or incidental findings) for supected lung cancer

Routine GP referral

Arrange CT if clinically indicated; inpatients seen within 48 hours by acute oncology, respiratory or palliative services

CT suspicious of lung cancer? → Manage

TRIAGE
(by radiology or respiratory medicine according to local protocol) Lung cancer suspected?
- Yes
- No

Day 14

Fast track lung cancer clinic. Meet LCNS.
Diagnostic process plan/diagnostic planning meeting prior to clinic
Treatment of co-morbidity and palliation / treatment of symptoms

Lung cancer unlikely*
Further management according to local protocol with options of further management of CT findings by primary care or secondary care (see separate detailed algorithm)

Suitable for potentially curative treatment?§
- Yes
- No

Curative intent management pathway+
Test bundle requested at first OPA including at least PET-CT and as required: detailed lung function and cardiac assessment / ECHO.
Meet with LCNS and receive information

Further investigation(s) indicated?

Will pathological diagnosis influence treatment and is potential treatment appropriate to patient's wishes?

Investigations to yield maximum diagnostic AND staging information with least harm . Results available within 5 days for subtype and 14 days for molecular markers

Clinical diagnosis or patient preference means biopsy not required

Day 28

Full MDT discussion of treatment options

Further investigation(s)? → Further discussion needed?

No cancer" manage/discharge

Follow-up Lung Cancer Clinic Cancer confirmed and treatment options discussed. Research trial considered. LCNS present

Day 33

OPA with treating specialist (within 5 days)

Day 42

Further investigation(s)?

Day 62

First treatment

Specialist palliative care	Other palliative treatments	Chemotherapy	Radiotherapy	Surgery

Maximum times

‡ Please note: this is an example of a lung cancer pathway that may not apply in all areas of the UK

* Refer to further pathway detail

+ Low threshold for curative intent pathway; may discuss with wider MDT if unsure

§ Refer to further pathway detail

A common problem is the mismatch between demand and capacity which creates a bottleneck. Where possible the capacity should not be based on the average demand but there is a need to adapt to the variation which may be by the hour, daily or seasonally. This problem is particularly present in many practices and can delay the patient with suspected cancer in seeing a GP. One sign of this would be where A&E presentations were higher for 'place of first presentation' in the NCDA data. There are various solutions to this problem which have been tried with some success and it may be worth testing them out in your own practice environment. Some of these are described in the RCGP Treating Access toolkit which can be found at http://www.rcgp.org.uk/rcgp-nations/rcgp-scotland/treating-access.aspx[19]

Another way to improve flow of patients with suspected cancer has been the development nationally or locally of cancer pathways. An example is shown on page 36.

Do pathways exist in your area? Which suspected cancers do they cover? Should they exist and for which cancers? If they exist are there any bottlenecks?

Some bottlenecks are within the power of the individual practice to control, while others need your at scale organisation or grouping of practices or CCG or Health Board to bring about change in secondary care.

19. http://www.rcgp.org.uk/rcgp-near-you/rcgp-nations/rcgp-scotland/treating-access.aspx

IMPLEMENT AND EMBED

VISUAL DISPLAYS

Visual displays share your improvement data in an accessible format so that everyone involved knows if their improvement efforts are working.

Displaying data helps to motivate all to continue their efforts and embeds positive changes. These displays are sometimes called 'storyboards'.

How to:

- Start by finding a dedicated space for collecting and displaying material you generate in the course of your quality improvement project. The waiting room and staff room are good places, depending on what you are aiming to improve.
- Start your Storyboard as soon as the activity is started.
- Make sure the board contains mostly pictures and charts and avoid documents with lots of text.
- Make sure each chart has a large clear heading.
- Make sure everyone leading a QI project has space on the board to show what they are doing.
- Use the Storyboard during practice meetings to build team ownership, engagement and motivation.

SUSTAIN AND SPREAD

COMMUNICATION STRATEGY

A communication strategy plan can help spread the news of your work in improving early diagnosis of cancer. It includes both who to inform, and how to do so.

If you do discover interventions that work well in the context of your practice, you may want to put together a strategy to plan how to share your learning across a wider network, for example your CCG, cluster or neighbourhood.

Improvements that cross boundaries between practices or between primary and secondary care, especially those that may have external funding, will benefit from using stakeholder analysis when planning your communication (more details below).

The example below relates to redesigning the process of dealing with results coming back to the practice and of informing patients of these results. The changes involved using an electronic administration address rather than a GP address to receive results from the laboratory. The administrator would then direct the result to the appropriate clinician, be responsible for monitoring any actions required and informing the patients of the results.

- **Objectives.** What is the aim of your communication? You need to be clear about whether you are asking patients for their input into the design of the new system, or if you are informing them of some changes to the process they usually use.

- **Team involved.** Who needs to be involved in delivery of the message? In our example, many people are involved in the management of results. Make sure you identify all these people

(reception staff, GPs, nurses, trainees) so they are all aware of what message they need to pass on to the patients.

- **Target audiences.** Who needs to know about the change? In our example this would be the patients, relatives, carers, and care home staff.

- **Messages.** The message needs to be tailored to the audience. It can be very useful to give information about why the change is being proposed and that you are aware there may be some difficulties at first, though feedback is welcomed.

- **Methods.** Which channels will you use? Consider using a wide range of different ways of passing the message to maximise the coverage. Consider use of the practice website, social media sites, such as a practice Facebook group or Twitter account, messages on prescriptions, practice newsletter, emails or texts to patients. Direct mailing of information can be effective, though expensive both in terms of postage costs and time spent preparing letters, so may not be the most efficient route.

- **Timescale.** When do you wish to achieve delivery of your message? If you are planning a very gradual introduction of changes, then this will influence which channels you use.

- **Evaluate.** Consider the effectiveness of your strategy. This can be formally measured by using a survey which might help to guide what communication methods you use in the future. However, it is worth asking all staff to listen out for patients who say they were unaware of changes and ask these patients what they feel would have been the best way of informing them.

A simple way of analysing 'stakeholders' in your improvement is to use an 'Importance-Influence' Matrix. It reflects that people have different needs according to how interested they are in your change and how crucial they are to the success of the project.

In our improvements to the result handling system:

Step 1: Identify all the people who may have any interest in your change, all the people who may be affected by it and everyone who has an influence of whether it succeeds or not.

Step 2: Decide whether they are likely to have high interest or not (how much will the change affect them) and how much influence (power) they have in affecting the outcome of the change.

HIGH	**KEEP SATISFIED** This group could include the staff of the local laboratory. If you improve your practice result handling system it won't necessarily benefit them, but they could get in the way of your success if not happy.	**MANAGE CLOSELY** Your patients and carers, GPs, reception staff, phlebotomist and practice nurses have an interest in the success of the project and can also influence it. Communicate with them all frequently and listen to concerns.
LOW	**MONITOR** Some members of staff may not involve themselves in result handling but check in with them occasionally to see if the project is having any impact on them	**KEEP INFORMED** Your IT facilitator is likely to be very interested in the changes you are making, though may not have much influence in the success.
	LOW	**HIGH**

Level of influence (power)

Level of interest

COLLABORATIVES

If several practices in your at scale organisation or cluster have participated in the NCDA, then there is benefit in working together in a quality improvement collaborative.

Quality improvement collaboratives consist of groups of people meeting together to learn from and motivate one another. A central learning event can be held to share and discuss the overall NCDA results, your practice NCDA results, and/or your local NCDA CCG report (if participating in your CCG was high enough to issue a CCG report), and this can then be followed by local implementation of changes using quality improvement tools taken from this guide. Your local Cancer Research UK facilitator or Macmillan GP may be willing to attend, or may even have capacity to help run the event. The participants can then communicate regularly about their experience and results of any changes introduced. Collaboratives have been shown to motivate teams to do things differently which can then improve the care offered to patients with suspected cancer.

Top tips from the Health Foundation on making collaboratives a success are:

People to include
- Leaders
- Multidisciplinary team members
- Patients and carers
- Those that volunteer
- Local support groups e.g. Macmillan cancer support

Process
- Set clear goals
- Tailor to local context
- Use many communication methods
- Use coaching/facilitation
- Include learning sessions. These include a sharing of experiences from members of the collaborative

Resources
- Good IT to allow data collection and sharing
- Use measurement tools
- Enough resources to allow time for change to embed
- Evaluate outcomes

ENGAGEMENT

ENGAGEMENT AND BEHAVIOURAL CHANGE

Engagement means creating the right conditions for all the individuals involved in improvement to be motivated and able to contribute to the best of their ability. This means people both inside and outside your organisation, though you are likely to have more influence internally.

The more engagement you generate, the more successful and sustainable your improvements will be. Get the engagement right, and your team will participate, leaving you time to be more strategic. They are also likely to learn improvement skills they can then use when they spot other issues that need sorting.

The first step is to think carefully about who are the people you need to 'engage' with. These are your 'stakeholders' and they include everyone that will feel an impact from your project, either because they will be involved in implementing or testing out changes, or they may feel the impact of the change itself.

Engagement has a different purpose according to what role the stakeholder plays in the project. A communication strategy is described in another section in this guide that can help you to work out what level of communication to have with each type of stakeholder. Involving your patients in designing and monitoring improvements can be an excellent way of engaging them and reducing resistance to change.

Getting engagement (or 'buy in') from the GPs and practice staff can be challenging especially when day-to-day workload is high and it is best achieved by:

1. Running effective meetings using tools to maximise participation
2. Using an understanding of the strengths and personalities in your team
3. Understanding of human motivation theories and how to apply them

How to engage and motivate others

1. Running Effective Meetings

- QI meetings often have a different 'feel' to them than business meetings. Though it is very important they are facilitated, and action points recorded, it is often useful to allow more time for creative ideas to develop.
- Many of the tools described in other sections of this guide (e.g. SWOT analysis, Fishbone diagrams, Context checklist, Process-mapping and the Model for Improvement) can be used during QI meetings to achieve a shared understanding of the issues for improving and to plan action.
- Participants in meetings often find it easier to contribute of they work in pairs first, before sharing their thoughts with the whole group. This can work well when you are exploring the root causes for a difficult issue prior to constructing a Fishbone diagram.
- Writing ideas on post it notes and then collating them on the wall encourages participation from the quieter members of a group.
- Try not to achieve too much in each session and at the end of the session summarise where you are up to with the 'Diagnosis' of the issue and what the next steps might be. Clearly allocate the actions points with a realistic deadline and then arrange the next meeting date.

2. Understanding of the strengths and personalities in your team

- Your team will perform best when they are playing to their strengths. The Belbin Inventory of Team Roles is used to score people on how strongly they express the behavioural traits from nine different team roles. It is widely used and is a useful tool for gaining a better understanding of the strengths of your team and building on them.
- This will both help all to engage appropriately with your QI work and also gain a better understanding of how to work with each other.

## 3. Understanding human motivation theories and how to apply them

- Effective quality improvement usually requires us to start to behave differently. Often this is by starting to respond differently to comments from patients, or to start to value measurements and data. It usually involves us accepting that things might be better done in a different way and human beings seem to generally feel uncomfortable with change. We need to understand how to motivate others to maximize engagement.
- People are motivated by an array of factors. For some, improving the quality of care to their patients is enough, particularly if not taking action will have dire consequences for their patients, for example by diagnosing cancer when it is too late for effective treatment. For these people gathering and displaying data showing how things are improving, and sharing and celebrating positive feedback from patients will be very motivating.
- For others, professionalism or subject matter being of interest or alignment with personal or organisational goals might be key, and they may be more motivated by external recognition, for example by GP peers or the CCG/cluster.
- Other possible levers are the threat of coercion, poor inspection outcome or incentives (a gain in

time, money or other resources). GP contracts over recent years have often been aligned to payment for performance, and though these techniques have been shown to lead to better performance in the individual items measured, they have not led to better outcomes for patients

- It is thought by some that financial reward for achieving an externally imposed target may actually demotivate many people and distract them from aiming for better overall care for patients.

Michie et al[20] have developed a framework for understanding behaviour. In their framework, capability, opportunity and motivation interact to create behaviour.

Capability is defined to include having the knowledge and skills to engage. Opportunity refers to external factors that can influence the adoption of the intervention. Motivation is creating the energy that will direct behaviour.
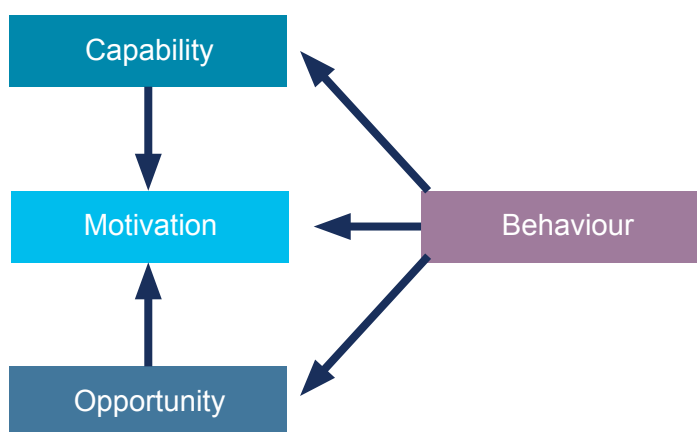
Vroom's Expectancy theory describes how peoples' motivation to perform is influenced by 3 factors:

1. Whether they believe in the benefit of the desired outcome. (Valence)

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20. 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.

If you are leading an improvement project it is helpful if you have a clear idea of the benefit yourself. If you know of where, for example, a patient was able to access care at the practice promptly, which led to an early referral and an early diagnosis of cancer, then sharing this story will help to motivate others. If you can show the harm that can be caused by diagnosing cancers too late for effective treatment, then this can increase motivation.

2. Whether they believe the effort they are putting in to the project will actually result in better performance (Expectancy)
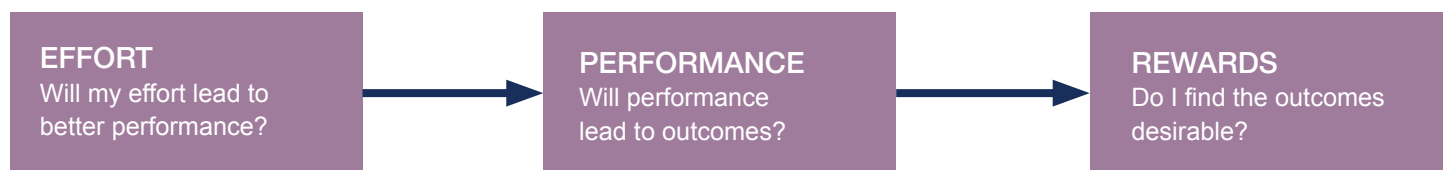
If they can see the whole team is pulling together and that the project is being prioritised by the practice, this encourages positive expectation. Motivation will also be lifted by your confidence, as leader, in the methods you are using to bring about change.

3. Whether they believe that good performance will result in achieving the desired outcome (Instrumentality).

As the leader of the project, giving examples of where change has taken place elsewhere using similar methods can help to motivate others. Individual motivation will also be increased by gathering data during the project showing you are moving towards your aim. This can promoted further by identifying quick wins and celebrating them.

MOTIVATION = EXPECTANCY X INSTRUMENTALITY X VALENCE

| **EFFORT** Will my effort lead to better performance? | → | **PERFORMANCE** Will performance lead to outcomes? | → | **REWARDS** Do I find the outcomes desirable? |

PATIENT INVOLVEMENT

Patients are at the heart of everything you do in General Practice. Our QI work is designed to improve patients' experience of care as well as their outcomes.

All improvement work benefits from patient involvement. It may take time and effort to involve them, but it will be worth it.

Your patients will have a perspective on your practices and their care that we often haven't thought of. Without their input you may prioritise the wrong processes for improvement or fail to make the most of the power of patient groups to influence others.

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. You could also contact the National Association for Patient Participation (NAPP).

How to involve patients in your work to improve cancer diagnosis

Here are some examples of how to involve your patients in your work to improve early diagnosis of cancer:

Involving Patients in assessing your 'practice culture'

- Every organisation has a specific culture that can both facilitate and be a barrier to early cancer diagnosis. For example, if a practice appears to be very busy all the time, and staff seem stressed, many patients become concerned they are 'wasting the doctors time' and may delay on reporting significant cancer symptoms.
- Your patients are likely to have some useful insights into practice culture. For example, do they experience a culture of the reception staff trying to 'protect' the GPs, which may result in poor communication?

Involving patients in 'Diagnosis' of Improvement needs:

- Invite patients to take part in a process-mapping exercise of your referral process to see things from their perspective and identify aspects that may not be working efficiently or with adequate safety-nets
- Ask your PPG to run a waiting room survey on a specific area of interest to check out your patients' awareness of 'red flag' symptoms.

Involving Patients in 'Plan and Test' of Improvement ideas

- Ask specific patients to watch out for a change to process and share their experience of how well it is working from their perspective. This is an important aspect of a PDSA cycle. This could be useful if you reception team have decided to encourage patients to see a consistent GP about their symptoms.
- Your PPG may be willing to help create materials for health campaigns that could encourage others to take up the offer of cancer screening, or to increase awareness of red flag symptoms for cancer.
- Patients who are happy to share their story of early cancer diagnosis and successful treatment can really encourage others to take up the offer of cancer screening, or report symptoms of cancer early. This is particularly powerful if the patient is registered at the practice and they are happy to share their story via your practice waiting room, newsletter, Facebook page or twitter.
- Your PPG can help you to design a safety-net leaflet to give patients who, after consultation, are deemed not to need a suspected cancer referral, but who need to know 'when to worry' and what to do next.

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 specifically related to cancer diagnosis.

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 your patients are saying about your services; and for you to use their thoughts to drive your improvements.

Diagnosing cancer is a complex area; with the challenge of responding promptly to symptoms, but without over-medicalising or generating undue anxiety. 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 a real difference to patient outcomes and experience.

Future plans for the NCDA
The first NCDA looked specifically at patients diagnosed in 2014 to gather data on patient pathways to cancer diagnosis before introduction of the NICE NG12 guidelines in 2015. Referral guidelines were also produced in late 2014 in Scotland. It therefore provides a baseline which will allow us to understand how these guidelines have impacted on patient pathways when the audit is repeated with more recent data.

In future, plans for the NCDA are to use a near real-time data collection approach, so that GPs sign up for the audit and complete data on patients prospectively. This new system would mean GPs would receive an alert when a patient at their practice is diagnosed with cancer and would be asked to complete primary care data items on that patient at that time, rather than being provided with a list of patients diagnosed with cancer in a previous year.

It is hoped that the NCDA will become embedded into routine practice as an ongoing audit that can support continuous rounds of quality improvement over time.

SUPPORT

Support from Cancer Research UK Health Professional Engagement Facilitators and Macmillan GPs is available to help your practice make the most of your results. They can discuss your report with you and can provide additional resources you may find useful. They can also support feedback and QI sessions, and can share case studies and learning from other practices. Certificates for activities relating to the NCDA that they undertake with you and your colleagues are available, which you can include in your portfolio as evidence of CPD.

If you haven't taken part in the NCDA, Cancer Research UK Facilitators and Macmillan GPs can provide you with a regional report for your wider area, as well as the published national results. These may be helpful in identifying potential issues for quality improvement, kick starting conversations about whether and how they might apply to your practice.

Find out who your local facilitator is at www.cruk.org/facilitators[21] and who your local Macmillan GP is by emailing macdocs@macmillan.org.uk (please note that not all areas will have a Cancer Research UK facilitator or Macmillan GP).

21. http://www.cancerresearchuk.org/health-professional/early-diagnosis-activities/the-facilitator-programme

APPENDIX

CONTEXT CHECKLIST FOR EARLY CANCER DIAGNOSIS

Element	Comments	Action
Culture e.g. Will the practice support work to improve early diagnosis of cancer?		
Leadership e.g. Is there someone willing and able to lead the work on early diagnosis of cancer?		
Team Working e.g. Does the practice team communicate effectively and work well together in diagnosing cancer?		
Technological e.g. Is there someone at the practice able to access and make sense of data using data extraction tools or construct searches.		
Capacity e.g. Do you/the practice have the time for the project currently?		
Social/demographics e.g. Can you connect with patients for your improvement work		
Capability e.g. Does the practice know how to implement improvements?		
Opportunity e.g. Is it possible to do this project now or are there more pressing urgent concerns?		
Motivation Does the practice appear to really want to take part in this project		

Your notes

Your notes

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