

Safety of Patients in New Zealand Hospitals: A Progress Report

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Potential Conflicts of Interest:

- I currently work as the Clinical Director of the Quality Improvement Unit at Counties-Manukau DHB. I am the Clinical Director of the Patient Safety Campaign, which includes the introduction of an Early Warning Score.
- I have worked as Resident Medical Officer at:
 - Wellington Hospital
 - Auckland Hospital
 - Waitemata Hospital
 - Green Lane Hospital
 - Middlemore Hospital and
 - Tauranga Hospital
- I trained in Dunedin Hospital
- I have worked as an SMO at Middlemore Hospital
- I am a member of the Quality Improvement Committee
- I was an expert reviewer for the HDC case in question.

The views expressed in this report are my own.

Caveats:

I have reviewed the responses that each DHB has provided. I have taken these on face value and have not attempted to relate these responses to what staff at the DHBs may think of the performance of their DHB. There may be a difference between what upper/middle management see as the main problems and what front-line staff would see as issues. I have also taken as read that when a DHB says that it is putting in programmes of care that these actually have taken place, which may not always be the case.

I have not had the opportunity to go back to each DHB to check that my interpretation of what is written is correct. In one or two instances the responses were difficult to understand, and it may be that this has coloured my view of progress at that DHB.

The DHBs were asked to say what safeguards they were putting in place to prevent a similar case occurring at their DHB. They therefore concentrated on the systems failures in the case and have not commented on problems that did not occur in the case. For example, medication safety is a problem in most DHBs, but because it was not an identifiable problem in Mr A's care, no DHB has discussed its efforts to reduce medication errors and adverse drug events. This report does not therefore cover all current quality and safety issues in the New Zealand health service.

Case of Mr A, Wellington Hospital (05HDC11908)

Mr A was brought to Wellington Hospital by ambulance on the 23rd of September 2004 (a Thursday). He had seen his GP the day before complaining of shortness of breath and cold symptoms for five days. His cough was productive of clear phlegm and his GP diagnosed an exacerbation of asthma — apparently Mr A obtained good symptomatic relief with a Ventolin nebuliser at the surgery. He was prescribed bronchodilator inhalers and oral prednisone. Mr A's condition was worse the next morning. He contacted his general practice, who called an ambulance for him. The ambulance sheet notes that Mr A was tachycardic and in respiratory distress with rapid wheezy breathing, able to speak only 6–7 words. His phlegm was noted to be green.

Mr A was a lifelong heavy smoker but had developed difficulty breathing only in the last several years; there was no history of childhood asthma and no other admissions with asthma.

The ambulance reached Wellington hospital at 12:21 hours. The first observations were taken at 12:32 when he had a temperature of 37.8°C. His observations were repeated at 13:02 hours and showed a persistent temperature, tachycardia of 125 beats/minute, tachypnoea with a respiratory rate of 28 and his blood pressure was normal at 138/92. His oxygen saturations were 98% on 5L of oxygen.

The admitting doctor noted that he could only get a limited history due to Mr A's shortness of breath, but he again noted deterioration over a week. Mr A was given four Ventolin nebulisers — the first at 13:00 hours. He was also started on hydrocortisone intravenously. The clinical notes refer to “long-standing” asthma but this is disputed by family members, who note late onset breathing problems.

The doctor documented that his impression was that Mr A had an infective exacerbation of asthma/CORD (Chronic Obstructive Respiratory Disease) and the plan was for maximal asthma therapy, a Chest X-ray (CXR), Electrocardiograph (ECG) and referral to the medical team.

Mr A had a CXR at 13:27 hours ordered by the emergency care doctor, who had entered the clinical details on the requesting form as “*infective exacerbation of CORD, ? Pneumonia*”. The radiology technician noted at the time of the examination that “*I was unwilling to stand the patient up for a 2nd PA (posterior-anterior) — very unsteady and very unwell.*”

Having previously reviewed Mr A at approximately 2pm, the medical registrar assessed Mr A a second time at 16:36 hours. The registrar obtained a history of Mr A being unwell for only 3–4 days and a cough productive of yellow phlegm. The registrar also noted Mr A's bipolar disease with a recent flare of his mania 7–10 days prior, for which he had been started on risperidone in addition to lithium.

The registrar's impression was one of an acute exacerbation of asthma, and he suggested admission for regular nebulisers, oral prednisone and “baseline bloods”.

During his stay in ED, Mr A's CXR was not reviewed by either the Emergency Care doctor or the medical registrar.

Mr A was transferred to a medical ward where a nurse noted that Mr A's temperature was 38.3°C, for which Panadol was given. The nurse also noted that he was a smoker and requested nicotine patches to be "prescribed mane". Mr A was awake for most of the night and agitated at 03:00 hours, wanting to have a cigarette. He was escorted downstairs and outside by an orderly for a cigarette.

He was reviewed on the post-acute ward round. However, the medical registrar who would normally have been on the ward round to present the admissions to the consultant had been asked to work a night duty on that Friday night, and so was at home resting. According to the house officer's note, Mr A was still very short of breath. The consultant's examination revealed audible wheeze, accessory muscle use and tachycardia (134 beats/minute). He noted decreased air entry, a very "tight" chest (not much air movement) and oxygen saturations of 92%.

The impression was "moderate-severe asthma attack", and the plan was for ipratropium and review by the respiratory registrar. Mr A's chest X-ray was not reviewed during the ward round. There are conflicting accounts from the medical staff about whether the house surgeon was asked to ensure that the chest X-ray was reviewed.

The house surgeon reviewed Mr A at 17:40 hours and noted that his respiratory rate was greater than 60 breaths/minute, he was still tachycardic (121 beats/minute) and short of breath. She reviewed his bloods from the previous day, which were left shifted (a sign of infection or inflammation) and then his CXR. This she reports as showing "streaky opacity bilaterally R>L". Her impression was that Mr A was not improving and, although it is not documented in the notes, according to her later correspondence, she discussed his case with the on-call medical registrar. The registrar apparently asked the house surgeon whether she thought that Mr A needed to be in ICU — the house surgeon replied that "she wasn't sure". It was decided to start Mr A on antibiotics, and to get an arterial blood gas. The house surgeon noted that "*if concerned discuss with Medical registrar, ? may need ICU review.*" She then handed over Mr A's care to the on-call house surgeon for the evening.

At 18:00 hours the on-call house surgeon attempted an arterial blood gas but was unsuccessful and noted that Mr A found it very painful. She decided to try again later. The nursing notes of the evening report Mr A becoming very anxious and short of breath. Nebulisers were given every 1–2 hours. Nicotine patches arrived on the ward at 20:00 hours but Mr A refused to have them and was wheeled outside for a cigarette.

Some time in the evening (time not documented) the on-call house surgeon reviewed Mr A and noted his anxiety. A formal examination was not documented but he was assessed as stable with an oxygen saturation of 97% on 6L. The only instructions for the nurses are "please call H/S for review if oxygen saturations decrease < 92%". No comment is made as to the frequency of observations or to the other parameters of note.

Note: there are no recordings of temperature, blood pressure, pulse or respiratory rate after 16:50 hours on the Friday. The last respiratory rate was in fact done at 08:00 hours.

The night staff roster was a nurse down due to the late communication of a sick nurse. One RN stayed on until 01:00 hours, but Mr A was nursed by an enrolled nurse. Her documentation notes that during the night Mr A continued to be taken out for cigarettes by his friend, who stayed with him. She notes that Mr A reported being unable to breathe and was put to bed with oxygen reapplied.

At 05:58 Mr A was found unresponsive and a cardiac arrest call was made. The monitor showed asystole, and resuscitation was attempted. Despite adrenaline and CPR Mr A was pronounced dead at 06:16.

The post-mortem revealed extensive pneumonia with early abscess formation.

Overview of Responses from the DHBs

The Commissioner was most concerned by the system failures at Wellington Hospital that contributed to the death of this patient. He commented in his report that *“it is vital that lessons are learnt from this tragic case and that steps are taken around the country to ensure that patients receive the competent and coordinated care they need and deserve”*.

He then requested that each DHB review the case and report to him on the safeguards that they have in place to prevent a similar case in their DHB.

All 21 DHBs responded, and their detailed responses are reviewed in the next section of this report. All but one DHB felt that a similar case could occur in their DHB, and all were attempting to improve their organisation of care.

The DHBs identified many areas for improvement, but outlined below are the 10 most common areas:

1. Identification and management of the deteriorating patient
2. Provision of High Dependency Care
3. Handover of care
4. Timely review of X-rays
5. Investigations of sentinel events and communication with the Coroner
6. Open Disclosure — policy and practice
7. Management of the nicotine-addicted patient
8. Scope of practice for Enrolled Nurses (ENs)
9. Medical staffing
10. Early assessment and planning in the Emergency Care department.

Before I offer some comments about the state of play in each of these areas, I have some general observations about the DHB responses. The DHBs seemed to fall into one of three categories — those that really understood what a safety culture was and demonstrated systems thinking (eg, West Coast DHB and Canterbury DHB), those

that superficially used the language of safe & quality care but their action plans did not give confidence, and those that have not really moved on from the individual blaming culture — they continue to believe that if doctors just concentrated harder, worked harder and were more careful, then medical errors would not occur. This is at variance with the literature over the last 10 years, which identifies that the practice of medicine is a complex adaptive system, that humans make errors (even experts trying hard), and that a safe system predicts errors and sets up defence systems to prevent errors impacting on the patient.^{1,2, 3,4}

The two statements below reveal the contrast between the first and third positions:

“...require robust systems with back up capability to catch errors before they can cause harm. There is recognition in Canterbury DHB that human error is unavoidable and therefore the need for depth in the system where secondary processes can prevent continuation of a trajectory toward an event causing harm to a patient.”

“We don’t believe that we could put in place any system to prevent poor outcome due to negligence by staff.”

DHBs in the first and second groups used the HDC case to provoke a review of systems and sought clinical engagement.

It was clear that there was a different emphasis on some of the issues raised, depending on whether the DHB was a small or rural DHB, or a larger metropolitan DHB. Issues around medical staffing levels and handover between medical staff were much less of a problem in the smaller hospitals. Some, such as Nelson Marlborough DHB and Tairāwhiti DHB, do not employ registrars and run a close-knit consultant-led service with generally good communication with house surgeons.

Another observation was the plethora of policies that almost all DHBs have produced. For example, one DHB has eight policies relating to smoking. The other feature was how rarely adherence to policies was audited, some DHBs apparently thinking that having a written policy was an end in itself, where in fact the effort of writing and continuously reviewing policies highlights an area of waste in our DHBs, if these policies are not accompanied by an education programme and compliance auditing. Many DHBs could stop writing policies tomorrow and not see a drop in the quality of care that they deliver.

There appear to be several obvious areas where national collaboration would hasten systematic improvements. These are highlighted in the detailed DHB responses, but briefly some are:

1. Development of Early Warning Scores
2. Standardised sentinel event investigation training

¹ Human Error. James Reason, Cambridge University Press, 1990 ISBN 0521314194

² Human Error: Models and Management. James Reason, BMJ 2000 320: 768–770

³ Not Again! Preventing errors lies in redesign — not exhortation. D M Berwick, BMJ 2001; 322:247–8

⁴ Error in Medicine. L L Leape, JAMA 1994; 272 (23) 1851–1857

3. National open disclosure policy and training
4. Standardised initial communication process with the Coroner
5. Standardisation of both nursing and medical handover practices.

The common areas for improvement were:

1. Identification and management of the deteriorating patient

Mr A displayed signs of serious physiological instability on Friday afternoon — a respiratory rate of 60 breaths/minute is indicative of imminent respiratory failure — and yet the junior medical staff and the nursing staff did not recognise the deterioration and therefore did not act.

Several DHBs expressed an interest in the UK model of Early Warning Scores (EWS), so-called “track and trigger” systems to identify when a patient’s physiological state is deteriorating and helping staff to escalate care to the most appropriate person. Three DHBs have instituted EWS — Waitemata was the first and has had its system in place for two years, with an associated ICU-outreach team. Counties-Manukau is in the middle of implementing its score (the Physiologically Unstable Patient score), and Hutt Valley DHB is just beginning its implementation. The pros and cons of such “track and trigger” scores is the subject of a consultation document issued by the UK National Institute for Clinical Effectiveness (NICE).⁵

Most other DHBs relied on junior medical staff and nursing staff to identify physiological deterioration and to know what to do. Some DHBs had Medical Emergency Teams (as indeed did Capital & Coast), but such single criteria threshold systems are less sensitive to early deterioration and require staff to know what the criteria are (the medical staff at Capital & Coast DHB did not appear to know the criteria at that time) and to be confident in putting out a call.

2. Provision of High Dependency Care

Identifying the physiologically unstable or deteriorating patient is one thing, but a proportion of these patients are going to need increased nursing and medical care. At the time of the Capital & Coast DHB case, Wellington Hospital lacked a High Dependency Unit (HDU). It now has a Medical Services High Dependency Bay (for four patients), with a 1:2 nurse-to-patient ratio and the capacity for more intensive intervention and monitoring.

Auckland DHB has the luxury of nine HDUs and three ICUs. Many others are planning HDUs (eg, Counties Manukau DHB). However, some continue to deny the need for an HDU despite evidence that hospitals are admitting sicker patients. Otago DHB, for example, “*put on hold*” an HDU in 2005, an ICU-outreach team was turned down for resource reasons, and there is also no MET, also partly due to resource considerations. It is unclear from the information supplied whether some DHBs have

⁵ Acutely ill patients in hospital: recognition of and response to acute illness in adults in hospital. National Institute for Health and Clinical Excellence, July 2007. <http://guidance.nice.org.uk/CG50>

an HDU — for example, Bay of Plenty DHB states that “*there are no immediate plans for a high dependency unit*”, but also supplied a 2002 policy on “admission of patients to intensive care and high dependency unit”.⁶

Waikato DHB has the longest experience with an HDU — close to 20 years — and use an open model with ICU staff acting as a back-up to the primary teams. It is staffed by experienced nursing staff and has excellent results in recent surveys. Those proposing to set up HDUs would be wise to contact Waikato Hospital in the first instance.

3. Handover of care

The seriousness of Mr A’s condition, and the fact that he had been discussed with the medical registrar as a possible candidate for ICU, was not conveyed to either the on-call medical house surgeon, or to the nursing staff. Such handovers are generally verbal and up until now have not been standardised in any way. Nurses have always done shift work, but this review revealed that handover practices and the information that was handed over was quite variable, even with this experience of shift work. Some DHBs were using tape-recorders to record verbal handovers, with the on-coming nurses listening to the tape. Bedside handovers seemed to have lost favour, though some still used this as an adjunct. Some appeared to be put off by privacy issues, though it is still one of the best ways to hand over information, as it allows patients to hear (and have input into) the handover of information about them. It also allows nurses to review intravenous lines and other equipment at the time of handover.

Junior medical staff, in order to decrease the previously long working hours, now increasingly do shift work. However, this change in work patterns has not been associated with an improvement in the handover of care. Both the British Medical Association⁷ and the Australian Medical Association⁸ have written guidelines on how to improve medical handover. Several DHBs commented that they were reviewing these guidelines and instituting formalised handover. Canterbury DHB has done the most in this area with its attempts to get hospital-wide medical handover at the end of the evening shift. It has set up a “hospital at night” (a system whereby all the calls regarding patients go to a centralised coordinator, and the staff are allocated depending on the clinical need) and all the medical staff are expected to hand over to the night team — they did admit that it was sometimes difficult to get all staff, especially the surgical registrars, to attend the evening handover. Auckland DHB has also attempted to standardise the handover process by using a mnemonic JUMP sheet, which stands for: Handover **J**obs to do; Handover **U**nclerked patients; Handover

⁶ Bay of Plenty DHB subsequently advised that “there are HDU beds at both Whakatane and Tauranga Hospitals. HDU beds are assigned within the ICU/CCU complex. Patients in these beds are monitored by their assigned specialist.”

⁷ NHS Modernisation Agency NPSA, BMA. Safe Handover: Safe Patients. Guidance on Clinical Handover for Clinicians and Managers.
http://www.npsa.nhs.uk/site/media/documents/1037_Handover.pdf

⁸ AMA Clinical Handover Guide — Safe Handover: Safe Patients 15/1/07
<http://www.ama.com.au/handover>

Medical contacts; Handover Patients to be aware of.⁹ Others actively working in this area are Waitemata DHB and Hutt Valley DHB.

The other area of handover is that which occurs between either junior or senior medical staff, or between nurses and medical staff. It is important that such communication is clear, concise and in a format that makes sense to the person receiving the information. Some DHBs (eg, Lakes and Counties Manukau DHB) are starting to use the Situation, Background, Assessment & Recommendation (SBAR) format to facilitate communication.

4. Timely review of X-rays

Many DHBs still have a fully manual radiology service with hard-copy X-rays. This system usually works, but becomes a problem as in the Capital & Coast DHB case when X-rays go missing and when there is no way of knowing who has viewed them. Some DHBs (eg, Bay of Plenty DHB) stuck rigidly to the opinion that the review of X-rays was the responsibility of senior doctors, and did not accept the problem with the availability of plain X-ray films.¹⁰ Some such as Waikato DHB accepted that plain X-ray films sometimes do go missing, and are planning to introduce digital radiology, though their timeline of 2–3 years seems overly conservative.

Most of the other DHBs either had moved to digital radiology or are planning to do so. Digital radiology allows a clinician to view X-rays from any hospital computer and, at its fullest application, also records all staff who view results and allows electronic acceptance of radiology reports. It does not seem to be a system for only the larger DHBs, as West Coast DHB and Wairarapa both have digital radiology. However, few DHBs seemed to have an audit of timely sign-off or results.

Capital & Coast DHB did not have digital radiology at the time of the incident, but implemented digital radiology fully in July 2007.

5. Investigation of sentinel events and communication with the Coroner

The response to a sentinel or serious incident seems to vary widely. Nearly all DHBs had or are developing a Sentinel Events Policy (names vary between DHBs) although until recently most have had an ad hoc approach to events, sometimes mediated by the Chief Medical Officer. It is important to note that no DHB described a training programme on how to investigate and respond to a serious or sentinel event. Most felt that a policy was an end in itself, a weakness that is not restricted to this particular issue.

Some DHBs now have Sentinel Events Review panels (eg, Auckland DHB), and some mention Root Cause Analysis (RCA), though it is not clear how many staff in

⁹ This JUMP sheet is mentioned in the Capital & Coast DHB response, which states that the sheet originated at Auckland DHB, although it does not feature in the Auckland DHB response.

¹⁰ Bay of Plenty DHB subsequently advised that “it is in partnership with Waikato DHB to introduce this technology to all its hospital facilities. Once a preferred provider has been selected the roll out of PACS/RIS will commence in 2008.”

these DHBs have been trained in RCA, and how much is being done. Two DHBs (Capital & Coast DHB and Canterbury DHB) are now reviewing all deaths.

The relationship with the Coroner also varied. Some had very formal relationships (see Waitemata DHB's 42-page Memorandum of Understanding), while others described less formal, but good relationships with the Coroner. Since the HDC investigation, Capital & Coast DHB has met with the Coroner and has undertaken to notify the Coroner when it instigates an internal investigation of a death, and it has further undertaken to supply the Coroner with an investigation report. This seems a sensible approach and other DHBs may want to consider adopting it.

Canterbury DHB also has a good process for notifying the Coroner. When there is a death, medical staff fill in a "Record of Death" form, which contains a series of questions. If any of these questions are answered in the affirmative, then the form is faxed to the Coroner, before he or she is called. Again, this process may be one that could be standardised across the country.

6. Open disclosure — policy and practice

This is the process of being honest with patients and/or their families when something goes wrong in the provision of health care (that is, an adverse event has occurred). It involves acknowledging the adverse event, apologising and undertaking to investigate the cause of the event, with a view to preventing a similar event. It is also about a general philosophy about keeping patients and their families informed, both when things go wrong, and also when the results of the sentinel event investigation are known.

In the Capital & Coast DHB case, Mr A's family were told that there would be an investigation, but their attempts to find out details were thwarted by a poor process, there were delays, and no real apology was provided. This added to their distress. In the years since the incident, Capital & Coast DHB has received guidelines from HDC on open disclosure, and is developing an open disclosure policy and a training programme to support its implementation. This seems to be a common thread with respect to open disclosure — most DHBs have components of open disclosure embedded within something like a sentinel event policy, some are planning policies, some are waiting for a national policy, and some do not mention open disclosure at all — and none have put any emphasis into training staff. If open disclosure is going to work, then DHBs must move past policies and train their staff in the philosophy and practice of open disclosure. Again, this is an opportunity for national coordination in both policy and training. The national Quality Improvement Committee has a work stream that includes open disclosure and training, and it may be the group to lead this.

7. Management of the nicotine-addicted patient

Mr A was a long-term smoker, and acute withdrawal from nicotine added to his anxiety whilst in Wellington Hospital. There was a 24-hour delay in getting him a nicotine patch, and nurses became annoyed that he was being taken outside for a cigarette, during which time he was deprived of supplemental oxygen. To many

reviewing the case, it was felt that Mr A was marginalised because of his smoking addiction, and possibly because of his history of mental illness. Interestingly, most DHBs have some dispensation for patients in their mental health units, where rates of smoking are very high — contributing to many patients like Mr A ending up with smoking-related disorders.

All DHBs have a smoke-free policy in line with the legislation, but they vary quite widely in their response to the nicotine-addicted patient. Some see nicotine replacement therapy (NRT) only in the context of getting the patient to quit smoking, others have several quick-acting forms of NRT available on all wards, and one even allows nurses to give NRT as a standing order (ie, without a doctor's prescription). The process for identifying which patients are likely to withdraw from nicotine is not well developed in most hospitals — the admission-to-discharge planner for medical patients at Counties Manukau DHB does have screening questions. While it is an effort to get admitting staff to complete this section thoroughly, at least it can be audited. Medical staff are much more aware of alcohol withdrawal, but they do not yet seem to see nicotine withdrawal as a serious problem.

8. Scope of practice for Enrolled Nurses

Over Mr A's final night, he was cared for by an Enrolled Nurse. He was one of eight patients she was caring for, and she was supposed to be supervised by a registered nurse (who also had eight patients). Somewhat unfairly, in my opinion, many DHBs have seen the problem as a lack of ability on the part of the EN, or a lack of supervision on the part of the RN. The response has been policies on supervision, reviews of the scope of ENs and, in most DHBs, ENs are no longer allowed to work on night shifts. Although ENs have less formal training than RNs, many are very experienced, but their marginalisation from the nursing workforce was started before this case.

No DHB audited its supervision guidelines to assess whether they changed practice. Some hospitals rely very heavily on Health Care Assistants (HCAs) to take patient's vital signs, which is a concern as this appears to reflect both a shortage of nurses to do this task, and also a lack of understanding of the importance of taking regular observations and knowing how to interpret any deviation from normal. It would appear that defining the scope of practice of ENs and HCAs is important, but perhaps more important is the ongoing training and review of all staff who are taking vital signs.

9. Medical Staffing

In Mr A's case, there was disjointed care due to an apparently common occurrence — that is, the admitting medical registrar was rostered to begin nights on the night after his day on call, and was therefore absent from the post-acute ward round. This meant

that he was not able to present Mr A's case to the consultant, and was not there to say that he had not seen the X-ray, or to report on whether Mr A was improving or not.¹¹

It does highlight an issue that is of concern to many DHBs, ie, the shortage of junior medical staff. The shortages appear particularly acute in the Auckland region, but most DHBs have some concerns in this area. The deputy Chief Medical Officer of Waitemata DHB has called for the "*urgent development of a sector wide approach to safe staffing, including adoption of best practice guidelines outlined in the Australian Council for Safety and Quality in Healthcare, Safe Staffing Consultation Report 2005*".¹² This appears to be a sensible suggestion for the national CMO group to take up, but it is unlikely that the shortage of RMOs will be resolved in the short term, especially when we incentivise casual labour with high locum rates.

One approach has been the investigation of the "hospital at night" model (Canterbury DHB), although there are objections to this by the Resident Doctors Association (RDA), which might yet slow the adoption of this approach.

10. Early assessment and planning in the Emergency Care department

Although Mr A did not spend a long time in Wellington Hospital, many DHBs have identified long delays in EC departments as a threat to patient safety. Several (Counties Manukau DHB, Canterbury DHB, and Waitemata DHB) are progressing "patient flow" projects to look at how to streamline the patient journey through EC, to medical staff who can make decisions about the patient's admission and start effective management. Both Auckland DHB and Canterbury DHB have Acute Medical Assessment Units (AMAUs). Canterbury DHB included a rigorous review of the introduction of its AMAU, with evidence that it decreased EC gridlock by 76% and decreased the median stay in EC for medical patients from 6.7 to 3.3 hours. Again, Canterbury DHB's experience may be useful for other DHBs struggling with crowded EC departments and long delays for patients. The national Quality Improvement Committee is planning a "break through collaborative" for DHBs interested in this area.

¹¹ Capital & Coast DHB advised that, since the incident, it has increased its FTEs by four advanced medical trainees within the general medical service, and changed rosters so that, except on rare occasions, the admitting registrar is available at the post-acute ward round

¹² <http://www.health.gov.au/internet/safety/publishing.nsf/Content/safe-staffing>