



HEALTH QUALITY & SAFETY
COMMISSION NEW ZEALAND

Kupu Taurangi Hauora o Aotearoa

The deteriorating adult patient

Current practice and emerging themes

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Published in June 2016 by the Health Quality
& Safety Commission, PO Box 25496, Wellington 6146,
New Zealand

ISBN 978-0-908345-34-2 (online)

ISBN 978-0-908345-35-9 (print)

The document is available online on the Health Quality
& Safety Commission's website: www.hqsc.govt.nz

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Common abbreviations used in this paper

CCOT	Critical care outreach team
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DHB	District health board
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DNR	Do not resuscitate
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EAG	Expert advisory group
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ED	Emergency department
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EWS	Early warning score
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ICU	Intensive care unit
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MET	Medical emergency team
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PAR	Patient at risk service
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RRS	Rapid response system
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RRT	Rapid response team
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VSC	Vital signs chart
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In this paper, 'clinicians' includes medical, nursing and allied health professional staff.

Introduction

This paper provides a 'snapshot' of current practice in the recognition and management of the deteriorating adult inpatient in New Zealand. It also includes health sector views on emerging themes from international literature.

Our findings have been informed by:

- extensive interviews¹ and engagement with the health and disability sector
- an evaluation of contemporary international evidence on the deteriorating patient²
- the advice of the expert advisory group (EAG) established to guide this work
- engagement with Te Roopū Māori, the Health Quality & Safety Commission's (the Commission's) Māori Advisory Board
- feedback on a draft version of this document.

Sector feedback and international evidence helped shape the proposal for a national deteriorating adult patient programme.

The proposal was approved by the board of the Commission in April 2016. ●

1 The interview questions are in Appendix A.

2 The evidence summary is on the Commission website at <http://www.hqsc.govt.nz/our-programmes/other-topics/publications-and-resources/publication/2551>.

A national approach to adult patient deterioration

Ensuring patients who deteriorate receive appropriate and timely care is a key quality and safety challenge, which has been identified through the international literature and by the health sector in New Zealand.

The Commission has been exploring a potential national deteriorating adult patient³ programme since December 2014. There is significant support for a national approach from frontline clinicians, national professional groups and other health care professionals, based on feedback we have received.

Our most recent adverse events report⁴ discussed how opportunities to identify and manage patient deterioration are often missed.

According to New Zealand experts, a national approach would benefit numerous people, including patients who have potential for deterioration on presentation to emergency departments in smaller centres, especially those who may need to be transferred between hospitals.

A national approach would help all patients who deteriorate during hospital admission to receive comprehensive care regardless of geographical location, location within the hospital or time of day. ●

3 The scope of the proposed national programme is currently limited to adult patients, although we recognise there is potential value in rolling out the programme to other areas in future.

4 Available at www.hqsc.govt.nz/our-programmes/adverse-events/publications-and-resources/publication/2386.

Evidence summary – what the literature says

We analysed the international literature with the support of an EAG.⁵ Members are widely representative of the sector, and were chosen following an open call for applications in August 2015.

Six key themes emerged from the international literature, which we include in this paper in our discussion of current practice. These themes are helping us to shape the national programme. Our analysis of these themes allowed us to

understand current practice, develop an evidence summary and devise a format for sector interviews. The themes are:

- standardisation of the early warning score (EWS) and vital signs chart (VSC)
- guidance for rapid response teams (RRTs)
- governance of rapid response systems (RRS)
- patient and family/whānau escalation
- goals of treatment
- recognition of and response to sepsis. ●

⁵ For members, see Appendix C.

Sector interviews

We gathered sector feedback through a series of semi-structured telephone interviews.

Initial questions were based on the themes identified from the international literature, guidance from our EAG and thematic analysis of adverse events.

We interviewed two groups of people:

- Clinicians⁶ working with deteriorating patients within each New Zealand district health board (DHB). To date, almost every DHB is represented, covering rural, urban and tertiary centres across the country.
- Individuals working within intensive and critical care units, patient at risk (PAR) or critical care outreach teams (CCOTs), emergency care and general medicine.

We requested copies of any documents identified by interviewees and collated these for analysis.

A draft version of this paper was shared with the sector to facilitate further feedback.

Our engagement with national groups and organisations identified through interviews has started and is ongoing.⁷

Our key findings are discussed below.

Current use of the EWS and VSC in New Zealand

Most New Zealand DHBs use an EWS throughout their hospital(s), alongside a standardised VSC. But these differ across the DHBs.

DHBs reported several reasons for implementing EWS systems. These include an adverse event, or critical Health and Disability Commissioner report, and growing international evidence supporting RRS. This was accompanied by clinician concerns at a

local level that patient deterioration was not recognised, a failure to rescue in a timely manner and the increasing demand for intensive care unit (ICU) beds. Two clinicians said their EWS systems had been developed to support early identification of sepsis. Several medical specialists were unaware how their local EWS was chosen or validated and by whom (a few stated such systems predated their clinical appointment).

Many reported their EWS/VSC were developed and led by nursing teams with varying degrees of senior medical officer support.

The most common EWS/VSC in use (in five DHBs) is the system Capital & Coast DHB implemented⁸ after the Health and Disability Commissioner's ruling on 'patient A' in 2007.⁹ This EWS/VSC is based on the UK National Health Service's 'national early warning score' VSC,¹⁰ also used in another DHB and by some private providers.

Other VSC and EWS systems in New Zealand are based on examples adapted from Australian models, or have evolved over time within individual DHBs.

There is considerable variability in the vital signs scored, the scores assigned to different levels of physiological deterioration, the VSC design and the documentation of vital signs. This remains unchanged from the findings of a study conducted in October 2011.

Some clinicians felt their local escalation criteria were too sensitive, with the threshold for critical care involvement set too low. Others considered a low trigger for CCOT intervention a preventative measure.

6 Clinician may be a doctor, nurse or any allied health professional.

7 Participants to date are listed in Appendix B.

8 See the Wellington Hospital EWS and VSC online resource library <http://ews.wellingtonicu.com>.

9 See www.hdc.org.nz/media/14834/05hdc11908dnhb.pdf.

10 See <https://www.rcplondon.ac.uk/projects/outputs/national-early-warning-score-news>.

Clinicians in smaller or rural centres consistently said triggers for intervention may be different in their setting, though most described using an EWS developed by their tertiary referral centre.

In emergency departments (EDs), EWS systems are primarily used to facilitate safe transfer to ward areas in larger hospitals due to the relatively brief and acute nature of the patient's stay. In some smaller centres the EWS system is used to prompt a standardised response, to account for the variable concentration of skilled staff on site. ED clinicians would support a national VSC to support standardisation, noting the response arm may differ in the ED setting.

Most clinicians said they were waiting for national guidelines on the use of EWS/VSC. Many described their DHB as having developed EWS systems as a 'stop-gap' pending formal direction, which they described as a 'national EWS chart'.

Recognition of sepsis

Most New Zealand EDs reported they had developed a sepsis identification tool or bundle for recognition of sepsis at triage, with subsequent allocation of a high triage score as part of normal process.

Some departments reported they collected data on the recognition of sepsis, including markers reported in similar international quality improvement programmes, such as 'time to antibiotic administration' from presentation.

Clinicians supported the use of systems for the recognition of sepsis. They described this as one of several common conditions that may cause a patient to trigger a higher EWS and response. They agreed the EWS was the most important factor for identifying patients at risk of sepsis, alongside good clinical assessment and appropriate management.

Most clinicians said any national focus on sepsis should include support for junior staff in how to effectively manage sepsis as a time-critical process.

Suggested minimum criteria for EWS charts

Many clinicians said specialty services used 'add-ons' to core VSCs, including:

- specific neurological observations (eg, Glasgow Coma Score (GCS) documentation, focal neurology documentation)
- pain charts (patient controlled analgesia and epidural documentation)
- fluid balance charts (with some integrated into routine documentation of patient vital signs).

Most suggested a national chart should have a minimum vital sign set that included oxygen saturation, supplemental oxygen administration, respiratory rate, heart rate, blood pressure, temperature and AVPU¹¹ score. They also said early engagement with specialty teams in each DHB would be needed to ensure their needs were recognised and included in any proposed standardised documentation.

Several clinicians recommended any national programme be future-proofed to include emerging technology solutions, such as the electronic capture and recording of patient vital signs. Two New Zealand DHBs are already introducing such a system.¹² Telemedicine was reported as an emerging solution by several clinicians to support rural centres and improve timely patient flow.

Clinicians supported an approach that allows for standardised data collection and reporting so large data sets can be collated. This would allow for future testing of the sensitivity and specificity of any proposed standardised EWS as well as ensuring a national system is 'fit for purpose' in New Zealand.

11 Alert, voice, pain or unresponsive. This is a simple system by which health care professionals can assess a patient's level of consciousness. AVPU is a simplification of the GCS, which assesses a patient's best response within three domains: eye, voice and motor components (either spontaneously or to painful stimulus). The AVPU scale is simpler and as such shows less interoperator variability than the GCS.

12 One began in November 2015 and another will follow shortly.

Rapid response team (RRT) models

Where EWS systems recognise patient deterioration, RRS also provide a framework outlining a hospital's response to such individuals. Consultation shows that the composition and function of RRTs varies significantly both within and across DHBs, especially with regard to who responds to this high-risk group.

Most clinicians said they were trying to build workforce capability in this area, and organisational support for different response models varies.

Clinicians interviewed described variation in team composition and availability over certain times of the day/night and days of the week. In larger centres, most RRTs to significant deterioration are led from the ICU, mostly by nurses with specialist skills and senior medical support. In smaller centres, the RRT is usually led from the ED. Both centres report a predominant multidisciplinary response (of both nursing and medical staff).

The RRT models identified fell within three groups:

- Cardiac arrest teams – these respond to patients who have suffered a cardiorespiratory arrest. Team composition may vary and in smaller centres be limited to two or three staff.
- Critical care outreach teams (CCOT) or patient at risk (PAR) teams – these are nurse-only teams, often (but not exclusively) based within critical care or high dependency areas. Their roles may be limited to reviewing patients discharged to the ward from such areas, and supporting and educating ward staff. In some centres, they form part of the escalation pathway for deteriorating patients.
- Medical emergency teams (METs) – these are usually medically led although most are multidisciplinary. They may include doctors from either a critical care area, medical specialty (often general medicine or cardiology), or both. Typically (but not exclusively), teams may include a CCOT, ED or PAR nurse (if present).

Geographical context of response systems

Rural clinicians described several challenges in managing deteriorating patients that are unique to their environment. These included:

- reduced access to diagnostics (particularly computerised tomography and echocardiography, with some services either not on-site or only available during office hours)
- reduced on-site specialty services
- maintaining related or relevant skills due to infrequency of exposure
- suboptimal governance structures
- workforce constraints.

Clinical and operational leads in rural areas suggested that, although senior staff have the necessary skills, they rely on direction and support from metropolitan centres to manage complex patient deterioration. They said good collegial relationships and communication were essential in supporting them with the 'what to do', rather than the 'how to do it'.

There was support in some larger centres for formal governance to support smaller hospitals within a geographical area or sub-region. One group of three DHBs (consisting of a rural, moderate metropolitan and large tertiary centre) reported working as part of an informal critical care network to optimise capacity across their three sites. They reported a shared governance process that included the adoption of standardised EWS and VSC. This was felt to contribute to safer, timely inter-hospital transfers and improved patient flow. Such a system was felt to be beneficial to all three sites – the smaller rural centre had support for patients requiring more advanced critical care, and the tertiary centre could free up resources to meet their specialist elective surgical requirements with enhanced flow-back to the other two centres.

Patient deterioration and transfer

Most staff in non-metropolitan areas said early identification of deterioration was important in deciding when to transfer patients for specialty care. Clinicians agreed with international evidence supporting appropriate early transfer to a critical care area as a key factor in improving patient outcomes. Two hospitals have integrated a transfer trigger into their EWS to specifically identify and manage this subset of deteriorating patients.

Inter-hospital transfer processes vary significantly in the competencies and availability of appropriate staff and equipment. Several clinicians said guidance in this area is a key requirement of a national approach. Timeliness, from the recognition of deterioration to admission to a skilled critical care area, was felt to be of key importance. Clinicians stated delays over six hours negatively impacted patient outcomes.

Interviewees described considerable national variation in the process and quality of communication between tertiary/metropolitan and secondary or rural centres. Most clinicians agreed a national EWS that included standardised communication tools such as ISBAR¹³ would help to create a 'national language' when discussing patient deterioration. Good communication and collegial relationships were again described as key success factors in managing patient deterioration well.

Centres using telemedicine suggested this technology, combined with an effective detection and local response, is optimal. Clinicians repeatedly stated telemedicine allowed enhanced clinical assessment by tertiary centres, involved patients and families/whānau in the process, and, in many cases, prevented unnecessary (and often costly) inter-hospital transfers.

Most clinicians expressed concerns that national recommendations must include flexibility to meet local needs. They were concerned that organisational leads in larger centres lacked understanding of the challenges of identifying and managing patients outside their institution.

Roles, responsibilities and skills

The skill set of RRT members was described as variable and inconsistent. Skills were predominantly determined by professional role and availability. In rural areas, immediate responders were usually a nurse and/or junior doctor (usually a house surgeon), with a senior doctor on-call for support. This may be a resident ED senior medical officer during working hours, becoming non-resident (but available within 15 minutes' call-back) out-of-hours.

All DHBs have a cardiac arrest team with significant variability in composition. This ranged from an ED nurse and house surgeon in one centre to a six-person team (incorporating a cardiology, anaesthetic and ICU registrar) in another. In many centres the cardiac arrest team also functions as the RRT; in some this occurs only out-of-hours. In smaller centres both teams are ED led and can involve as few as two people.

Most large centres have a standalone MET or RRT as well as a cardiac arrest team, and it is usually multidisciplinary. Clinicians in smaller centres expressed concern that, similar to the experience of larger ICUs, this leaves the ED exposed to clinical risk as their staff are occupied elsewhere in the hospital, often for considerable lengths of time. Medical specialists suggested low- and middle-grade resource for deteriorating patients would benefit from review, especially out-of-hours and at weekends. This professional group provides a response to patients with moderate and lower EWS and the impact on ward team workload is not currently measured. All specialists said increasing complexity and comorbidity in the patient population has increased the burden on their time. They stated high workloads often negatively impact their ability to concurrently care for deteriorating patients, maintain patient flow and support for general ward patients.

Most clinicians expressed concern over the variation in their local service. Clinicians stated organisational support was essential, advocating for a 24/7 RRS as 'business as usual'. This would include education and training in the clinical skills required to respond to deterioration alongside technological resources. One DHB noted an important function of CCOTs is to provide 'coaching', while working alongside local staff caring for deteriorating patients. This DHB also recommended the use of clinical champions in every ward area to embed the EWS system.

13 ISBAR is an acronym for **I**dentify (yourself), **d**escribe the clinical situation, **p**rovide **b**ackground, **y**our **a**ssessment and your **r**ecommendation. It is a simple communication tool that has been shown to facilitate prompt and accurate handover of information between professionals, particularly during crisis.

The feedback suggests a national approach must acknowledge variability in local resources while standardising the skills required by members of response teams. Some clinicians described this as a 'national skills framework for rapid responders', suggesting it should include both technical and non-technical skills. There was widespread agreement that mandatory resuscitation training does not account for the complexity of skills responders need to adequately support deteriorating patients. The New Zealand Resuscitation Council (NZRC) said it is willing to work with the sector to address this gap.

Funding and resourcing response models

Clinicians acknowledge a whole-of-system response is required to recognise and respond to deteriorating patients. Current response models have many different forms. Early response to an increase in EWS typically involves the parent team. This can include the charge nurse, duty nurse manager, house surgeon, team registrar or consultant. Response can also be influenced by a patient's geographical location. Resource and training implications for all staff groups and the time of day must be considered in a national approach. This is important because a national RRS is part of, not a substitution for, the early response provided by junior clinicians.

This perspective is supported by the Internal Medicine Society of Australia and New Zealand. A representative suggested there are significant numbers of general inpatients who are not candidates for escalation of care to an ICU setting; but for whom better systems for recognition of deterioration and management on inpatient wards would enhance care and outcomes.

Several of the rapid response models described required investment in or reconfiguration of the nursing workforce. A number of (nursing) response arms reported funding was allocated when variations in mortality were identified within Health Roundtable data. This had led to increased service provision during identified 'at-risk' periods, namely out-of-hours and over the weekend.

Several larger centres reported concern over the impact of their increased RRT activity on medical staffing of their ICUs, and medical registrar workload. None had received additional funding to critical care areas to provide this additional service. One clinician expressed concern that an increased demand for inter-hospital transfers combined with increasing RRT calls (both requiring the presence of an ICU registrar, often simultaneously) had led to increased junior medical staff absence from the ICU for long periods of time. This was described as a safety concern for the critically ill within the unit and impacted upon the training of doctors due to a consequent reduced exposure to ICU patients.

One DHB reported using a nurse-led PAR service and nurse practitioner-led CCOT. They are supported by senior doctors across the DHB with functional support from ICU registrars. The introduction of the EWS system and response arm has resulted in a reduction in cardiac arrest rates.

The majority of clinicians (both doctors and nurses) said the expansion of scope and recognition of the value of advanced nursing practice was increasingly important. Clinicians supported advanced nursing roles in this area, suggesting they provide clinical support, expertise and value for money. Several clinicians said skills are retained better by more constant senior nursing staff than junior medical staff who change every 3–6 months.

Patient and family/whānau escalation

We asked clinical staff how patients or their families/whānau were currently able to escalate concerns they may have about clinical deterioration. Most said this was 'business as usual', usually done through the nursing team. One hospital is researching barriers to escalation for patients and families/whānau, which will help to inform the national programme.

There was a difference of opinion across professional groups about the value of patient and family/whānau escalation being part of a

national programme. Most nursing leads encouraged it as a response arm. Medical staff expressed concerns about the use of patient and family/whānau escalation, such as potential operational difficulties, lack of clarity around patient 'ownership' and some professional groups being more supportive than others. Some said such a system may contribute to 'burnout' of senior medical staff, as it may provide increased avenues for complaints about them.

Everyone agreed competent triage of calls would be essential for patient and family/whānau escalation to be successful. This required a skilled assessor available 24/7 to decide when to escalate and to whom.

Some clinicians in smaller centres said patient and family/whānau escalation may increase complexity and distress, as resident staff are likely to be those the family have already tried to escalate to, often unsuccessfully. Other clinicians from similar-sized centres suggested patient and family/whānau escalation may be easier, is already working (and therefore not formally required), or may not be as necessary to implement compared with larger centres. They suggested longer-term therapeutic relationships (more likely present between patients and their nursing and medical staff in smaller centres) enhance communication and benefit patients.

A frequently expressed concern regarded ownership of the response. There was a general consensus this should sit with the parent team. Some suggested quality managers would be best placed to respond (as they are usually tasked with dealing with patient complaints). Some CCOT nurses suggested this should be a two-tier activation process requiring an assessment first by someone else, before clinically relevant concerns are escalated to them. This was consistent with their view of them being supporters and facilitators, and not 'taking over' from the parent team.

Governance of RRS

Clinicians described diverse systems of governance, reflecting the variability in ownership of RRS across the sector.

Some clinicians suggested patient deterioration is part of clinical practice and, as such, events may not be reported well using current systems by parent teams.

Larger centres described governance of RRS within specific multidisciplinary groups, which often evolved from previously named 'resuscitation committees' that had overseen cardiac arrest processes within the hospital. Often these groups were ad hoc, with little institutional support.

One DHB, which launched an RRS 10 years ago, described a system-wide approach to patient deterioration. The approach was described as 'continually evolving, using a quality improvement, research-based approach and being continually refined as limitations were identified'. The centre identified organisational oversight and support at executive level as an essential component to the success of the approach.

Smaller centres described governance of patient deterioration taking place through ED morbidity and mortality meetings, with some linking into the wider DHB clinical quality system. Some clinicians were unable to comment on the quality markers used to assess the efficacy of their systems, either because they were unaware of them or because the markers were non-existent.

Feedback into wider organisational or national governance processes was described as variable. Many clinicians acknowledged that Severity Assessment Code (SAC) 1 and 2¹⁴ events relating to patient deterioration may not always be reported.

Some essential components of RRS governance were suggested, including:

- strong oversight and leadership
- multi-professional clinician input

14 For more information on SAC classification of adverse events, see www.hqsc.govt.nz/our-programmes/reportable-events/publications-and-resources/publication/636.

- a collaborative approach across networks
- robust feedback and after-action review or debrief mechanisms.

Clinicians who described a system they felt was 'good' also discussed the importance of senior managerial support for governance systems in this area. This was usually determined to be a key role for the executive team, and many suggested it should be led by the chief executive.

Data collection

Clinicians agreed systems could only be said to 'work well' when there was high-quality data collection and analysis, although they described wide variability in such practices. In the absence of a recommended minimum data set and standardised reporting, some DHBs collect minimal amounts of data.

Many clinicians thought their current system 'worked well' but did not collect data to support this assertion. Others said they felt RRS had changed the hospital culture, suggesting this is not easily measurable.

There were significant variations between the data medical leads thought should be collected and data actually collected. Several clinicians and some organisations suggested a national minimum data set should be agreed for RRS and collected by all DHBs.

Nursing leads collected both quality outcome and operational data in larger centres.

Only a single centre reported medical-led data collection, analysis and reporting.

Training and education

Training and education for response teams varies across the sector and includes:

- NZRC level 6 minimum
- NZRC level 7 for medical staff
- specific training courses such as the 'ALERT' deteriorating patient course
- DHB-developed courses (specific to local needs)
- simulation training (both in-situ and in simulation centres)

- critical thinking and assessment skills
- team training and training in non-technical skills
- EWS training during induction of new staff.

Only one centre described providing non-technical skills, team training and specific MET training for their ICU medical staff who attend calls.

There was universal agreement that a key development area was a national recommendation for a clinical skill set for response team members. Many clinicians stated this should include non-technical as well as technical skills, and be embedded in pre- and post-graduate education, as well as clinical credentialing.

Some organisations and many clinical leaders stated training should not be limited to the members of RRTs. This approach would recognise that every clinician has some exposure to clinical deterioration and these are essential skills. The NZRC is willing to work with the Commission to support this.

Goals of treatment

Clinicians were asked what systems, if any, existed within their DHBs to address the 'grey area' between full active treatment with curative intent and 'do not resuscitate' (DNR) orders.

Several clinicians and quality leads described recent implementation of 'treatment escalation plans' to address specific treatment modalities that should be discussed with patients alongside the appropriateness of their use and likelihood of success should they be implemented. Examples given included antibiotics for infection, intubation for respiratory failure and non-invasive ventilation. Most interviewees also said compliance with this documentation was very poor, and audits supplied by clinicians in two DHBs supported this view. Several contributory factors were identified, including time pressures, unclear lines of responsibility, level of confidence and lack of experience or knowledge of the staff expected to initiate these conversations with patients.

Many clinicians described a change in focus of treatment triggered by an RRT review. These commonly included treatment limitation, as further escalation was deemed inappropriate or futile. Several felt a national approach to goals of treatment would improve patient-focused care by not offering futile treatments, and increasing patient and family/whānau participation in decision-making. Several staff expressed moral distress about having witnessed or participated in treatment or resuscitation of patients for whom they believed this was inappropriate with no chance of success.

Clinicians described occasional unrealistic expectations of patients or their families/whānau. These increased in patients with low health literacy or chronic disease where there were often limited prior conversations in primary care or specialist outpatient clinics about likely disease courses. These situations were described as particularly challenging to support and manage.

Differing perceptions around the meaning of DNR forms, often among junior staff, were also highlighted. These included interpretations of DNR being a continuum from 'no observations or escalation at all' to 'everything except cardiopulmonary resuscitation (CPR)' (but this may also include 'limited defibrillation' or 'cardioversion').

Several clinicians described occasions where aggressive treatment was inappropriate but had been provided because there had been no prior discussion about patient expectations, and this conversation is extremely difficult to conduct during an acute deterioration. One DHB has attempted to address this by designing a patient leaflet about what happens in CPR.

Descriptions of goals of treatment versus advance care planning

Interviewees recognised that patients who may benefit from goals of treatment planning may be distinct from those for whom advance care planning may be beneficial.

'Advance care planning' was described by clinicians as a process by which patients are asked to discuss their wishes when they are not

acutely unwell and, mostly, resident in the community. This was viewed as a process that predominantly occurs in general practice and outpatient settings.

'Goals of treatment' was described as an alignment between the clinician's 'medical plan' and the expectations of the patient on acute admission to hospital. This definition was supported by our EAG, and was informed by the high prevalence of treatment limitation found to occur during or immediately after RRT review. This recognises advanced care planning inform goals of treatment planning but the two processes are otherwise separate.

In short, advance care planning is what the patient wishes to happen; goals of treatment matches that with appropriate treatment to achieve those goals acutely, informed by the clinician's assessment of likely outcomes. Many clinicians noted access to advance care plans needs to be made easier. They noted the information is of critical importance to consider in clinical decision-making about 'what matters in the end' for each patient.

Many clinicians identified that there has been a significant amount of national work done with regard to advance care planning. These clinicians suggested increasing the prevalence of advance care planning in the community setting will improve goals of treatment planning in hospital settings. Some clinicians suggested these two pathways should ideally interact.

Collaboration and a national approach

Most clinicians supported a national framework for collaboration, including expert recommendations for different levels of intervention. This was described as a collaborative approach that would support a national dialogue, maintain an ethical patient-centred focus for treatment escalation and facilitate early transfer if indicated. Early access to palliative care expertise when indicated was highlighted as the gold standard. Clinicians suggested standardisation in this area may overcome some of the challenges presented by a mobile medical workforce, locums and the

training needs these impose on each DHB. Any collaborative approach would require representation from all relevant professional groups.

The most contentious issue raised with regard to collaboration related to ownership of the process. Significant variability in ICU influence was reported. ICU clinicians said they were the 'limiting step' with regard to patient escalation. They recognised this may be in part due to them being the 'gatekeeper' to a limited resource and also more experienced with outcomes from certain interventions (eg, the chance of being successfully weaned from a ventilator). Some reported infrequent conversations with their ward-based colleagues regarding limitations on referred patients. Others stated this was a daily occurrence.

Clinicians agreed patients' goals of treatment are best met through quality conversations rather than multiple ones. Quality of communication and training of clinicians in 'difficult conversations' with patients and their families/whānau were identified as key focus areas. It was also recognised that mandating junior staff to have conversations around goals of treatment without adequate training may be potentially harmful for both patients and clinicians.

Conclusion

Interviewees described consistent similarities in many aspects of the recognition and management of deteriorating adult patients in New Zealand hospitals.

Conversely, they also described significant variability in responses to such events, which is largely determined by the availability of local resources. Such resources may vary with the time of day, or day of the week.

Many RRS are nurse led, with variable medical involvement around governance processes despite junior medical staff being involved in the response arm.

Some nursing models have received funding for additional resources; no medical responders reported having done so.

Several hospitals have adopted novel processes (such as treatment escalation plans) to improve the management of patient deterioration.

A consistent theme that emerged from smaller centres was seeking collegial support from their nearest tertiary hospital but also requesting an understanding of their unique (often resource-limited) situation.

Based on sector feedback, a national approach, specifically a national EWS and VSC, and guidance on governance and response teams that accounts for geographical differences would be supported by clinicians. This requires organisational support and regional approaches to system development.

Experts in clinical practice support an approach that works in partnership with patients and families/whānau experiencing deterioration in acute illness. Proposals from the sector for a national programme include a standardised approach to goals of care/treatment, recognising multi-professional input and enabling patients and families/whānau to escalate concerns about patient deterioration. ●

Appendix A: Interview template for the deteriorating adult patient

Introductory questions

1. Explanation of project (adult limitation – paediatric and maternity out of scope).
2. Can you tell me about your role in regards to patient deterioration/goals of care/amber?
3. Who are the key people to talk to in your organisation for this project?
4. Can you tell me about how you manage critically ill patients from an operational perspective? How does this fit within your sub-region?
5. How many hospitals is your DHB responsible for and who can we talk to in the smaller hospitals about how patient deterioration is managed?

Standardised EWS

Can you tell me about your current process for recognising patient deterioration in your DHB?

Probes

1. Do you have a standardised EWS across your DHB?
2. How did you choose your parameters for recognition and response – how have you communicated this?
3. Are there standardised VSC across organisation or do you have multiple charts?
4. Who owns/leads your EWS system?
5. Have you made changes to your EWS since implementation? Why?
6. Can you tell me about how this was implemented, any key lessons learnt from this? What were your problems/successes?
7. Do you have or are you currently looking at technological solutions to support detection?
8. How are you measuring success/what would you suggest would be key measurements for success?
9. What precipitated the introduction of your EWS? Is there a single critical case or multiple incidents/anecdotes?

Identification and response to patient deterioration

Can you tell me about your current process for responding to deteriorating patient?

1. Tell me about ownership of this process.
2. Tell me about the leadership of the response.
3. Do you have a MET team? What does this look like? What else are they responsible for?
4. Is this nurse/doctor led?
5. How long has this been in place?
6. How are you measuring success/what would you suggest would be key measurements for success?
7. If you don't have one how do you know your current process is working?
8. Tell me about your experience of implementation and lessons learnt – is there anything you would do the same or differently?
9. What initial and ongoing training have you implemented as part of the implementation?
10. Do you have any additional governance structures/policies around patient deterioration/MET teams and can we have copies?

Family/Patient-activated response

Probes

1. Do you have a system for family or patient activation for deterioration?
2. If YES how does this work? What have been your successes/pitfalls/problems? How have you overcome these?
3. How are you measuring or intending to measure this was a success?
4. If NO have you thought about this and why didn't you implement?
5. What are your thoughts about implementing this as a recognition arm?

Treatment escalation/Goals of care

May require explanation of how this relates to the project.

Can you tell me about your current process for determining goals of care for patients?

1. Do you have anything other than a DNR form in place for limiting treatment – if so what do you call it? If not what is your experience of current practice in your organisation?
2. If you do can you tell me how it works and please can I have it (policy and form)?
3. Who makes decisions about escalation of care/treatment limitation in your organisation?
4. What do you see as the ideal process?
5. How does this relate to deteriorating patients and do you have anything specific in place to reduce MET calls for end-of-life care?

What has been your experience of implementation and lessons learnt?

Identification and response to sepsis

Can you tell me about your current process for recognising and responding to sepsis?

Probes

1. Do you have a protocol/bundle? If so what does this look like and where is this implemented (ED/ward/whole DHB)?
2. Who owns this in your organisation?
3. Are/How are you measuring success of this implementation?
4. What has been your experience of implementation and lessons learnt?
5. If you are not measuring this how do you know it's working?
6. How are you currently measuring outcomes in relation to sepsis?

Wrap-up and member check

Our aim today was to discuss how your DHB is recognising and responding to patient deterioration. Do you think there is anything we have missed?

Do you know of any key influencers in your DHB? Who are they? Any key barriers you foresee?

Do you have any other hospitals in your network and who should we talk to? ●

Appendix B: Organisations, national groups and experts contacted

Auckland District Health Board
Australasian College for Emergency Medicine (New Zealand branch)
Bay of Plenty District Health Board
Dr Michael Buist
Canterbury District Health Board
Capital & Coast District Health Board
College of Emergency Nurses (New Zealand)
College of Intensive Care Medicine (New Zealand branch)
Counties Manukau Health
Hawke's Bay District Health Board
Hutt Valley District Health Board
Lakes District Health Board
MidCentral District Health Board
National Telemedicine Group
Nelson Marlborough District Health Board
New Zealand College of Critical Care Nurses
New Zealand Palliative Care Network
New Zealand Resuscitation Council
New Zealand Rural Hospitals Network
Northland District Health Board
South Canterbury District Health Board
Southern District Health Board
Tairāwhiti District Health Board
Taranaki District Health Board
University of Otago
Victoria University of Wellington
Waikato District Health Board
Wairarapa District Health Board
Waitemata District Health Board
West Coast District Health Board
Whanganui District Health Board ●

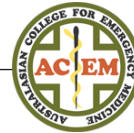
Appendix C: Deteriorating patient programme expert advisory group members

NAME	ROLE	ORGANISATION
Gabrielle Nicholson	Senior Portfolio Manager (Chair of EAG)	Commission
Dr Alex Psirides	Clinical Lead (and Intensivist at Capital & Coast DHB)	Commission
Martine Abel	Consumer	Consumer Network
Jo Wailling	Senior Advisor (and previously Charge Nurse Manager Acute Services at Wairarapa DHB)	Commission
Dr David Tripp	General Physician (and Intensivist)	Capital & Coast DHB
Carolyn Bennison	Nurse Educator - Emergency Continuum, HDU/AAU	Nelson Marlborough DHB
Dr Jane Hardcastle	Nurse Consultant	St George's Hospital
Dr Ulrike Buehner	HOD Intensive Care Unit and Consultant Anaesthetist	Lakes DHB
Dr Emma Merry	Intensivist and Medical Lead, Outreach and Goals of Treatment Project, Clinical Education Advisor	Hawke's Bay DHB
Colleen Hartley	Nurse Manager Critical Care Services	Waikato DHB
Prof Maureen (Mo) Coombs MBE	Professor in Clinical Nursing	Victoria University of Wellington and Capital & Coast DHB
Dr Seton Henderson	Clinical Director, Department of Intensive Care	Canterbury DHB
John Hewitt	Clinical Nurse Specialist, Project Clinical Lead, Quality and Patient Safety	Canterbury DHB
Charlotte Firth	Clinical Nurse Specialist	Waitemata DHB
Lesley Kazula	Clinical Resource Nurse	Counties Manukau Health
Kathy Glasgow	Senior Nursing Advisor, Office of Chief Nurse	Ministry of Health
Dr Will Perry	RACS General Surgery Trainee/Senior Registrar, General Surgery (previously at Bay of Plenty DHB) Also an external consultant to the Patient Safety Programme, World Health Organization, Geneva	Canterbury DHB

Appendix D: Formal responses from colleges and organisations

AUSTRALASIAN COLLEGE FOR EMERGENCY MEDICINE

34 Jeffcott Street, West Melbourne Victoria 3003, Australia | Tel 61 3 9320 0444 | Web www.acem.org.au
ABN 76 009 090 715 | Fax 61 3 9320 0400 | Email admin@acem.org.au



Submission to the Health Quality and Safety Commission: March 2016

THE DETERIORATING ADULT PATIENT: CURRENT PRACTICE AND EMERGING THEMES DRAFT DISCUSSION PAPER

The Australasian College for Emergency Medicine (ACEM) welcomes the opportunity to provide feedback on *The Deteriorating Adult Patient: current practice and emerging themes* draft discussion paper, proposed by the Health Quality and Safety Commission (HQSC) New Zealand.

ACEM is a not-for-profit organisation responsible for the training and ongoing education of emergency physicians, and for the advancement of professional standards in emergency medicine, in Australia and New Zealand. As the peak professional organisation for emergency medicine in Australasia, ACEM has a vital interest in ensuring the highest standards of emergency medical care are maintained for all patients across Australasia.

ACEM commends the HQSC on driving and facilitating the discussion of the potential for a national deteriorating adult patient programme, and considers this a vital component of improvements to patient safety and outcomes. ACEM notes, however, that throughout the discussion paper, the involvement of emergency department (ED) staff in medical emergency teams (MET) in smaller hospitals was noted. Due to this involvement, ACEM considers that future membership of an emergency physician or rural hospital specialist in the Deteriorating Patient Programme Expert Advisory Group would be beneficial.

ACEM's feedback on the draft discussion paper predominantly relates to the theme concerning the standardisation of the early warning score (EWS) system, and Advance Care Planning.

The EWS system is well developed in predicting the deterioration of hospital in-patients, and is well utilised throughout New Zealand. In particular, it is an essential tool that can be beneficial for junior nursing staff. However, ACEM notes that this system does not always identify concerns regarding deterioration early, and that experienced staff, who are caring for a patient may have a greater capacity to rapidly identify symptoms in the unwell patient prior to an EWS criteria.

ACEM therefore considers that, in standardising the EWS throughout New Zealand, it would be necessary to include a clause in which staff could identify their concerns about a patient, so as to ensure that the medical team could be contacted despite the patient not having met a predetermined EWS.

Furthermore, ACEM suggests that, in the discussion regarding a national approach to managing patient deterioration, the role of Advance Care Planning should be included. ACEM notes that there is a need to increase discussion of Advance Care Planning *overall* in New Zealand as there is currently a low uptake of this practice.¹

An Advance Care Plan (ACP) or Advance Care Directive (ACD) can ensure that there is a clear and common understanding of the goals of care for patients approaching the end of life, assist in providing the patient with autonomy, but also in avoiding potential miscommunication between medical practitioners, carers, palliative care workers and family members. ACEM notes that this is particularly applicable in regards to nursing home residents and those with severe chronic conditions, such as end stage chronic obstructive pulmonary disease (COPD) or Constructive Heart Failure (CHF).

In the context of patient deterioration, ACEM considers that Advance Care Planning could potentially assist in preventing the difficulties that are often experienced by clinicians who are required to treat a terminally ill and deteriorating patient, when end of life care wishes have not been discussed or documented. Furthermore, ACEM also considers that a process of reporting such incidences as serious events could also be introduced, so as to promote change in the practices of inpatient teams when calculating the EWS, and encourage an increased uptake of ACPs or ACDs.

Thank you for the opportunity to provide feedback to the HQSC New Zealand. If you require any clarification or further information, please do not hesitate to contact the ACEM Policy and Advocacy Manager Fatima Mehmedbegovic (03) 9320 0444 or fatima.mehmedbegovic@acem.org.au

Yours sincerely,



DR JOHN BONNING
NEW ZEALAND FACULTY CHAIR



ASSOCIATE PROFESSOR ANTHONY LAWLER
PRESIDENT



April 28, 2016

Ms Jo Wailling
Senior Advisor
Health Quality and Safety Commission
PO Box 25496
Wellington 6146

By email: Jo.Wailling@hqsc.govt.nz

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Dear Ms Wailling

Re: HQSC draft report on the deteriorating adult patient: current practice and emerging themes

Thank you for the opportunity to provide feedback on the above report. As you may know, the Australian and New Zealand College of Anaesthetists (ANZCA) is responsible for the training and examination of anaesthetists and pain medicine specialists, and for the standards of clinical practice in New Zealand and Australia. ANZCA's mission is to serve the community by fostering safety and high quality care in anaesthesia, perioperative medicine and pain medicine. Members of the New Zealand National Committee (NZNC) of ANZCA have reviewed the Health Quality and Safety Commission's draft report, and make the following comments.

The NZNC commends the HQSC for undertaking a project looking at the possibility of establishing a consistent, national approach to reducing patient harm in the management of the deteriorating adult patient. This project is likely to have significant value, especially for smaller hospitals. Overall, the NZNC considers the report is an appropriate summary of how deteriorating adult inpatients are currently managed across New Zealand, and has no further feedback to add at this stage of the project.

The NZNC would like to request that ANZCA is kept informed of the next phase of the project about establishing standards for intervention, and will be particularly interested in providing feedback on the strategies and systems HQSC suggests. Anaesthetists will be a useful resource in any management pathways, as resuscitation skills are a clinical fundamental of anaesthesia training, and particularly in smaller hospitals, anaesthetists are often relied on as a resuscitation resource.

In terms of the next steps of the project, the NZNC supports the HQSC taking the lead on developing a national early warning system, and considers it important to:

- encourage use of a standardised system
- audit the system's efficacy including patient outcomes and what actions are triggered by the system
- establish clear communication pathways that should be triggered among anaesthesia and intensive care teams, and others as appropriate.

We look forward to discussing this with you further when the next phase of the project commences.



Thank you once again for the opportunity to comment. If you have any questions, or to keep ANZCA informed about the next phase of the project, please contact Virginia Lintott (Senior Policy Adviser) in the first instance at policy@anzca.org.nz or on 04 495 9790.

Yours sincerely

A handwritten signature in black ink, appearing to read 'G. Hopgood'.

Dr Gary Hopgood
Chair, NZ National Committee

**New Zealand College of Critical Care Nurses NZNO**

Sarah Walker
Chairperson
ICU Level 4 Meade Clinical Centre
Waikato Hospital, Pembroke Street
Private Bag 3200, Hamilton 3240
Sarah.walker@waikatodhb.health.nz

Jo Wailing
Senior Advisor –Deteriorating Patient Programme
Health Quality & Safety Commission
PO Box 25496
Wellington 6146.

24th May 2016

Re: The deteriorating adult patients: Current practice and emerging themes

Thank you for the opportunity to comment on the draft “The deteriorating adult patients: Current practice and emerging themes.” We congratulate you on the comprehensiveness of the document. We have the following comments:

- We support a national approach to identifying and responding to the deteriorating patient.
- We support a national early warning score (EWS) and vital sign chart. A standardised evidence-based national early warning score and vital sign chart will improve the recognition of the deteriorating patient and will ensure consistency and a common language between healthcare providers regardless of geographical location. We believe the minimum vital sign set should include oxygen saturation, supplemental oxygen administration, respiratory rate, heart rate, blood pressure, temperature and AVPU score. However we view urine output as an important part of assessing kidney function and adequate mean arterial pressures for individual patients hence would like to see this added. We agree that the EWS should be sensitive enough to identify early sepsis.
- We believe if electronic vital sign systems are introduced they should reflect the national early warning score and vital sign chart.
- We agree national guidance for response teams that also reflect the needs of smaller centres is essential. Smaller centres require good support from, and communication with, metropolitan centres to enable appropriate clinical advice and, if necessary, timely inter-hospital transfer. To enhance this, the national use of a standardised communication tool, such as ISBAR, is supported. An appropriate response to the deteriorating patient should be available 24/7.
- We support nurses having key roles in response teams, including nurse-led teams, and support the implementation of advanced nursing practice roles.
- We agree national guidelines for response teams should include the required competencies and diagnostic skill levels of team members. Registered nurses in response teams require the minimum of the NZRC level 6 (or equivalent), whilst

**New Zealand College of Critical Care Nurses NZNO**

Sarah Walker
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nurse practitioners in these teams required the NZRC level 7 (or equivalent) as is the case for medical staff. Team members need added training in critical thinking, clinical assessment skills, nontechnical skills and undertaking difficult conversations.

- Whilst the ideal place for advanced care planning is in the community setting, we support the use of goals of treatment within the acute setting. Although this is a new concept to many units in New Zealand this would enhance a more focused approach to meeting the needs of individual patients.
- We believe a national resuscitation form is essential as it will ensure consistency and a common language between healthcare providers regardless of geographical location.
- We agree that there is a place for patient and family/whanau escalation. Literature on this type of escalation demonstrates patient and family concerns are mostly warranted; this means this escalation should be directed to an appropriate trained response team. Escalating physiological deterioration to a quality manager, which has been suggested in the document, would not guarantee a timely and appropriate response.
- We believe that senior managerial support is essential for successful implementation and development of rapid response systems. This ensures appropriately staff are available to provide the necessary leadership of these teams and a collaborative interdisciplinary approach. Data collection is a necessary to monitor the effectiveness of the service and initiate any improvements required.

We wish you all the best in taking this project further.

Yours sincerely

Lesley Kazula

(for the New Zealand Critical Care Outreach Nurses)

A handwritten signature in blue ink, appearing to read 'Alison Pirret', is written in a cursive style.

Alison Pirret
On behalf of the NZCCCN
National committee



College of Intensive Care Medicine
of Australia and New Zealand

ABN 16134292103

28th April 2016

Ms Jo Wailling
Senior Advisor
Health Quality and Safety Commission, New Zealand
PO Box 25496
Wellington 6146
New Zealand

Dear Dr Psirides and Ms Wailling,

Re: **Scoping and Planning for a Potential Quality Improvement Program to Reduce Harm Caused by Clinical Deterioration**

I write regarding your letter seeking comment on the report prepared by the expert advisory group on a quality improvement program to reduce harm from clinical deterioration. I would like to thank you for inviting the College to be involved in this project.

Members of the College's New Zealand National Committee have reviewed the draft report on behalf of the College and provided the following preliminary comments:

- a) The introduction specifies "reducing patient harm" as one of the main objectives (without any specific quality improvement goals). Whilst this might be true, perhaps a positive focus such as "improving patient outcomes" may be more appropriate.
- b) It would be worthwhile discussing how DHBs might be encouraged to engage in the process (i.e. as opposed to clinicians). Requiring DHBs to have KPIs, MET or sepsis protocols may be an option as that will help achieve the positive outcomes.

Thank you for this opportunity to provide feedback, and I look forward to future involvement on this project.

Yours sincerely,

Ross Freebairn
Censor and Board Member, CICM



27 May 2016

Jo Wailling
Senior Advisor
Health Safety and Quality Commission
PO Box 25496
Wellington 6146

Dear Jo

RE: Health Quality and Safety Commission initiative on the deteriorating patient

The New Zealand Nurses Organisation (NZNO) was pleased to be part of the consultation process of the recent Health Quality and Safety Commission (HQSC) initiative on the deteriorating patient. NZNO welcomes the project and looks forward to continuing participation as the work proceeds.

NZNO professional staff, and two of its colleges were involved in the consultation process (the College of Emergency Nurses New Zealand and the Critical Care Nurses College). The project was fully supported by both colleges. It is pleasing to see the vital role of nurses considered and included in this work. NZNO believes the Commission's work provides a significant opportunity for nurses to lead the national implementation of a quality programme to improve the care of the deteriorating patient and for nurses to lead their ongoing management in District Health Boards.

The work emphasises the need to empower nurses as part of the wider team and emphasises the need for cross-team communication.

NZNO expects the Commission to draw on nursing expertise to shape and lead the implementation of this programme and to ensure all health professionals know what actions to take for the deteriorating patient. NZNO looks forward to its ongoing participation.

Yours sincerely

A handwritten signature in black ink, appearing to read 'Jane MacGeorge', written over a light blue horizontal line.

Jane MacGeorge
Manager Nursing and Professional Services

National Office

Level 3, Willbank Court, 57 Willis Street, Wellington 6011, PO Box 2128, Wellington 6140. Phone (04) 499 9533, Fax (04) 382 9993, Website www.nzno.org.nz

