

Recognising and responding to patient deterioration

A guide to preparing and implementing your recognition and response system

July 2017

About this guide

This guide is intended to help project leads and teams prepare for and implement a nationally consistent recognition and response system. It sets out the aim of the national patient deterioration programme, components to be implemented, available support and recommended activities during the preparation, implementation and sustain periods.

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Introduction

Patients deteriorate for many reasons. Failures to recognise, escalate and respond appropriately can cause preventable harm. To address this, hospitals are encouraged to establish a system for managing the care of patients who deteriorate in hospital. Recognition and response systems should include:

- a nationally standardised vital signs chart with New Zealand early warning score (or electronic equivalent)
- a localised escalation pathway
- effective clinical governance and leadership
- appropriate clinical and non-technical education and training
- ongoing measurement for improvement
- Kōrero mai (patient, family and whānau escalation) processes
- approaches to discussing and documenting shared goals of care.

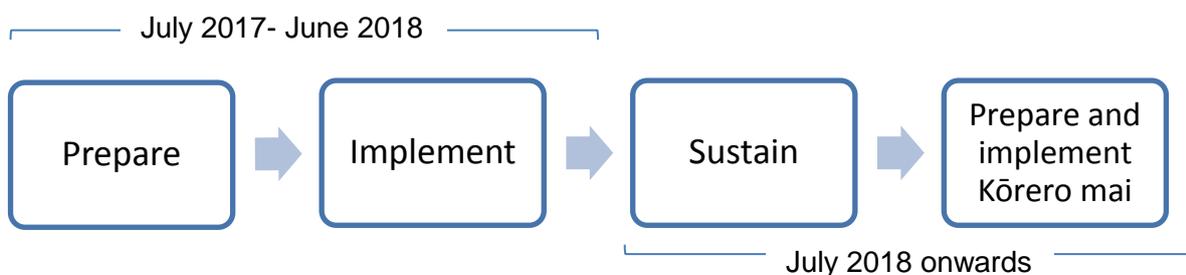
Over the next four years, the Commission will work with hospitals to establish and improve their recognition and response systems. The initial focus is on getting the clinical, local measurement and governance components of the system in place.

We are asking hospitals to prepare for and implement these improvements between July 2017 and June 2018.

We recognise that existing recognition and response systems vary. This will mean that different hospitals will need variable periods of time to prepare and implement system improvements and adopt the national vital signs chart.

After July 2018 the focus will change towards developing and embedding Kōrero Mai processes, and approaches to discussing and documenting shared goals of care.

Figure 1: Preparation and implementation timeline



Engaging with and involving clinical, operational and executive staff is critical to establishing successful and sustainable recognition and response systems.

Recognition and response systems are part of the broader organisational patient safety system and interact with many other organisational and hospital policies, programmes and processes. For example:

- programmes for improving hospital safety afterhours
- clinical orientation, training and education programmes
- audit, measurement and quality improvement processes
- policies outlining expectations for patient monitoring, clinical communication and documentation.

The case for change

Acute deterioration can happen at any point during a patient's admission to hospital. If acute deterioration is recognised early and responded to appropriately, patient outcomes can be improved.

Patients show signs and symptoms of physiological instability for some time before events such as cardiac arrest or unplanned admission to an intensive care unit (ICU). This means there are opportunities to intervene and prevent these events from occurring.¹

A patient in hospital whose clinical condition is acutely deteriorating needs timely recognition and appropriate expert care. Standardising recognition and response processes can reduce adverse events such as unexpected cardiac arrest, an unplanned admission to an ICU, or death.^{2,3,4,5} A recent Dutch study showed a nationwide recognition and response system reduced cardiac arrests in hospital by 40 percent and mortality by 20 percent.⁶

In New Zealand, there is currently variation in the:

- vital sign charts and early warning scores used
- skills and knowledge of responders
- availability of responders in hospitals
- governance and monitoring arrangements.

Patients, families and whānau often recognise subtle signs of patient deterioration even when vital signs are normal. Even when patients, family and whānau raise concerns, the response from clinicians can vary. Serious adverse events resulting in significant harm to patients have been reported where concerns raised by patients, families and whānau have not been responded to. Recognition and response systems can be improved by working with consumers to co-design processes for patients, families and whānau to communicate and escalate concerns when they recognise signs of acute deterioration.

Internationally, more than 20 percent of rapid response team reviews are associated with end of life decision making.⁷ This suggests that end-of-life decision making is often delayed until a crisis occurs. There are significant opportunities to work with patients to identify, discuss and document their care preferences and goals earlier in an episode of care in hospital. Earlier discussion and documentation of patients' goals of care will ensure that if acute deterioration occurs, the response is aligned with their wishes.

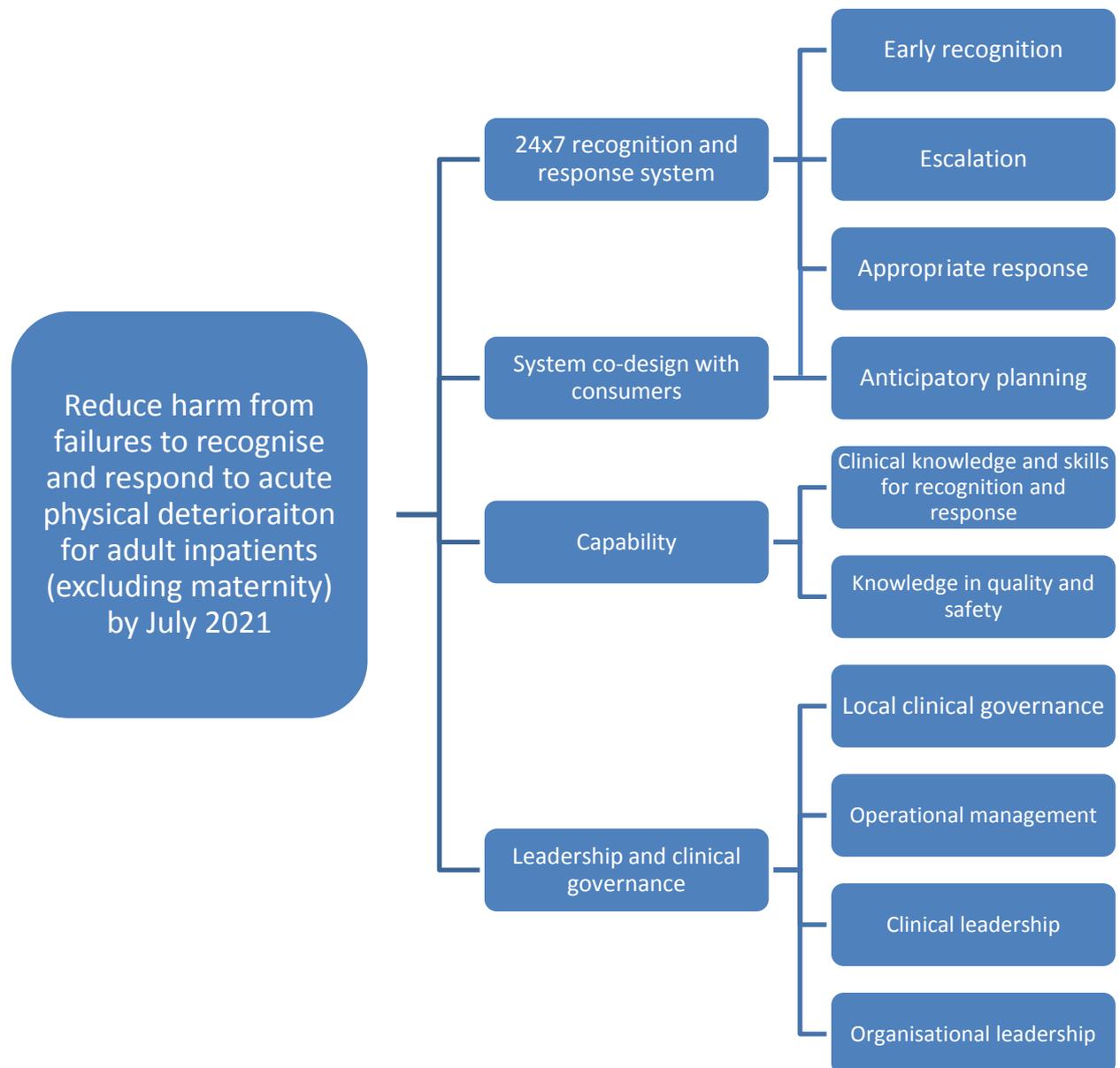
For more information, go to:

- [Deteriorating adult patient evidence summary](#)
- [The deteriorating adult patient – current practice and emerging themes](#)
- [Business case for investing in a quality improvement programme to reduce harm caused by clinical deterioration](#)
- [Summary of the recognition and response system](#)

Patient deterioration programme aim

The programme aims to reduce harm from failures to recognise and respond to acute physical deterioration for adult inpatients (excluding maternity) by July 2021.

Figure 2: Patient deterioration programme driver diagram



To find out more about the programme see the [programme charter](#)

Critical factors for successful implementation

We are asking all hospitals to have the following in place before they begin implementation:

- a project lead, clinical lead(s) and a multi-disciplinary project team that includes decision support and quality improvement assistance (where available)
- an agreed project charter that includes what will be implemented, the approach that will be taken, who will be involved, a data measurement and collection plan and strategies for engaging key stakeholder groups
- a clinical governance structure with clinical leaders accountable for ongoing oversight, sustaining and improving the recognition and response system
- a localised escalation pathway that has been agreed by the appropriate clinical governance group(s)
- training of staff on the new national vital signs chart with New Zealand early warning score and localised escalation pathway
- updated and agreed policies.

Hospitals that are using electronic vital signs systems like Patientrack, are asked to implement the New Zealand early warning score and ensure the national vital sign chart is available in case of electronic system interruptions.

Our work with six early implementation sites reinforced the importance of four factors for successful implementation:

Clinical engagement Improvements will have an impact on the way that clinicians recognise and respond to patient deterioration. Ensure that clinicians are aware of proposed changes, have the opportunity to share their concerns and be listened to. Use data and stories to overcome initial scepticism and disengagement. Bring discussions back to being about patient safety.

Clinical governance and leadership Recognition and response systems require a whole of hospital approach for sustained improvement. A clinical governance group is needed to ensure that the system is adequately supported and functioning successfully.

Having a strong and visible clinical lead will help with reaching agreements, resolving issues and raising awareness. Champions can provide help to staff in their clinical areas.

Measurement Measuring helps teams and clinical governance groups understand how successful the new system is being implemented and identify areas for quality improvement. Agreeing what will be measured, when and how it will be used is the first step.

Clinical and quality improvement capability Clinical governance groups need to ensure recognisers and responders have the right capabilities for managing acutely deteriorating patients. Building quality improvement capability within teams helps implementing improvements and understanding how to use the data collected.

These factors will be explored further during the regional learning sessions and have been incorporated into the preparation and implementation activities of this guide.

Tools, guidance and support for hospitals

Specific tools and guidance have been developed to help you prepare for and implement the clinical, local measurement, and governance components of the recognition and response system. These tools and guidance have been developed based on the experiences of early implementation sites that worked with us between November 2016 and June 2017.

Table 1: Recognition and response system components with supporting tools and guidance

System component	Supporting tools and guidance
Recognition National vital signs chart with New Zealand early warning score (or electronic equivalent)	<ul style="list-style-type: none"> • Master version of chart (writable pdf). • User guide. • Escalation mapping tool. • Escalation stickers for documentation
Response Localised escalation pathway	<ul style="list-style-type: none"> • Capabilities for recognising and responding to acute deterioration in hospital factsheet. • Rapid response call stickers for documentation. • Sepsis and patient deterioration factsheet. • Supplemental oxygen and patient deterioration factsheet.
Clinical governance Patient deterioration clinical governance group	<ul style="list-style-type: none"> • Clinical governance recommendations. • Patient deterioration example policy.
Education and training Clinical and non-technical education and training of recognisers and responders to patient deterioration.	<ul style="list-style-type: none"> • Capabilities for recognising and responding to acute deterioration in hospital factsheet. • Vital signs chart online learning module.
Measurement Agreed measures, collection processes, reporting to clinical governance and operational management and feedback mechanisms to wards and areas	<ul style="list-style-type: none"> • Measurement guidance. • Recognition and response audit tool. • Data collection tools for ward and whole of hospital use. • Case review tool.

Additional materials are available to support initial implementation including:

- a project charter template and stakeholder analysis sheet
- fact sheets on recognition and response systems for executives and senior clinicians
- infographic on recognition and response systems
- summary of the recognition and response system
- countdown to launch posters.

You can download these tools and guidance from the Commission's [website](#). See the *early implementation evaluation report* for more information on our work with these sites.

Support for sites

Our support to you will include:

- monthly regional teleconference calls
- initial regional learning sessions
- on-site visits as required
- regular emails to share learning
- downloadable tools and guidance to assist with preparation and implementation
- preparation and implementation advice
- quality improvement advice and assistance
- national clinical expertise and advice for clinical leads and teams
- national workshop in July 2018.

Dr Alex Psirides, an intensive care consultant at Capital & Coast DHB, is the clinical lead for the programme. He can provide clinical advice to clinical leads and teams and present at grand rounds or equivalent.

The following members of the national programme team and their email addresses are listed below:

- Jenny Hill, Specialist - Recognition and Response Systems – provides clinical advice and assistance (jennifer.hill@hqsc.govt.nz).
- Emma Forbes, Senior Project Manager – provides national coordination and management (emma.forbes@hqsc.govt.nz).
- Prem Kumar, Quality Improvement Advisor – provides quality improvement and measurement advice and assistance (prem.kumar@hqsc.govt.nz) .

Prepare for implementation

We've grouped activities under main preparation areas. You may already have made progress in these areas, review the activities to make sure you haven't missed something.

1 Plan what you will be doing and how you will do it

□ Establish the project team and executive sponsor (s)

Consider what skills, networks and knowledge are needed to complete the project such as:

- quality improvement
- data analysis
- organisational networking and strategic leadership
- project management
- clinical knowledge and leadership from both ward and responder perspectives.

Make sure the project team includes representatives from different staff groups (including decision support and quality) who are able to actively contribute to the project. Assign specific activities to team members to lead and contribute to. You may need to establish smaller working groups to tackle specific issues highlighted by this work. Consider how long the project team will be in place and how they can be supported.

Having an executive sponsor raises the profile of the project and communicates to other staff that the project is a priority for the organisation. Confirm with your executive sponsor(s) what dedicated time the team and other staff can commit to participate. Find out what other resources are available.

□ Agree project oversight and project progress reporting

Work with your executive sponsor to agree project oversight and reporting lines. There may already be a related committee or group that you can fit the project into (such as a patient safety or clinical practice committee). As the project progresses you will need to link project oversight to ongoing system clinical governance.

Reporting progress raises the profile of the work you are doing and keeps you focused on what needs to be done and when. It also allows you to raise risks, challenges and issues for assistance.

□ Align the project to your organisation's aim

Aligning the project to the organisation's aim, values and strategic plan helps you engage with senior members of the organisation. You can communicate how your project relates to and benefits the organisation.

□ Know your starting point

Your organisation may have components of the recognition and response system already established. Document what you currently have and what processes are working well or need improvement.

Find out what data is currently collected about patient deterioration, who uses it, where it is reported and what it is used for. This could include data from audits, national minimum data

set reports, complaints, adverse event reporting, intensive care data, transfers to other hospitals data and global trigger tool reviews.

Is the data telling you what you need to know about your system from a process, outcome and balancing perspective? For instance:

- What are your hospitals' inpatient cardiac arrest rates (per 1000 admissions) for the last six months?
- What are the rates of rapid response team calls (per 1000 admissions)?
- What is the rate of unplanned transfers to higher levels of care from ward environments (such as transfers to intensive care or to another hospital)?
- Is your current escalation pathway used as intended?

□ Agree what you are trying to accomplish

It's important to know what you want to accomplish. Use the programme's driver diagram as a starting point. With your team create a clear statement of your aim.

This helps with confirming the scope of your project. You may need to clarify the terms and definitions that you use so that there is a common language within your team and organisation.

□ Agree how you will know that you have been successful

Develop and agree how you will measure successful implementation with your team. Creating agreed outcome and process measures will also help you monitor implementation and track improvements in the system. There are some measures we want you to collect and report at various stages. Your organisation may want further measures collected to inform local evaluation and improvement.

Review the *measurement guidance*, *vital sign chart audit tool*, *case note review* and *audit data collection tools* and develop a data collection plan.

□ Confirm what, when and how you will be implementing

Get agreement on what you will be implementing, where and when. Set a realistic launch date. Build in time to prepare and to:

- engage with clinicians to develop your local escalation pathway
- provide training and education about using the system
- consider whether extra clinical training and education may be needed for responders to ensure they have the right capabilities for managing acutely deteriorating patients.

You may want to implement your system using a staged approach to roll-out. Once the interventions are implemented in a few clinical areas, use your learning to implement in other areas. Agree how you will manage the clinical risks of having more than one recognition and response system operating in your hospital(s).

Alternatively, you may want to implement across your whole hospital(s) at once. This may enable you to use organisation-wide communication tools and strategies to assist with implementation. However, it will require you to consider the resources and time needed to ensure clinicians using the new system are adequately trained and supported. Consider how this will be done, what you need to have in place, who will do it, and when you need to start preparing staff.

Consider having champions who can provide help to staff in their clinical areas during preparation and implementation, and support audit data collection.

We recommend using a quality improvement approach. This is described in Appendix A.

□ Build in sustainability

Consider at this planning stage how the changes you introduce will be sustained over time. Ongoing clinical leadership and governance structures for the system are critical, as project teams are generally short term, with a focus on initial implementation. Don't forget to consider how your champions will continue their roles.

We suggest using the *NHS Sustainability Models* to guide your planning. This will help identify areas where you need to focus for successful and sustained system improvement.

□ Know who you need to engage with to accomplish your goal

Engaging with staff and other stakeholders will be crucial to the success of the implementation. Below is a three-step process you can follow with your project team.

1. Identify who your stakeholders are:
 - What are the key clinical groups? Do you know how many in each group you have? Do you know how you can best access members of these different groups (i.e. are there key meetings where you can present and seek input into your work)?
 - What staff groups outside of the implementation areas will be affected? For example, radiologists, physiotherapists and other allied health staff should be aware of the system and how to escalate care. Nursing and medical educators, switchboard staff, orderlies and stock control staff may have a role in supporting implementation. Think about operational and senior management groups that you need to engage with.
 - Consider how you can engage patients, their families and whānau.
2. Assess how much influence these groups have on the success of the project and how much interest they have. Use the *stakeholder assessment template*.
3. Once you have assessed the groups, identify champions who can help you (high impact and high interest) and those groups you need to directly engage with to increase their level of interest and involvement (high impact and low interest).

□ Agree how you will engage with staff and other groups

Now that you've agreed who you need to engage with, work out how you will do this. Every member of the project team will have a part to play in this. Look at where there are existing staff meetings, networks, or communication pathways. Use a mixture of formal meeting presentations and informal discussions.

Consider how the messages should be framed to influence and engage staff. Think about who will be the right people to do the engagement. There may be groups where an enthusiastic peer or champion will need to speak with them. Direct peer-to-peer engagement is often required to effectively communicate your key messages. Ask your communications team to help you reach the wider staff group through the intranet or existing newsletters.

Engagement activities will be needed throughout preparation and implementation. The messages you give may change to reflect the progress you have made. Consider what data

(for example, audit data, case review findings, and outcome measures) should be reported to different groups and in different forums (for example, at medical grand rounds or ward meetings).

Use the *infographic*, *recognition and response systems summary* and the *chief executive and senior clinicians factsheets* to support your engagement work.

□ Document agreements

Bring all the agreements you have made into one document – the project charter. This will help guide the work that you do. Use the *project charter template* if you don't have one to use in your organisation.

2 Prepare for implementation of the recognition and response system

□ Establish clinical governance for your system

Review the *clinical governance recommendations*. Identify what you need to do to establish the ongoing clinical governance group for your recognition and response system – it could be incorporated into the terms of reference for an existing clinical governance group, or you may want to establish a new group. The clinical governance group membership needs to include people who can make decisions and take action to continually improve your system. Consider how clinical governance aligns with the operational management of the system.

Your recognition and response system should be part of the broader organisational patient safety system. The clinical governance group will need their reporting expectations and structures outlined in the terms of reference. This includes expectations for reporting data back to clinicians using the system, and up to groups with organisational oversight such as the clinical board, the executive team and the Board.

□ Agree your local escalation pathway by completing the mapping tool

Work through the *escalation mapping tool*. This helps you decide what level of response is required for each level of clinical abnormality represented by different early warning score ranges. If you have different types of hospitals, they may need different escalation pathways to reflect the time needed to transfer patients to a higher level of care. You may need to develop local variations to your escalation pathway if you are implementing the system in specialist areas such as post-anaesthetic recovery units or emergency departments.

Find multiple opportunities to discuss the proposed escalation pathway with different clinical groups so that they understand the implications for their work.

Once your clinical governance group(s) has agreed the escalation pathway, put it into the vital signs chart. See the *user guide* for instructions on how to do this.

□ Assess the challenges and opportunities for the recognition and response system

Changing the recognition and response system will have both challenges and opportunities. With the team, brainstorm what these could be. Think about how staff currently interact with the system and the team cultures and processes that underpin their actions. Identify what you will do to maximise the opportunities and address the challenges.

Use the list below to prompt exploring the challenges, opportunities and actions in your organisation:

- Patient
- Staff
- Environment
- Processes
- Tasks
- Time
- Team
- Communication and documentation
- Education and training
- Equipment and resources

□ Update your local policies

Do a stocktake of policies that relate to your recognition and response system. Review and update the policies to reflect the vital signs chart with New Zealand early warning score, modification rules and escalation pathway. Use the *sample policy* as a guide.

□ Do a stocktake of your existing vital signs chart stocks

Make sure there will be enough stocks of your current chart for use until you launch. Talk with the person who manages the printing to stop further production of your current chart. Find out when you need to have the new version of the chart to your printers so stocks will be ready for launch.

Agree the date and time when these new stocks will be made available to areas and old stock removed.

□ Communicate your project to the organisation

Share what you are doing with the wider organisation and create opportunities for staff to provide feedback. This will raise awareness, generate interest in the project and make it visible at all levels of the organisation. Consider having include items in internal communications and reports to the Board and senior level groups.

□ Engage with staff at every opportunity

You have identified how you want to engage with staff. Use these strategies to share key messages and take staff on the journey with you. As well as planned activities, other opportunities may present themselves. Listen to concerns, suggestions and what works well.

An early implementation site set up a dedicated pager for staff to ask questions and queries about the new system. Members of the project team were responsible for answering these. Another site put up poster boards for staff to provide feedback and anonymously ask questions. Feedback was collated and reported to the project team. Questions were then answered in ward meetings or incorporated into teaching sessions.

□ Train staff on the new system

We have developed an *online training module* for the vital signs chart with New Zealand early warning score. This includes specific information for nurses, and for doctors or other clinicians working in roles as responders. You will need to put this into your organisation's learning management system and agree how you will encourage and/or require staff to complete the learning.

Additionally, you may want to arrange ward-based training sessions for staff to attend. Early implementer sites reported that face-to-face teaching offered rewarding opportunities for discussion, feedback and for correcting any misconceptions about the system.

Decide who will provide the training and develop training materials. Ensure that your local escalation pathway is included. Consider providing communication (like ISBAR) and teamwork tools during this training. One of the project team's roles will be to collaborate with clinical educators and coordinators to find suitable venues, promote the training and make sure staff attend.

Review the *capabilities for recognising and responding to acute deterioration in hospital factsheet*. This will help you decide:

- which staff will need ongoing training and education to fulfil their roles as recognisers and/or responders
- how new staff will be oriented and trained (especially new or agency nurses and junior doctors)
- how existing staff will receive ongoing training and education about the recognition and response system.

3 Count-down to implementation

▣ Final countdown

Use the *countdown posters* to let staff know when the new system will be introduced. You could create posters or lanyards of your escalation pathway to act as reminders in key locations.

▣ Report progress to your executive sponsor and project oversight

Continue to give your regular progress updates to your executive sponsor and project oversight group.

▣ Engage with staff at every opportunity

Continue to engage with staff about the project and what you are doing.

▣ Communicate your project to the organisation

Continue to share what you are doing with the wider organisation. Make sure people are aware of your launch date. You may want to have a celebration to mark the occasion.

▣ Check staff are prepared

Meet with staff to make sure they are ready to begin and answer questions. Check that they have attended training. Make sure project team members are visible and can answer queries.

▣ Put new charts onto your agreed area(s)

Put new chart stocks onto your agreed area(s). Make sure older chart stocks have been removed.

Implement and sustain

We've identified some activities that you can incorporate into your implementation plan.

□ Monitor progress and make small steps of change

Make sure project team members are visible and available to troubleshoot, answer questions and provide support during the initial days and weeks of implementation.

Check in with areas regularly to see how they are going, answer queries, resolve issues and collect information. Work with area champions to provide help to staff in their area.

If staff have identified related change ideas to test through Plan-Do-Study-Act (PDSA) cycles, work with staff to make small steps of change until they and your team feel you are ready to spread the change idea further.

□ Measure for improvement

Use the measures and data collection processes you identified during the preparation period to monitor your progress towards achieving your aim(s). Use the *measurement guidance*, *audit tool*, *data collection tools* and *case review tool*.

We'd like to visit you four months into your implementation to go through your data with you and discuss how you can use the data for improvement. It will also be an opportunity for us to meet with your clinical governance group and project team and to present to a wider group of stakeholders about the national programme.

□ Report on progress to your executive sponsor and project oversight group

Continue to give regular progress updates to your executive sponsor and project oversight group.

□ Train new staff and provide ongoing training

Train staff in line with your decisions during the preparation stage. Our early implementer sites found that ongoing training was required during the first three months to aid implementation. Doing audits provided an opportunity for one-to-one training as well as deciding what additional training needed to be provided.

□ Participate in regional teleconferences

This is an opportunity for you to share your progress with other leads, project teams and the national team. This is the place to look at challenges and potential solutions. We'll send you the information on how to join and the agenda.

□ Celebrate achievements by the team and those implementing

Take the time to celebrate achievements and the efforts of team members and those in the implementing areas. Positive feedback and reinforcement combined with public recognition will help keep everyone motivated and focused.

□ Handover to those responsible for the ongoing sustainability of the system

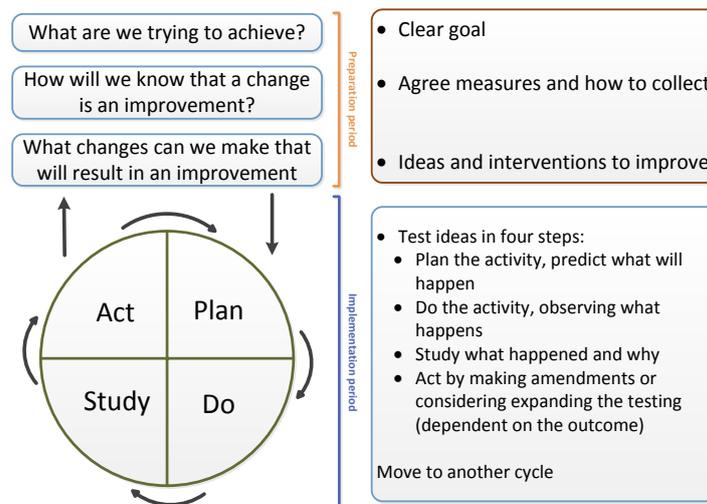
Meet with those who will be responsible for ongoing training, measurement and monitoring of the system. Ensure they are aware of their links with the clinical governance group.

Appendix A: Quality improvement approach

The Model for Improvement was developed by the Associates for Process Improvement (www.apiweb.org) and has been used in a number of quality improvements for healthcare organisations.

The Model for Improvement is a framework for structured improvement activity to help you achieve your goals and support the spread for wider adoption. It is based on three key questions used with small scale testing, improvement cycles that are often referred to as PDSA cycles. As part of your preparation period, you will address the three questions. During your implementation you can use the PDSA cycles to test out related change ideas.

Table 2: The Model for Improvement



Some tips⁹ for doing the PDSA cycles include:

- Expect the test not to work the first time.
- Starting with one patient and one team means that there is minimum delay to starting can be observed easily and the impact is minimal if it doesn't work.
- Spread slowly. Once it works for one, test with three and then five. This will help you to have resolved issues so that you have confidence.
- Work with the willing. Find a team that want the change to work – they will have the patience.
- Use simulation if you are concerned about the impact – this could be as a desk review and/or a walk through with colleagues.
- Assess whether testing will have an impact on people or processes beyond the area. Include them in the planning and studying stages of the cycle. We've recommended assessing the challenges and opportunities during the preparation period.

There are other improvement methods like Lean and Six Sigma. Use these if your organisation has a stated preference for one over another.

The regional learning sessions will go through the quality improvement method and tools. Prem Kumar will support sites to build capability throughout the year. Additionally nearly every district health board has quality improvement advisors that you can contact for support and guidance.

Appendix B: References

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