Patient deterioration programme: Recognising and responding together

Programme charter

Final version agreed: 26 September 2016

Contents

Purpose

This document sets out work by the Health Quality & Safety Commission on the patient deterioration programme. It identifies what our programme aims to achieve over five years and how it will do this. It will be supported by annual programme plans.

Context and background

Programmes focused on recognising and responding to patient deterioration can be found in countries such as England and Wales, the United States of America, Australia, Canada and the Netherlands. They range from nationally led programmes through to local implementation initiatives. Given the breadth of approaches, they provide valuable learning resources for the New Zealand health sector.

We first became aware of patient deterioration as a potential area of focus for New Zealand in 2012. It emerged as a strong sector priority when we sought feedback on future topics for the *Open for better care* campaign in mid-2014.

In May 2015, Sapere Research Group presented the Commission board with a business case that outlined significant patient and systems benefits. The report stated there was clear evidence that potential changes in practice would reduce harm and provide levers for system and culture change. The board approved a scoping and planning phase in 2015–16.

During 2015–16, we reviewed international evidence and engaged extensively with the health sector to identify current practice and emerging themes for managing patient deterioration. These activities, combined with expert advice from sector representatives, resulted in a proposal for a patient deterioration programme.

On 13 April 2016, the Commission board approved an investment of $2.5 million over a five-year period for a patient deterioration quality improvement programme.

Strategic alignment

The Commission's quality improvement programmes have two purposes:

- working with frontline health care staff to implement evidence-based interventions in areas where high levels of avoidable patient harm exist
- using these activities to partner with the sector to deliver the Commission's strategic workstreams – Partners in Care, leadership and capability, and measurement and evaluation.

The national patient deterioration programme contributes to the Commission's strategic priority three: Assisting the sector to effect change – delivering improvement programmes and supporting the sector and consumers as they strive for high quality, safe health care.

The programme supports achievement of Commission goals in the areas of:

- reducing patient harm and variation
- strengthening leadership and sector capability
- improving consumer engagement and participation in their care
- improving end of life care
- strengthening regional collaboration.

The programme also aligns with the New Zealand Health Strategy 2016, particularly in the areas of people powered, one team, smart system, value and high performance.

Problem statement

Deterioration can happen at any point in a patient's illness, but patients are especially vulnerable after surgery and during recovery from acute illness. Several studies indicate patients will show signs and symptoms of physiological instability for some time before a cardiac arrest or an unplanned admission to an intensive care unit (ICU).[1]

Patients deteriorate for many reasons. The problem is a failure to:

- recognise
- escalate care
- respond appropriately.

A patient whose clinical condition is deteriorating needs timely recognition and appropriate expert care. This has been shown to reduce adverse events such as unexpected cardiac arrest, death, an unplanned admission to an ICU or extended length of stay in ICU. However, across the country, variation occurs in:

- vital signs charts and early warning scores
- skills and knowledge of responders
- the availability of responders in hospitals.

Patients, families and whānau often recognise subtle signs of patient deterioration, even if vital signs are normal, but clinicians respond variably to these concerns. Events have been reported where concerns have not been responded to, with significant harm to patients.

Evidence suggests that, of patients who have been recognised as deteriorating, over 20 percent of rapid response team responses are unnecessary or unwanted treatment.[2] Rather than being resuscitated or admitted to ICU, these patients may have benefited from a goals of treatment conversation. This includes instructions to support patients and their families to allow patients to die naturally, if appropriate.

[1] Chen J, Ou L, Hillman KM, et al. 2014. Cardiopulmonary arrest and mortality trends, and their association with rapid response system expansion. *Medical Journal Australia* 201(3): 167–70.
[2] Psirides A, Hill J, Jones D. 2016. Rapid Response Team activation in New Zealand hospitals: A multicentre prospective observational study. *Anaesthesia & Intensive Care* 44(3) (in press).

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.

This will contribute towards the Commission's long-term strategic aims of improving health outcomes and variation, equity, consumer engagement and capability building in the health sector.

Goals

The programme goals are as follows.

- All district health board (DHB) hospitals implement recognition and response systems by July 2018 that have:
  - a nationally standardised vital signs chart with early warning scores
  - a localised escalation pathway
  - effective clinical governance and leadership
  - ongoing measurement for improvement.
- Patient, family and whānau escalation processes are included in recognition and response systems in all DHB hospitals by July 2019.
- Approaches to goals of treatment conversations are included in recognition and response systems in all DHB hospitals by July 2021.
- Increased capability in recognising and responding to patient deterioration, quality improvement and measurement has been implemented in all DHB hospitals by July 2021.

The programme's driver diagram is in Appendix 2.

Benefits

The establishment of a national approach to recognition and response systems with patient, family and whānau escalation and goals of treatment conversations will have expected benefits that include:

- reduced patient harm through consistent recognition and response to patient deterioration across the country
- improved communication between patients, family and whānau and clinicians
- contribution to reduced hospital length of stay and increased critical care capacity by reducing unplanned ICU admissions
- contribution to reduced loss of disability-adjusted life years
- improved knowledge about patient deterioration at national and local levels
- reduced unwanted or unwarranted treatments for patients unlikely to benefit from them
- effective clinical leadership and enhanced decision-making.

Scope

The programme will focus on acute physical deterioration of adult inpatients in the first instance, including mental health and emergency departments. Hospitals will be encouraged to think about wider applications for recognising and responding to patient deterioration, for example, maternity or paediatrics.

Maternity early warning scores will potentially be looked at by the maternal morbidity working group of the Commission's mortality review committees. The programmes will work closely to ensure alignment of approaches and messages to the sector.

The paediatric community has been working on paediatric early warning scores, but no national version has been formed as yet. The Accident Compensation Corporation has been funding the pilot of a newborn vital sign chart and early warning scores. The programme will link with this work to maintain communication and help with alignment of approaches, such as the vital sign chart look and feel.

Early sepsis identification and treatment will be incorporated in the development and implementation of the recognition and response system.

The work of the advance care planning collective has direct linkages with the proposed work on approaches to goals of treatment.

The expectation is that private hospitals will also use the tools and resources to implement recognition and response systems.

Approach

The programme has three intervention workstreams (see Table 1). Each workstream takes a common approach to implementation: engage on concept; develop and test; refine and implement; sustain. These are supported by measurement and evaluation workstreams.

The workstreams and total funding of $2.5 million will be phased in over the five-year period (2017–20). Workstreams two and three are likely to build on initiatives already taking place within the sector, so flexibility will be applied to their implementation.

Table 1: Phasing of programme workstreams

	2016–17				2017–18				2018–19				2019–20				2020–21			
Workstream	Q 1	Q 2	Q 3	Q 4	Q 1	Q 2	Q 3	Q 4	Q 1	Q 2	Q 3	Q 4	Q 1	Q 2	Q 3	Q 4	Q 1	Q 2	Q 3	Q 4
One: Recognition and response system	Develop and test				Refine and implement				Sustain											
Two: Patient, family and whānau escalation	Engage on concept				Develop and test		Refine and implement						Sustain							
Three: Goals of treatment					Engage on concept				Develop and test		Refine and implement						Sustain			
Four: Measurement	Develop		Refine and release		Develop		Refine and release		Develop		Refine and release Ongoing activities									
Five: Evaluation		Tender and plan			Evaluation activities linked to the workstreams above												Report and disseminate results			

Workstream one: Recognition and response system

We will work with the sector to develop a national approach to recognition and response systems that includes: a standardised vital signs chart with early warning scores, escalation pathway, early sepsis identification and treatment, and clinical governance. Two DHBs have moved towards electronic monitoring of patient vital signs and automatic escalation protocols. Both have indicated they will align with the national approach. We anticipate more DHBs will move towards electronic monitoring over the next five years.

A small group of early implementer DHBs will test the recognition and response system. Testing will use quality improvement principles and patient safety approaches, such as incorporating human factors, culture and behaviour change, and error prevention strategies. Training and other resources to support sector-wide implementation will be informed by the testing. Wider sector input will be sought as part of refining the interventions.

Following intervention testing and refinement, we will work with the DHBs that are willing and roll-out the interventions. The regional quality and patient safety groups will be part of the clinical governance and drive for this.

Workstream two: Patient, family and whānau escalation

Patients, families and whānau often recognise subtle signs of deterioration, even if vital signs are normal. We will work with the sector to develop processes for patients, their family and whānau to report deterioration and gain an appropriate response. These processes aim to contribute to culture change within the health system by enabling patients, their families and whānau to be partners in preventing deterioration. A working group will be formed to help develop, test and refine processes and/or interventions.

We will support a small group of DHBs to use the consumer co-design method to develop and test processes for incorporating patient, family and whānau escalation into the recognition and response system. Case studies will showcase their work. Hospitals will be

encouraged to adopt the most successful models using quality improvement principles and patient safety approaches.

Wider awareness-raising activities will be completed as part of the roll-out of this workstream, including the development of targeted communication resources.

Workstream three: Goals of treatment

Patients benefit from discussions to identify their care preferences and goals of treatment. These discussions help to reduce unwanted and unwarranted treatments from being delivered in the event of life-threatening deterioration. We will work with the sector to develop interventions that help with documenting goals of treatment specific to a patient's admission for acute illness. This will not supersede or depend on the existence of an advance care plan, because each goals of treatment conversation will be specific to the particular episode of care.

We will establish a working group to help develop, test and refine these interventions. A small number of DHBs will be brought together to work on testing different approaches and incorporate consumer co-design principles. This will require the DHBs to share their experiences and learn from each other. Following the testing, the tools will be refined and then other DHBs will be encouraged and supported to adopt them.

Workstream four: Measurement

In New South Wales, the 'Between the Flags' programme has reduced unexpected cardiac arrests by nearly 25 percent.[3] In the United States of America, 'Project Impact' found early identification and transfer to a critical care area from an emergency department reduces ICU length of stay and improves patient outcomes.[4] In the Netherlands, COMET found the introduction of rapid response systems reduced patient length of stay by 0.6 days within 2.5 years.[5] A conservative estimate shows that, in New Zealand, similar results would provide cost-effectiveness savings of $5.3 million over the same timeframe.

Standardising recognition and response systems in line with best evidence will reduce the risk of patient harm, cardiac arrests and unexpected admissions into ICU. It will also increase equity of access to specialised skills and support. All 20 DHBs have some form of vital signs chart and early warning score in place but these are not standardised nationally.[6] Improving timely response to clinical deterioration will reduce cardiac arrests, unplanned ICU admissions and ICU length of stay.

[3] Clinical Excellence Commission. 2013. *Between the flags interim evaluation report*. Sydney: Clinical Excellence Commission.
[4] Chalfin DB, Trzeciak S, Likourezos A, et al. 2007. Impact of delayed transfer of critically ill patients from the emergency department to the intensive care unit. *Critical Care Medicine* 35(6): 1477–83.
[5] Ludikhuize J, Dijkgraaf MGW, Smorenburg SM, et al. 2015. Cost and Outcomes of Medical Emergency Teams (COMET) Study: Design and rationale of a Dutch multi-centre study. *British Journal of Medicine and Medical Research* 3(1): 13–28.
[6] Psirides A, Hill J, Hurford S. 2012. A review of rapid response team activation parameters in New Zealand hospitals. *Resuscitation* 84(8):1040–4.

The introduction of a 24-hour, seven-day-a-week rapid response team corresponded with a 40 percent reduction in cardiac arrests at Wellington Hospital. Other models of rapid response have shown similar results.[7, 8]

In New Zealand, 16.7 percent of patients admitted to ICU were from hospital ward areas with an average length of stay of 1.2 days, costing the health system nearly $10.5 million.[9]

Evidence suggests 22.5 percent of rapid response team responses to clinical deterioration are unnecessary or unwanted treatment.[10]

A measurement framework for the programme will be developed during 2016/17. This will include organisational, process, output and outcome measures. Quality and safety markers will be reported nationally and local measures will support hospital quality improvement activities.

The measures will provide a basis for assessing the impact of the programme across several domains, including clinical outcomes, patient experience, financial, staffing and hospital systems.

Workstream five: Evaluation

An independent evaluation of this programme will be commissioned so that learnings are captured and used to inform future improvement programmes. The design will aim to answer both process and outcome questions about the programme and will be informed by advice from the expert advisory group.

The measures collected as part of the programme and the specific initiatives will help in the evaluation.

Engagement, governance and programme structure

Strong engagement with key stakeholders underpins these workstreams. Creating successful partnerships with the stakeholders and organisations that can influence behaviour and attitudes will be important. The regional quality and patient safety governance groups will help drive the programme and establish strong regional relationships to support sustainability.

An expert advisory group will inform the strategic direction of the programme and meet quarterly. The programme team will be supported with establishing the programme by an internal steering group. A specific evaluation steering group will also be established.

[25] Pirret M, Takerei S, Kazula L. 2015. The effectiveness of a patient at risk team comprised of predominantly ward experienced nurses: A before and after. *Intensive and Critical Care Nursing* 31(3): 133–40.
[8] Drower D, McKeany R, Jogia P, et al. 2013. Evaluating the impact of implementing an early warning score system on incidence of in-hospital cardiac arrest. *New Zealand Medical Journal* 126(1385): 26–34.
[9] ANZICS Centre for Outcome Resource and Evaluation Annual Report 2013/2014. URL: www.anzics.com.au/Downloads/ANZICS%20CORE%20Annual%20Report%202014.pdf (accessed 12 October 2016).
[10] Psirides A, Hill J, Jones D. 2016. Rapid Response Team activation in New Zealand hospitals: A multicentre prospective observational study. *Anaesthesia & Intensive Care* 44(3) (in press).

Table 2: Governance, advice and programme team responsibilities

Governance and advice: Main area of responsibility	
Programme establishment steering group	A short-term internal group that provides direction during the establishment of the programme.
Evaluation steering group	An internal group that provides direction to the evaluation workstream.
Expert advisory group	Provides clinical, quality, safety and consumer advice to inform the strategic direction of the programme. The group will have consumer, management and clinical representation. The terms of reference for the group are in Appendix 1.
Programme team member: Main area of responsibility	
Senior portfolio manager	Directs the programme, engages with the sector and internal stakeholders.
Clinical lead	Visible clinical leadership for the programme, engages with the sector and provides expertise.
Senior project manager	Manages the programme and its composite parts.
Specialist	Provides expertise on recognition and response systems, and clinical leadership, keeps up to date with international and local developments, and engages with the sector; initial focus is on workstream one.
Advisor – consumer engagement	Provides expertise on consumer engagement and co-design, engages with consumer networks and the sector; will have a specific focus on workstreams two and three.
Quality improvement advisor	Provides quality improvement expertise and training, support for team and implementers, and help on measurement.
Senior analyst	Provides analytical expertise on all workstreams, leads on developing the quality and safety markers and other measures, reviews evaluation provider work.

Programme constraints and main risks

The programme is focused on adult, hospital-level care, excluding maternity services. We recognise that the potential for making improvements to deteriorating patients is wider than the scope of the programme. Limiting the programme risks disengaging and reducing alignment with wider services. However, initially, it is important to limit the scope to a manageable size. We will mitigate these risks by keeping wider specialties up to date with programme developments, encouraging discussion, and aligning with related work being done in specialities such as maternity and paediatrics.

The environment and local context of hospitals will affect the willingness and ability of DHBs and private hospitals to participate and work towards a consistent national approach. The programme is designed to address this by creating a strong evidence and case for change, implementing with sector engagement at different levels and co-design with consumers.

Sustainability

The programme will run for a finite period. Sustainability beyond five years is being considered as part of the programme's establishment. The interventions developed for each workstream will be implemented in a way that ensures hospitals can sustain them in their business as usual practices.

The programme will use the NHS England sustainability model when implementing the workstreams within the sector. This looks at considering the following factors when making improvements.

- Process:
  - Benefits beyond helping patients.
  - Credibility of the benefits.
  - Adaptability of improved process.
  - Effectiveness of the system to monitor progress.
- Staff:
  - Staff involvement and training to sustain the process.
  - Staff behaviours toward sustaining the change.
  - Senior leadership engagement and support.
  - Clinical leadership engagement and support.
- Organisation:
  - Fit with the organisation's strategic aims and culture.
  - Infrastructure.

The programme will also establish strategic partnerships with key national and regional stakeholders to ensure sustainability. The role that regional quality and safety groups play in helping with this is crucial in sustaining clinical networks and capability.

Appendix 1: Terms of reference for the patient deterioration expert advisory group, August 2016

1. Purpose

The purpose of the patient deterioration expert advisory group (EAG) is to provide advice to the Commission and its other EAGs to improve the recognition and response to patient deterioration in New Zealand. This advice will inform and support all aspects of the patient deterioration programme and contributes to achieving the Commission's vision, namely:

New Zealand will have a sustainable, world-class, patient-centred health care and disability support system, which will attract and retain its workforce through its commitment to continually improve health quality, and deliver equitable and sustainable care.

The main purpose of this EAG is to:

a. proactively support effective **relationships** between the sector and the Commission
b. **provide advice** and make recommendations to the Commission on strategies to improve the quality and safety of health and disability services with a focus on patient deterioration that is informed by evidence and international, national and local knowledge
c. **share** information that supports a national approach to quality and safety improvements
d. **foster** an integrated approach to improving the quality and safety of health and disability services with other Commission programmes.

The EAG will provide advice on a patient deterioration work programme that includes the use of standardised recognition and response systems, better processes for patients, families and whānau to escalate concerns about patient deterioration, and tools to reduce harm from care not in line with patient wishes.

The EAG priorities are to:

a. support sector engagement and raise awareness of the programme
b. inform the development of the interventions within the programme
c. ensure the programme gives effect to the Commission's priorities: consumer partnerships, equity, building leadership and improvement capability, and measurement.

2. Governance

The EAG provides advice to the Commission through the patient deterioration programme team, which is part of the improvement programmes portfolio.

3. Membership

The EAG will comprise up to 15 members. The Chair will be appointed by the Commission.

The membership will comprise respected leaders who are experts in their respective fields and/or who are actively engaged in the community or group(s) they seek to represent. Membership will include, but not necessarily be all of or limited to, representatives of:

a. clinicians from secondary care settings, from across professional disciplines
b. people with expertise and experience in patient deterioration and quality improvement
c. consumers who can demonstrate their links to consumer groups and who will engage widely with other consumers of secondary-care services
d. additional members who may be co-opted to provide specialist advice as and when required
e. professional colleges and professional bodies
f. district health boards
g. private surgical hospitals.

4. Responsibilities

The EAG has an obligation to conduct its activities in an open and ethical manner. Members are expected to:

a. work strategically so the Commission's actions contribute to sustainable system improvement
b. work co-operatively, respecting the views of others with a focus on improving health outcomes and overall system performance as well as improving the experience for health care consumers, whānau and family
c. act, as a collective group, in the best interests of the Commission's quality and safety initiatives locally, regionally and nationally
d. be a point of liaison with the relevant regional groups and colleges
e. make every effort to attend all meetings and devote sufficient time to become familiar with the priorities of the group and the wider environment within which it operates
f. identify and declare any conflicts of interests and proactively manage any conflicts
g. refer requests for media comments to the Chair or the Commission's Chief Executive.

5. Meetings and decision-making

Recommendations to the Commission will be made at the EAG meetings and ratified through the Chair. Decisions will be made by consensus.

a. The EAG will meet a minimum of quarterly, by tele/videoconference or face to face.
b. A quorum will be a minimum of five members.
c. Where substantive decisions or recommendations are required, all members will be encouraged to contribute by email.

6. Secretariat

The Group will have a secretariat provided by the Commission. The responsibilities of the secretariat include:

a. preparing and distributing the agenda and associated papers at least five days before meetings
b. recording and circulating the minutes no later than a fortnight following the meeting date
c. managing the organisational arrangements for meetings, including flight bookings, the provision of rooms and audio-visual equipment
d. managing the membership appointment process.

7. Reporting and communication

Progress of the EAG will be reported quarterly via a report prepared by the secretariat with overview and approval by the Chair of the EAG.

Key messages from the EAG will be communicated via the Commission's communication networks and mechanisms such as website and newsletters.

8. Terms and conditions of appointment

Members will either be invited to join the EAG following a 'call for applicants' and/or requests for nominations from professional colleges and review by a selection panel. Terms of appointment are for a maximum of three years with the ability to reappoint for a further term.

Any member may at any time resign by advising the Chair in writing.

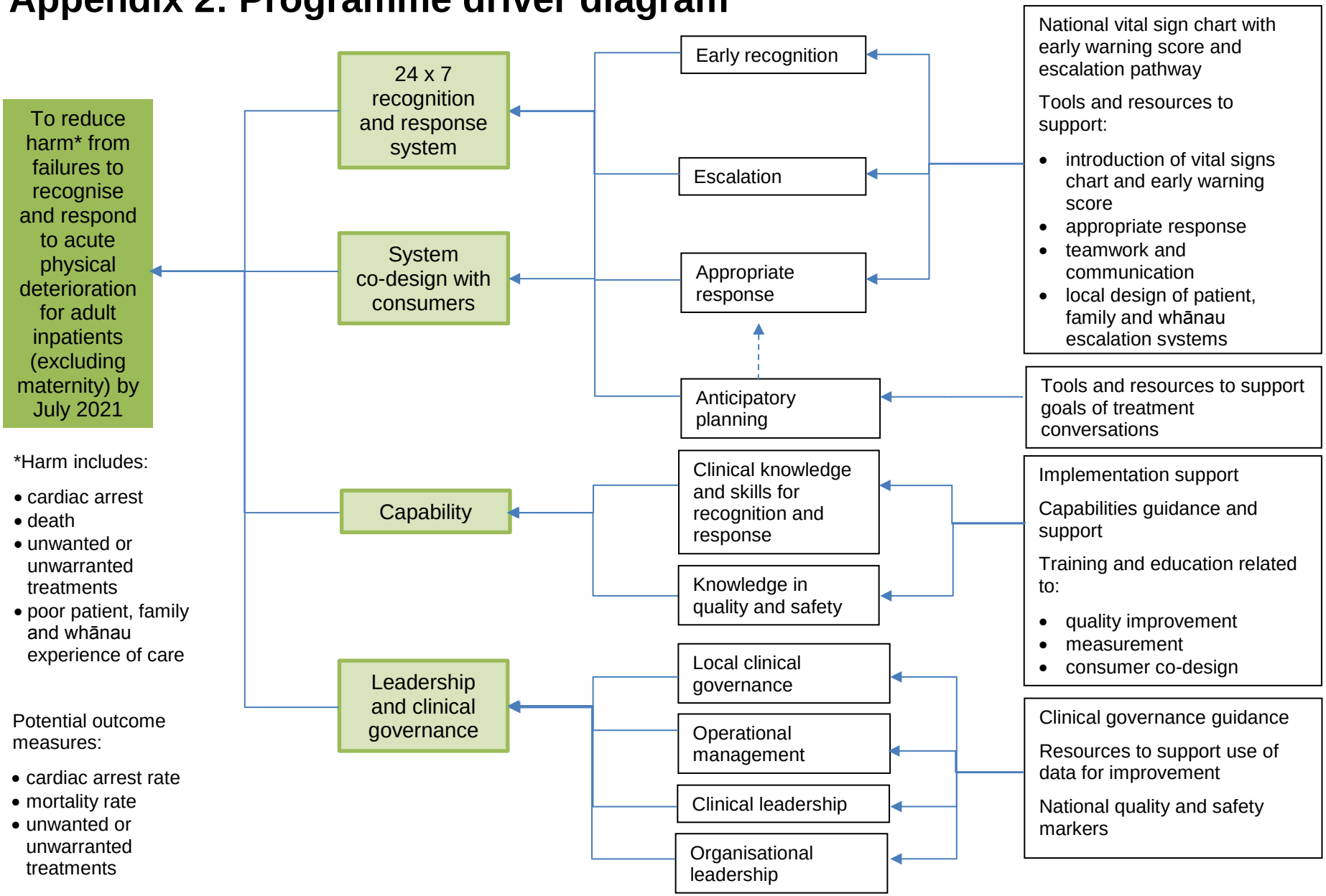
9. Fees

Members who are staff of a New Zealand public sector organisation, including public service departments, state-owned enterprises or Crown entities, are not permitted to claim a fee to attend the EAG meetings.

The Commission has a fees framework that applies to members who are not included in the above groupings.

The terms of reference for the EAG will be reviewed after two years.

Appendix 2: Programme driver diagram



*Harm includes:

- cardiac arrest
- death
- unwanted or unwarranted treatments
- poor patient, family and whānau experience of care

Potential outcome measures:

- cardiac arrest rate
- mortality rate
- unwanted or unwarranted treatments