Contents

Introduction

This booklet contains practical tips for clinical audit and quality improvement and is aimed at all hospital staff who wish to evaluate and improve their clinical practice.

Clinical audit is a professional tool which enables clinicians to feel confident that "what they do is as good as it could be, as good as it ought to be and that it makes a difference to patient care".[1] It has become an essential part of clinical training, professional development and clinical practice. It provides assurance to the Trust, patients and the public that good standards of care are being upheld.

Quality Improvement is defined by the Royal College of Physicians as "better patient experience and outcomes achieved through changing provider behaviour and organisation through using a systematic change method and strategies" www.rcplondon.ac.uk.

Part 1 of this leaflet sets out the steps you need to take to participate in clinical audit effectively, describing best practice up to and including implementing changes in patient care and checking the results by re-auditing.

Part 2 sets out the stages you need to follow to effectively participate in a quality improvement project (QIP).

Part 3 explains the organisation of clinical audit and quality improvement at Kingston Hospital and where to go for advice, support, training and resources. Useful contacts are listed at the end of the booklet.

We hope this booklet will encourage all staff to get involved in clinical audit and quality improvement with the aim to improve the quality of patient care at Kingston Hospital NHS Foundation Trust.

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Part 1: Clinical audit

What is clinical audit?

Clinical audit is a quality improvement cycle that involves measurement of the effectiveness of healthcare against agreed and proven standards for high quality, and taking action to bring practice in line with these standards so as to improve the quality of care and health outcomes. [1]

Two key points arise from this definition:

- Clinical audit is a systematic process with four stages that must be worked through, and repeated where appropriate. These stages are illustrated below and are similar to the Plan, Do, Study, Act process used for any quality improvement project.

The Clinical Audit Cycle

- Clinical audit focuses on topics where potential for improvement has been identified. It should not be confused with research which aims to generate new knowledge which may or may not directly benefit local patients.

Why do clinical audit?

- ✓ Improve patient experience and outcome
- ✓ Promote and enable best practice
- ✓ Improve clinical processes and systems for staff
- ✓ Demonstrate clinically and cost effective services
- ✓ Provide evidence for CPD, appraisal and revalidation

And it provides an opportunity to develop leadership skills and be a clinical champion.

Who should participate?

Any member of the multi-disciplinary team providing care to patients may participate in clinical audit. This includes managerial as well as clinical staff.

The Foundation Programme curriculum 2012 contains competences for both clinical audit and quality improvement for both FY1 and FY2 doctors. FY2 doctors in particular are expected to manage, analyse and present at least one quality improvement project and use the results to improve patient care http://www.foundationprogramme.nhs.uk). It is acceptable for Foundation Programme purposes for doctors to work together on an audit and indeed this is generally more effective than working independently. Core trainee doctors are also expected to take part in quality improvement work. Clinical audit is recognised by the Royal College of Nursing as "an essential element of health care practice" www.rcn.org.uk

Stage 1: Preparation and Planning

1.1 Selecting a topic

The topic should be one that it is important to audit, and that takes into account priorities identified at NHS and local level.

Clinical Audit Programme

The Trust's annual Clinical Audit Programme can be viewed on the Intranet The **core programme** reflects Trust priorities and includes:

- National clinical audits
- Audits of NICE guidelines
- Audits required for external assessments or by commissioners
- Other important topics, e.g. serious incidents.

As an NHS employee, you are strongly encouraged to participate in core programme audits.

The **Service Line programme** reflects other priorities identified by Service Lines. The Service Line Audit Leads (see Part 3) will allocate suitable topics on their core and specialty programmes to staff within their specialties, including junior doctors.

Other topics

If you have a topic that you wish to audit, these are the basic questions that you should ask yourself before taking it further.

Does the topic concern care offered by **my** team	Yes	No
Is there evidence of one or more of the following? ○ quality problem (e.g. serious incidents, complaints) ○ high risk to staff or patients ○ high costs ○ high volume ○ variation in practice ○ new service that needs to be assessed ○ improvements implemented following previous audit ○ NICE guidelines not already audited	Yes	No
Is there potential benefit to patients?	Yes	No
Is the topic measurable against relevant, authoritative standards?	Yes	No
Does the topic lend itself to the process of clinical audit? (other methods, e.g. case study, M&M review, root cause analysis or activity monitoring may be better)	Yes	No

If the answer to any of these questions is *no*, think again! Review your plans with your Service Line Audit Lead or Clinical Audit and Improvement Facilitator (see Part 3).

What about surveys of patients?

"Physicians should ensure that clinical audit measures, not only the technical quality of the care delivered but also the experience from the patient perspective".[2] Surveys contribute to clinical audit if patients are asked about aspects of the process or outcomes of care linked to defined standards. Patient surveys must be approved by the Clinical Audit Centre before they are sent to any patient.

1.2 Ethical issues

Clinical audit does not require approval by a Research Ethics Committee, but it may raise ethical issues. For example:

- Sharing of patient data with another healthcare organisation
- Surveying patients about sensitive issues

The process of registering the audit (see Part 3) will ensure that any ethical issues are identified at an early stage. The approval of the Trust's Caldicott Guardian may need to be obtained.

1.3 Planning the audit

Good planning will reduce the time you need to spend on the project overall. At the start of the audit do involve people who could potentially influence change in practice and those who may potentially need to change their practice or behaviour.

Step	**Detail**
Ensure competency in the clinical audit process	See Part 3 for training opportunities
Engage your local leads	Agree your topic with your Service Line Audit Lead and your Consultant/Line Manager
Set the audit objective	Ask yourself: What do we want to achieve? Write the objective(s) using verbs such as *to ensure, to improve, to increase*
Identify source for standards *See 1.4 for more detail on setting standards*	Identify the guideline or policy which will provide standards for the audit. These should be evidence-based and up to date e.g. NICE, Royal College or Trust-approved guidelines (on PIMS). The target you set for the standards will be compared to the audit results.
Identify data source	This can include: • CRS or other electronic systems • Clinical notes or other records • Data provided directly by patients/staff • If not easily collected from records, consider prospective data collection
Register audit	**All audits must be registered** with the

	Clinical Audit Centre – see Part 3 for how to do this. Registering the audit gives you access to advice, information on previous audits, and support if your project is eligible.
Engage colleagues and stakeholders	Discuss plan with relevant groups e.g. - • other professionals who care for the patient group being audited • other departments involved in pathway of care e.g. A&E, Diagnostics • managers – if audit has implications for resources or service reconfiguration • patients - it is good practice to engage service users especially if you are auditing patient experience/outcome
Set up audit team	Audits benefit from a team approach, reflecting the fact that most health-care is multi-disciplinary. The **project lead** should co-ordinate the work at each stage. If junior doctors are on the team, the project lead should ensure handover of work between rotations. Ensure the team has the necessary skills (see Part 3 for training). **Stakeholders** should be consulted at the design stage, and may contribute to data collection, analysis or reporting of results.
Plan timetable	Allow realistic times for sampling, obtaining patient notes (notice is required), data collection, analysis and writing up results. Identify a date for presenting the audit in a multidisciplinary setting, at an audit or governance meeting.

1.4 How to set standards

A standard has two components:

- a statement of what should happen *(criterion)*
- the desired performance level expressed as a % *(target)*

The criterion must be clear and not open to interpretation. Any exceptions (valid reasons for non-compliance) must be stated. The example below is taken from the NICE guidance on Heart Failure (CG108, 2010).

Criterion	Patients with suspected heart failure without previous MI should have serum natriuretic peptides measured
Target	100%
Exceptions	None

Unless it is critical to the safety of patients, you may set a target lower than 100% initially, and then raise it at re-audit.

It's helpful to think of audit criteria in terms of **structure, process and outcome.**

Type	**Example of criterion**
Structure - what we need	A named Pharmacist with an interest in gastroenterology should be attached to the IBD team (National IBD Audit)
Process - what we do	Offer active surveillance as an option to men with low-risk localised prostate cancer for whom radical prostatectomy or radical radiotherapy is suitable (NICE guidelines on Prostate Cancer CG175)
Outcomes - what we expect to happen	All cases where patients are readmitted within 8 days following an endoscopic procedure should be monitored and reviewed (BSG safety standard)

Where the audit topic is covered by a NICE guideline, you should consider using the corresponding NICE audit tool and NICE Quality Standards (if applicable) as a basis for setting standards.

Stage 2: Measuring performance

2.1 Selecting the method and planning data collection

Consider these factors:

- Who are the target patients in terms of condition/procedure, demographic factors, mode of admission, etc?
- What time period is appropriate for the audit? – You should audit recent or current cases and take account of seasonal factors.
- How many patients were there/are there in the period and will you need to take a sample?
- What data items do you need to show whether each standard is met?
- How will the data be collected? Electronic data collection saves time and is preferable.
- How will the data be analysed – do you need to set up a database or spreadsheet?
- Do you need to obtain qualitative data (free text comments)? If yes, think about how you will analyse them.
- Will the audit involve sharing data with another organisation? If yes, you must seek advice from the Audit Centre and Caldicott Guardian.

Data Collection– top tips

- Collect only the data you need to determine whether standards have been met
- One issue per item/question, clear wording
- Logical sequence with section headings
- Never include patient name, address or d.o.b.
- Include the date the audit form is completed and the name of the data collector (if applicable)
- Pilot the form – check validity and reliability of tool

Patient surveys – top tips

- Should avoid abbreviations and jargon
- Must be sent to the Clinical Audit Centre for approval before they are issued to patients
- Should be piloted with a few patients before use
- Must NOT ask for identifying details
- Must NOT be conducted by telephone unless the patient's consent has previously been obtained

2.2 How to take a sample

First obtain a list of patients (population) for the chosen period: *Inpatients*: The Clinical Audit and Improvement Facilitator for your service line/specialty should be able to run a list of patients for you. *Outpatients*: are not coded, so you will need to obtain clinic lists.

Then calculate the **sample size** according to the total patient population. Sampling is subject to error, but this can be quantified by calculating the confidence level (CL) and confidence interval (CI). You should aim for a sample size that will allow you to be 95% (CL) sure that your audit results are within a given % interval (CI) of the results you would have obtained from the whole population. CL and CI are applicable to categorical data (e.g. yes/no) but not to continuous data (e.g. temperature)

Example – Audit of MUST nutrition score 683 medical patients admitted to hospital in one month	Confidence level of 95% Confidence interval $\pm$ 5 Sample = 246
	Result: 76% had a correct MUST score (categorical data)
	Can be 95% sure that true result lies between 71%-81%

The easiest way to calculate your sample size is to use a sample size calculator – see Part 3, Resources. In deciding on the size, a balance has to be struck between the need for scientific accuracy and the time you have available to collect data. To select the sample, a random or modified random method should be used to eliminate bias.

Simple random – generate random numbers and use these to select patients. This can be done in Excel using the RAND/ RAND BETWEEN functions, or by using a random number generator.

Systematic sampling – Select the first patient at random and then choose every *nth* patient. With this method, you must ensure that the list is not ordered in a way that could introduce bias.

Stratified sampling – use this when you wish to ensure proportionate representation of sub-groups (strata). Calculate the sample for each group to reflect the make-up of the population, then select the samples at random.

If you need to obtain patient notes -

- Your audit must be registered and you must give notice of your request on the Intranet Project Form (see Part 3). As long as you provide all the necessary information on the form, you will receive a decision within one working week.
- Depending on the priority of the audit, the Audit Centre may obtain the notes for you, or could arrange for you to collect the notes yourself.
- Notes must be tracked, stored safely and returned to Health Records promptly.
- Be aware that notes of deceased patients and those not seen at the hospital for a period are stored off-site and the hospital pays a charge for retrieving them.

2.3 Collecting data

Set up your data collection tool on Excel or using a software package on a computer or tablet (contact the appropriate Clinical Audit and Improvement Facilitator for advice about this). Advice and training on how to set up an Excel database is available (see Part 3).

Carry out a small pilot using the data collection tool to ensure that it produces valid and reliable data. Any issues should then be addressed before proceeding to the actual audit. If more than one person is collecting data, the project lead should brief the team at the outset.

In order to ensure that the whole sample is accounted for, you should check off all records audited against the original sample list and record whether any are not available or are ineligible.

Keep the data secure!

- Paper forms should be stored securely
- Electronic data must be saved on the hospital network. It must never be sent to email addresses outside the hospital other than **to and from a secure nhs.net account**
- Patient lists should be destroyed as soon as the audit report is written. Data collection forms and databases should be destroyed three months later.

2.4 Analysing data

- First, eyeball the data to check for any gaps or errors
- Then check the data fully for a small % of cases, e.g. check every 10th case
- Account for any excluded or missing cases
- Calculate totals and percentages to compare with targets
- Be careful to use the correct denominator for percentages., e.g. if a criterion applies to a sub-group of patients rather than all patients
- For the majority of audits simple descriptive statistics are sufficient

Data analysis –top tips

- For continuous data such as length of stay, calculate range, and mode/median/mean as appropriate. Use the median if the distribution of the data is skewed
- If you audited a sample of patients, you may wish to calculate confidence intervals
- Free text comments can be analysed by theme
- Use a Chi square test to compare audit and re-audit data to see whether the results have improved significantly

2.5 Risk assess the results

If the results of your audit reveal that all the standards are met, the audit will be rated as 'green' (red, amber, green traffic light system).

If any of the standards were not met, ie the target was not reached, then a risk assessment should be carried out to determine the risk to patient safety. Risk assessments obtaining a score of <8 are classified as an 'amber' audit result and those with a score of 8 or more are given a 'red' audit result. Your Clinical Audit and Improvement Facilitator can help with this assessment.

Stage 3: Implementing change

3.1 Reporting the audit

If the audit shows sub-standard care, it is unethical not to act on these findings.[3] Negotiation, leadership and motivational skills are called for at this stage of the audit cycle.

Presenting results

- Present to an audit or governance meeting in your department and make the results available to other stakeholders, so that they can contribute to the change process
- Your Clinical Audit and Improvement Facilitator will report the results of your audit to your Specialty/Service Line.
- Present national audits and other audits of wider interest to the Trust's Clinical Audit Group
- Publicise patient survey results and action plans to service users

Format and content of the presentation

Generally the content should be understandable by a multi-disciplinary audience. Presentations must never identify individual patients or members of staff. You should use the template for Powerpoint presentations, available on the Clinical Audit and Quality Improvement webpage. Explain abbreviations and avoid specialised terminology. Graphics such as charts are an effective way to present results. For each chart you should state the base number of cases and the target performance level. At the end of the presentation, invite feedback and obtain agreement on what needs to happen next.

Format and content of the report

Writing a report provides a comprehensive record of your audit findings and action plan which is essential for comparing results at re-audit. The report should be based on the Clinical Audit Report template available on the Clinical Audit and Quality Improvement webpage. It should conclude with the agreed action plan for making improvements.

Send a copy of your presentation, and report if applicable, to your Service Line Audit Lead and Clinical Audit and Improvement Facilitator.

3.2 Action Planning

Step	Detail
Establish the need for change	Obtain agreement from colleagues on the need to implement change and the specific changes needed. Use a quality improvement tool such as 'Asking why 5 times' or a 'fishbone' diagram (see Part 3) to help establish the specific problems and changes required.
Ensure you have the power to act	The clinician leading the audit and their Consultant/Line Manager is responsible for leading implementation. Enlist support of the Service Line Manager if proposals have cost implications.
Design the change	Once consensus is reached, draw up and circulate the action plan (see Clinical Audit Report template for format).
Monitor change implementation	The clinician who led the audit and/or their Consultant/Line Manager is responsible for monitoring the action plan and ensuring all actions are completed in accordance with deadlines. You may find it useful to use a Gantt chart for this (see Part 3).
Report action plan completion	Inform your Clinical Audit and Improvement Facilitator when the action plan has been fully implemented.

Make sure that your action plan is SMART – Specific, Measurable, Achievable, Realistic and Timely. If you require support with action planning or implementing change, speak to your Clinical Audit and Improvement Facilitator

3.3 Changing practice

Changing practice can be a challenge. Consider the following points.

- Identify clinical champions (you, your Consultant, Line Manager)
- Invite ideas from others including support staff
- Bring in more people to help if required. You don't need to limit those involved in the change process to the original audit team
- Change should be 'built in' not 'bolted on' – beware of creating additional processes or paperwork
- Assign responsibility for specific actions to named staff and follow up with team briefings
- Encourage feedback on progress and be prepared to modify the action plan
- Monitor the timescales of the action plan – use a Gantt chart – to keep the project on track
- Don't be afraid to ask for help or support

Stage 4: Sustaining improvement

A further phase of data collection (re-audit) is required to provide evidence that the changes implemented have led to improvements in quality. If the action plan is small, this can be done once the actions are complete. However, if the action plan is large, monitoring or re-audit may be required at various points during the change in practice. This is often carried out as a monthly cycle with rapid feedback of results to clinical teams in order to motivate them to improve performance. For this kind of audit it is appropriate to simplify reporting. A cumulative summary of results can be produced at appropriate intervals so that trends can be reviewed, and the audit then written up as a report at the end of the cycle.

Re-audit should focus on the standards that were not met at the first audit and should collect the same data as before, from similar patients, to permit valid comparison of results. If the audit is of a sample of patients, take care when comparing results with the

previous audit. Small percentage changes may not represent a true difference but can indicate trends.

The results and achievements of a clinical audit should be broadcast and recognised. Share the lessons you learned, the actions you took and the improvements you achieved.

1st Prize Winners of the Poster Competition being presented their cheque by CEO Kate Grimes at the Clinical Audit Seminar 2013

References

1. *New Principles of Best Practice in Clinical Audit* 2nd edition edited by Robin Burgess, Radcliffe Publishing Ltd, 2011

2. J. Potter, C. Fuller, M. Ferris *Local Clinical Audit: handbook for physicians.* Health Quality Improvement Partnership and Royal College of Physicians, August 2010. Available at: http://www.hqip.org.uk/clinical-audit-resources-3/#doctors

3. N Dixon *Ethics and Clinical Audit and Quality Improvement.* HQIP, September 2009. Available at: http://www.hqip.org.uk

Part 2
How to complete a quality improvement project and make it effective

We would suggest that you follow the framework of the Plan, Do, Study, Act (PDSA) cycle when undertaking a quality improvement project. The PDSA provides a clear, formulated process and suggests a pilot/test before full implementation of changes with user friendly project documentation developed to support the cycles.

1. The Project – Plan, Do, Study, Act (PDSA)

When undertaking your Quality Improvement Project (QIP) the PDSA cycle can be used to help you to develop, test, and/or implement a change on a small scale in a real work setting.

Preparation and planning is crucial and the three most important areas to get right are:

- Having a focussed aim/objective
- Agreeing what you are going to measure before you make any change and then as you go
- Identifying what change(s) you plan to make

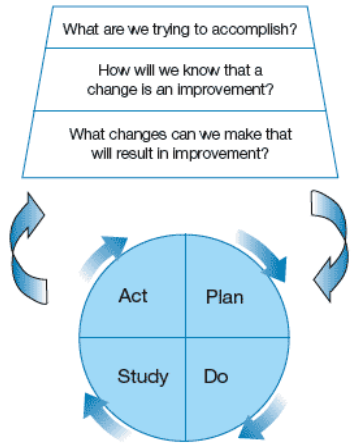

Figure 1 - Plan, Do, Study, Act (PDSA) Cycle

1.1. Plan

Define the aim/objective of your project:

- Ask yourself 'what do we want to accomplish'?
- Make sure your objectives are SMART – Specific, Measurable, Achievable, Realistic, Timely (eg By the end of quarter four 100% of patients admitted with neutropenic sepsis will have their antibiotics given within 1 hour of diagnosis)
- Complete the registration form on the Clinical Audit and Quality Improvement Department page on the Trust intranet (see Part 3)
- Depending on the size of your project you may be asked to present to the Quality Improvement Working Group (QIWG) or to complete a Project Initiation Document (PID)

Plan what you need to do and by when:

- Determine the change/concept to be implemented that might make an improvement? (eg Sepsis Checklist)
- List your key Contributors and Stakeholders and form your project team (arrange meetings)
- Plan your proposed start and finish date listing key milestones (actions) and when you need to do them by
- Complete your Project Plan (see Figure two and item 4.2)
- You may find completing a Process Map (see 2.1) or Driver Diagram (see 2.2) with your stakeholders will help you here

Project Milestone Tracker

		G	Milestone due
Project Name	Neutropenic Sepsis	A	Milestone slipped but no effect to project end date
Clinical Lead	Dr Jones	R	Milestone slipped and will effect project end date
Project Manager	Dr Smith	B	Milestone completed or closed

		Weekly Milestone Report														
Date updated (DD/MM/YYYY)	**11/02/2014**	**Due**	0	0	0	0	0	2	2	2	1	0	0	1	0	0	0
		Achieved	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0
		Variance	0	0	0	2	0	-2									
		Cumulative Variance	0	0	0	2	2	0									
		This week included in reporting?	Y	Y	Y	Y	Y	Y									

Action / Milestone	**Responsible**	**Update/comments if slipped**	Date which the milestone is to be completed in (week commenc														
			Jan-14				**Feb-14**				**Mar-14**				**Apr-14**		
			06-Jan	13-Jan	20-Jan	27-Jan	03-Feb	10-Feb	17-Feb	24-Feb	03-Mar	10-Mar	17-Mar	24-Mar	31-Mar	07-Apr	14-Apr
Project Group and Documentation																	
Project team																	
List stakeholders / key contributors	Clinical Lead					B											
Project team meeting	Project Manager					B				G				G			
Draft Terms of Reference?	Clinical Lead / Project Manager						A	G									

Figure 2 - Example of a Project Plan

Assess any Risks and Issues and provide mitigations:

- What are the risks to the delivery of your project and are there mitigations which you can put in place to minimise them? e.g. staff may not be released for training - mitigate by early planning/notice.
- Are there risks associated with alternative options or actions?
- Could the change make something worse or have a negative impact on another department? e.g. by removing staff in one area will you cause more work in another area.
- What are the issues? e.g. do you need to find an appropriate environment for treatment.
- Complete a Project Risk and Issues Register (see 4.3)

Agree the measures and baseline data you need to review to ensure no negative impact to quality – Key Performance Indicators (KPIs):

- How will you measure the baseline?
- Do you need to do a Clinical Audit? (see Part 1)
- How will you set a target and will you phase the improvements to reach your goal?
- Complete your Key Performance Indicator (KPI) record (see 4.4)

It is crucial to determine the measures needed to see how you will know the change has made a different/improvement

There are 3 types of measures:

- Process measures – the workings of the system (eg time to an antibiotic being given)
- Outcome measures – what difference was made (eg number of neutropenic septic patients treated with antibiotics within 1 hour)
- Balancing measures – what is the risk? Are you disadvantaging another area?

1.2. Do

Carry out the change or a pilot and record what happens, you may want to phase in the changes and measure the impact of each one:

- Use a Runchart (see 2.3) to record the pattern of data that you can observe as you make changes
- Document problems and unexpected observations
- Begin analysis of your data
- Complete your Project Update Report if required (see 4.5)

1.3. Study

Complete the analysis of your data and record your results, comparing the data to your predictions:

- What did you learn? Discuss the findings with your project team
- Complete your Project Update Report if required (see 4.5)

1.4. Act

Decide what modifications are needed and if you are ready to make another change. You are likely to go through a series of PDSA cycles as you modify your initial change to make a sustained improvement.

- What modifications are needed?
- Are you ready to make another change? – Create a plan and keep refining the change until it is ready for broader implementation
- Have you completed your project? If so, complete a Project Closure Report (see 4.6).

2. Quality Improvement Methodologies

There are a number of quality improvement methodologies. Here we are focussing on three used routinely at Kingston Hospital NHS Foundation Trust.

2.1 Process mapping

A key element of improvement is the requirement to define the sequence of activities presently undertaken. This is a helpful step prior to any development of new working procedures and should be carried out in your 'Planning' stage. A map of a patient journey is a visual representation - a picture or model - of the relevant procedures and administrative processes. The map shows how things are and what happens, rather than what should happen. This helps you to diagnose problems and identify areas for improvement.

Process mapping enables us to clearly and simply record existing processes, examine them thoroughly and develop improvements by:

- Eliminating unnecessary tasks, steps and hand-offs
- Clarifying roles within the process
- Reducing bottlenecks, delays and duplication
- Reducing the number of staff/steps required in a patient pathway

Flowcharts/maps also show people what their jobs involve and how they should interact with one another as part of process.

Processes are simply sequences of actions designed to transform inputs into outputs. Process mapping is an exercise to identify, within a diagram, all the steps and decisions in a process.

Process mapping:

- Describes the flow of materials, information and documents
- Shows that the tasks transform inputs into outputs
- Displays the various tasks contained within the process (tasks or activities are noted within RECTANGLES)
- Indicates the decisions that need to be made along the chain (decisions are noted in DIAMONDS)
- Demonstrates the essential inter-relationships between the process steps (transport or direction is noted with ARROWS)
- Reminds us that the strength of a chain depends upon its weakest link

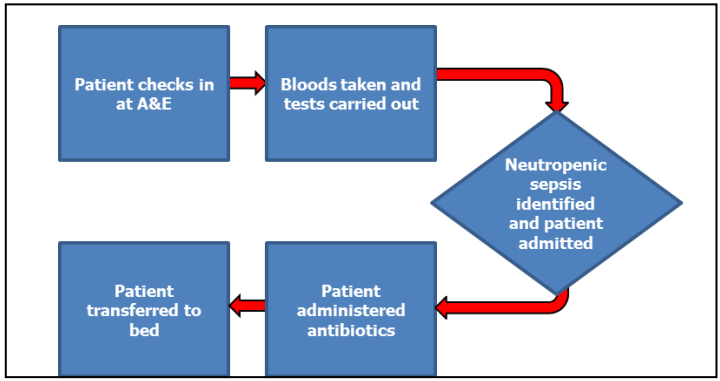

Figure 3 - Example of a High Level Process Map

Process mapping can be done at a high level (see Figure 3) or in greater detail with associated timings and costs (see Figure 4).

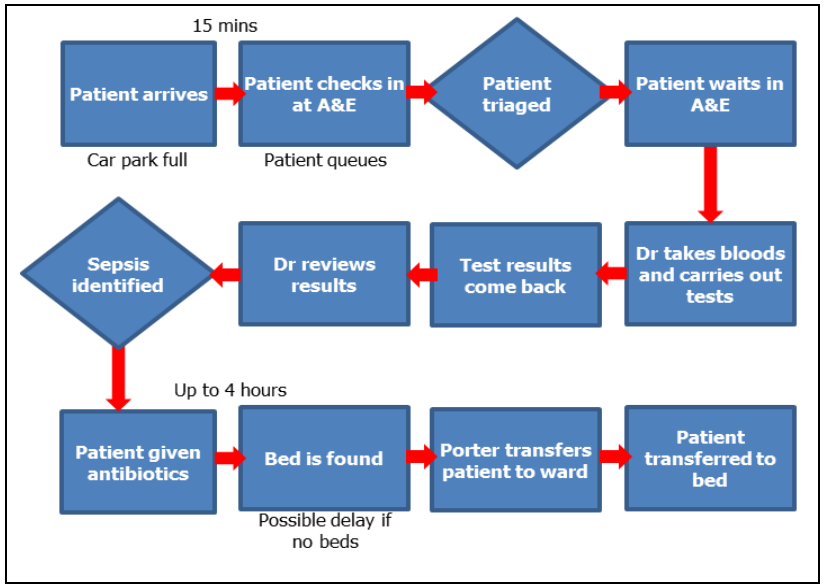

Figure 4 - Example of a Detailed Process Map

2.2 Driver diagrams

A driver diagram can be used in your 'Planning' stage to capture improvement project activities. They provide a way of systematically laying out aspects of an improvement project so they can be discussed and agreed.

A driver diagram organises information on proposed activities so the relationships between the aim of the improvement project and the changes to be tested and implemented are made clear.

A driver diagram has three columns - Outcome, Primary drivers and Secondary Drivers.

- Outcome: Can be derived from your SMART aim.
- Primary Drivers: A set of factors or improvement areas that we believe must be addressed to achieve the desired outcome. They should be written as straightforward statements rather than as numeric targets.
- Secondary Drivers: Specific areas where we plan changes or interventions. Each secondary driver will contribute to at least one primary driver. They should be process changes that we have reason to think will impact the outcome (should have an evidence base). They should be necessary and (collectively) sufficient to achieve the aim.

Outcome	Primary Drivers	Secondary Drivers
By the end of four months 100% of patients admitted with neutropenic sepsis will have their antibiotics given within one hour of diagnosis	**Process**	Create checklist
		Develop patient alert system with IT
		Embed 'awareness champions'
	Education	Develop educational material for nurses induction
		Develop educational material for clinicians induction
		Develop ad-hoc training & awareness sessions
		Provide information on Wards, Intranet & Blue Book
	Campaign	Design and display posters
		Design reminder logo
		Design reminder slogan

Figure 5 - Example of a Driver Diagram

2.3 Runcharts

During your 'Do' stage, frequent measurements will be needed to determine impact of changes. Runcharts are a good visual way to show how much variation there is in your process over time.

- They help improvement teams formulate aims by depicting how well (or poorly) a process is performing.
- They help in determining when changes are truly improvements by displaying a pattern of data that you can observe as you make changes.
- They give direction as you work on improvement and information about the value of particular changes.

Plotting data over time is a simple and effective way to determine whether the changes you are making are leading to improvement.

Start building your runchart from the beginning as soon as you obtain data:

- Plot date on x axis
- Plot data on y axis
- Draw a median line
- Place a goal line – Keeping the goal line on every graph ensures everyone viewing the graph can see at a glance where the work is at in relation to achieving the aim
- Annotate any changes you make with each PDSA cycle

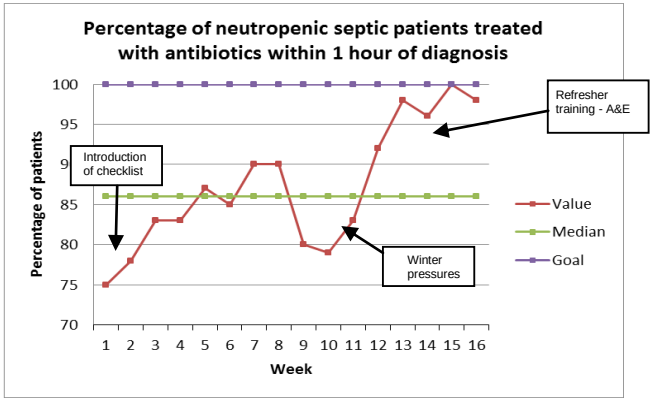

Figure 6 - Example of a Runchart

3. Top tips for a successful project

- Think about your aim or objective: what is it that you want to accomplish? Make sure you understand what will change and how you are going to measure the improvements against your baseline data. Your runchart will be a useful visual tool here.
- Be sure to register your project on the Clinical Audit and Quality Improvement Department webpage so we know about your project and can provide you with the project paperwork and advice.
- Be organised, plan your time and set realistic milestones. The Project Plan document will help you to monitor progress and ensure that things happen when they are supposed to.
- Ensure you engage with all stakeholders, form a robust project team and make sure expectations, roles and responsibilities are clearly defined.
- Ensure the work is 'collaborative' not divided and all parties have their say with agreed processes.
- Leadership is key to a successful project, ensure you secure clinical leadership for any project which affects a clinical area.

4. Forms

All forms can be found on the Clinical Audit and Quality Improvement Department page on the Trust intranet.

4.1. Project Registration Form

The Project Registration Form allows you to submit the high level details of your project. On receipt of your form you will be contacted to discuss your project and any documentation or advice you require.

4.2. Project Plan

The Project Plan allows you to plan your milestones and have a complete view of your project and what needs to happen to ensure success. Slippages can be tracked and monitored here. The Project Plan can be produced in line with the Driver Diagram.

4.3. Project Risk and Issues Register

The project Risk and Issues register allows you to think through any potential risks or issues you may face, and plan for them at the beginning of your project. The risk register should be maintained and reviewed throughout your project. Although this document is extremely useful in the planning stage you may find that additional risks or issues are highlighted throughout the stages of your project.

4.4. Key Performance Indicator (KPI) record

The KPI Record allows you to plan your measurable improvements at the start of your project and track performance against them. This data can be used to check you are not negatively affecting quality or performance and can be used to produce runcharts.

4.5. Project Update Form

The Project Update Form will not be used for every project, especially those with very short turnaround times. The form is really useful if you have a lengthy project and need to provide regular formal updates to Groups, Boards or Committees.

4.6. Project Closure Report

Once you have made your changes and completed your project it is important that you document what you achieved, lessons learnt and the final position (e.g. any outstanding milestones or issues). You can also note any planned future audits.

References

Royal College of Physicians (2014) *Learning to Make a Difference* http://www.rcplondon.ac.uk/projects/learning-make-difference-project-documents

Institute of Innovation and Improvement (2010) *The Handbook of Quality and Service Improvement Tools* *http://www.institute.nhs.uk/quality_and_service_improvement_tools/quality_and_service_improvement_tools/plan_do_study_act.html*

Part 3
Organisation, Resources and Contacts

Organisation

Service Line Clinical Audit Leads

Each Service Line/ department has a Service Line Clinical Audit Lead. For a list go to the Clinical Audit and Quality Improvement webpage. They are responsible for devising and coordinating the Service Line's audit programme, organising Service Line clinical audit meetings and acting as a resource for their colleagues. They are members of the Trust-wide Clinical Audit Group (CAG) which approves the annual Clinical Audit Programme. The CAG monitors implementation of audit action plans.

Clinical Audit Centre

The Clinical Audit Centre provides project management support for the annual clinical audit programme and some quality improvement projects and also runs a programme of training. Each Service Line/Specialty has a Clinical Audit and Improvement Facilitator (see Clinical Audit and Quality Improvement webpage). The Audit Centre maintains a database of audit and quality improvement activity in the hospital. Phone the Help Desk on Ext 2582 for advice.

Project Management Office (PMO)

The Project Management Office provides support for quality improvement projects, as well as productivity projects. Phone Ext 6360 for advice.

How to register a clinical audit or quality improvement project

- On the main page of the Intranet, click Departments and choose 'Clinical Audit and Quality Improvement'
- On the opening page, click 'Register an audit/QI project'
- Follow the instructions to complete the form and click Submit. If you require assistance with this phone Ext. 2582. You can print out a copy of the form if you wish.
- If you are requesting help with your project, you will be contacted within a working week of registration.

Project support

If you think you may need help with the project, you can indicate this on the project form.

Clinical audit projects - Your audit will be prioritised for support based on the information you supply, according to criteria agreed by the Clinical Audit Group. Full support is normally only available for the highest priority projects, but partial support may be offered and advice is always available. Projects for personal study (e.g. for a Master's degree) are not supported, and research and development projects will be referred to the R&D lead.

Quality improvement projects – QI projects requiring support will be referred to the Quality Improvement Working Group who will decide what support can be made available to you.

Annual Clinical Audit and Quality Improvement Prize and Seminar

A poster competition and Seminar takes place each summer. Everyone who has completed an audit or quality improvement project in the past year is encouraged to participate. Details are publicised widely via the intranet, global hospital e-mail and Service Line Clinical Audit Leads.

Resources

Clinical Audit and Quality Improvement webpage	Access via the Intranet – Departments Resources include: Staff listings List of Service Line Clinical Audit Leads Trust's Clinical Audit programme Listings of all completed audit Prioritisation criteria for support Training programme Report & presentation templates Advice on setting up a database QI tools (see Part 2) and also intranet page
Hospital policies and guidelines	Access on PIMS via the Intranet – Clinical Guidelines and Trust Policies
Stenhouse Library, Education Centre	Literature searches Training in the use of online databases

Health Quality and Improvement Partnership	National body for clinical audit; publishes guidance http://www.hqip.org.uk/
NICE	Produces evidence-based clinical guidance, quality standards and audit tools. www.nice.org.uk
NHS Improving Quality	Works to improve health outcomes by providing improvement and change expertise http://www.nhsiq.nhs.uk/
Sample size calculator	www.surveysystem.com/sscalc.htm.
Random number generator	www.randomizer.org.uk

Training

Details of our training programme can be found on the Clinical Audit and Quality Improvement webpage.

Contacts

Name	Job Title	Email	Phone
Miss Jane Wilson	Medical Director	Jane.wilson@kingstonhospital.nhs.uk	
Nicola Hunt	Director of Productivity	Nicola.hunt@kingstohospital.nhs.uk	
Dr. Jim Zwaal	Trust Audit Lead	Jim.zwaal@kingstonhospital.nhs.uk	
Tracey Fossaluzza	Programme Management Office Manager	Tracey.fossaluzza@kingstonhospital.nhs.uk	6360
Anne Jones	Head of Clinical Audit and Effectiveness	Anne.jones@kingstonhospital.nhs.uk	2872
Sam Eaton	CAIFs for Clinical Support Services	Sam.eaton@kingstonhospital.nhs.uk	3837
Lisa Whiteman		Lisa.whiteman@kingstonhospital.nhs.uk	2059
Kate Lyons	CAIFs for Specialist Services	Kate.lyons@kingstonhospital.nhs.uk	2984
Graham Milgrew		Graham.milgrew@kingstonhospital.nhs.uk	3303
Tasneem Hoosain	CAIFs for Emergency Services	Tasneem.hoosain@kingstonhospital.nhs.uk	2913
Alannah Hayes		Alannah.Hayes@kingstonhospital.nhs.uk	2912
Support staff and Help Desk			2582

Other useful contacts

Name	Job Title	Email	Phone
Shan Ellahi	Risk Manager	Shan.ellahi@kingstonhospital.nhs.uk	3531
Deepashree Patil	Risk Manager	Deepashree.Patil@kingstonhospital.nhs.uk	3518
Janice Sorrell McLeod	Information Governance Manager	Janice.sorrellmcleod@kingstonhospital.nhs.uk	2728
For queries regarding Research and Development contact: Graham Milgrew or Anne Jones or view R&D webpage			