Commentary On

Sentinel & Serious Events Reported By

District Health Boards - 2006/07

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This report provides information on the sentinel and serious events that have been reported by District Health Boards, as well as the context for interpreting this information. Included are definitions, numbers and rates of events by DHBs, a classification of events and information from Australian reporting systems.

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Table of Contents

Explanatory Note

The purpose of recording and investigating preventable adverse events in hospitals is to improve patient safety. The aim is to understand why incidents occur and take action to try and prevent them happening again.

International studies have shown that 10% - 15% of hospital admissions are associated with an adverse event, but half of these events occur prior to that hospitalisation.

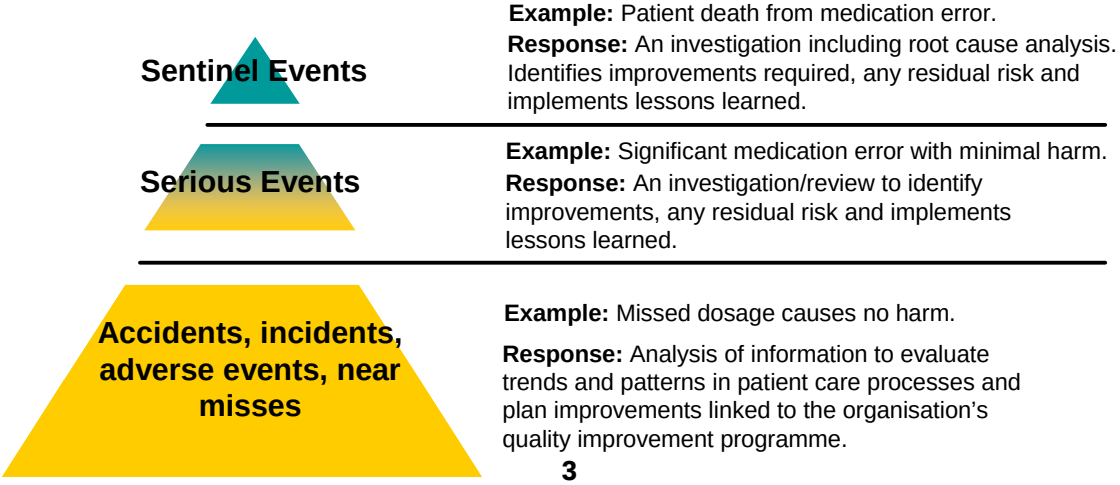
In every hospital the vast majority of incidents reported are minor and do not result in patient harm or permanent harm. Examples include missed medication or medication errors that don't result in harm or even loss or damage to personal property.

Despite safety systems and the best intentions of clinical staff, sometimes things happen that cause potential or actual harm to patients. Most of these are known complications of treatment and are not preventable with current knowledge. This can include incidents such as unknown allergic reactions, known side-effects to medication, and known risks from surgery.

Adverse events, or harm caused by medical management not related to the natural course of the illness, are rarely the result of one unsafe act, but usually the consequence of a chain of events set off by small breakdowns in the process of caring for patients. Unfortunately, the consequences can be tragic. Not all adverse events are preventable (only about 40%), but in those where things could have been done differently, it is vital to understand what happened.

A small number of incidents are fatal or potentially fatal – and preventable. Finding the root and contributing causes enables hospitals to improve systems and processes and reduce the risk of similar events recurring.

Hospitals currently vary in the way they classify, collate and report preventable adverse events and the sector internationally is only now starting to standardise systems for collating information and lessons learned. Standardised, consistent systems for classifying and recording events are essential and the Quality Improvement Committee is leading that work.



Definition: What is a Serious or Sentinel Event?

One aim of QIC's Healthcare Incidents Programme is the development of nationally consistent definitions. The following are based on Ministry of Health Reportable Guidelines issued in 2001 which are attached to this report.

Adverse event: harm due to medical management, not due to the natural course of the illness. Approximately 40% of adverse events are potentially preventable

A serious adverse event has the potential to result in death or major loss of function, not related to the natural course of the patient's illness or underlying condition.

A sentinel adverse event has resulted in significant additional treatment, is life threatening or has led to an unanticipated death or major loss of function not related to the course of the patient's illness or underlying condition.

Healthcare incident (also called reportable incident) is an event or circumstance which could have or did lead to unintended and/or unnecessary harm to a person, and/or a complaint, loss or damage.

Open Disclosure is the open discussion of adverse events with the affected parties and the associated investigation and recommendations for improvement.

Preventable describes an event that could have been anticipated and prepared against, but occurs because of an error or other system failure.

Root Cause Analysis is a method used to investigate and analyse a serious or sentinel event to identify cause and contributing factors and to recommend actions to prevent a similar occurrence.

Some Important Caveats

There are some very important caveats to understanding and interpreting the data:

- The international literature does not support using the number or rate of reported incidents as a way to judge a hospital's safety. There are considerable variations in the degree of reporting, not just in the rate of incidents. Hospitals providing more complex care to sicker patients are more likely to have more incidents.
- The events documented in the DHB releases are **voluntary** reports. DHBs with larger numbers of events reported and greater details about the events reflect better local systems for reporting and investigating and probably a superior safety culture. A lower event rate in a DHB may well indicate a greater degree of under-reporting and under-investigating, or conversely, the result of a very active risk management programme.
- While most DHBs have based their definitions of serious and sentinel events on the Ministry of Health's Reportable Events Guidelines 2001, these are open to interpretation and New Zealand currently does not have a standardized system for categorizing these events.
- Each DHB currently manages the collation of serious and sentinel events differently . The Quality Improvement Committee is looking to standardise the classification of serious and sentinel events in 2008.
- The number of events in some hospitals is very small and even an increase by one event can result in large statistical variation.
- This release of data is the starting point for a national reporting system – it does not capture every event and studies would suggest that the actual number of events is probably higher.

The purpose of the reporting system is to learn from incidents, not to apportion blame or to rank hospitals.

Clinical staff are professionally accountable through other processes. Investigating serious incidents more thoroughly and sharing the results aims to identify system weaknesses so that they can be remedied.

Using the data inappropriately may adversely affect the culture of safety and openness that we are trying to build in DHBs. If clinicians experience the information being used against them or their DHB, then there may be less willingness to report.

Events Reported By District Health Boards

This table shows the sentinel and serious events reported by DHBs for the financial year July 2006-June 2007. This year has been chosen because it includes the most up-to-date information.

Sentinel and Serious Events by DHB
July 2006 to June 2007

DHB	Sentinel and serious events
Northland	6
Waitemata	22
Auckland	26
Counties Manukau	7
Waikato	24
Lakes	1
Bay of Plenty	1
Tairawhiti	1
Taranaki	5
Whanganui	3
Hawkes Bay	12
MidCentral	4
Capital and Coast	14
Hutt Valley	2
Wairarapa	1
Nelson Marlborough	7
West Coast	5
Canterbury	22
South Canterbury	3
Otago	3
Southland	13
TOTAL of 21 DHBs	182

Understanding the numbers

An in-depth analysis of sentinel and serious events reported by twelve DHBs for the previous financial year 2005/06 is included as an example of the nature and type of events recorded.

Category	Sentinel	% of sentinel	Serious	% of serious
Wrong, patient, site, procedure	0	0%	1	2%
Suicide of an inpatient	1	5%	0	0%
Retained instrument swabs	0	0%	3	6%
Clinical management problem	16	76%	22	42%
Medication error	2	10%	12	23%
Falls	1	5%	6	12%
Blood transfusion reaction	0	0%	3	6%
AWOL patient	0	0%	3	6%
Physical assault on patient	1	5%	1	2%
Delays in transfer	0	0%	1	2%
Total	**21**	**100%**	**52**	**100%**

Safety Improvements In Hospitals As A Result Of Incident Reporting

The following are examples of system improvements implemented in New Zealand Hospitals as a result of existing incident reporting.

Example 1 – System introduced to clarify patient medication
At one hospital, GPs are required to number fax pages and include patient ID numbers on each page to ensure the correct information about medication is received. Internal faxes must also be sent individually with page numbering. This followed an incident where a patient died after incorrect prescription of another patient's diabetes medication. Two faxed GP referrals were received at the same time, one without identifying information. The two referrals were assumed to be one and were stapled together. This information was transcribed into the hospital medication chart. A subsequent audit has found marked improvement.

Example 2 – Improved electronic records and processes
One hospital now makes histology results available electronically and medical secretaries return patient files to surgeons when there is no record of a consultation. This follows an incident where a patient was referred for the removal of melanoma, a procedure was performed and then it was discovered the procedure had already been performed by a locum surgeon. A review found difficulties accessing histology results and poor documentation by the locum surgeon.

Example 3 – Staff training and better communication between Lead Maternity Carers and core staff

Training for staff and lead maternity carers in heart monitoring interpretation has been implemented along with training on foetal blood sampling after the death of a baby, which showed heart rate irregularities during labour. The umbilical cord was wrapped around the baby's neck. The hospital's policy on heart monitoring has been reviewed with LMC involvement, baby heart monitors are used for at risk or complex cases and there are ongoing improvements in teamwork and communication between LMCs and core hospital staff.

Example 4 – "Time out" in surgery to run through check list

One DHB has developed protocols around "correct site" surgery and theatre staff now take "time out" before surgery begins for a verbal check of patient details. This follows an incident where surgery was begun on the wrong side and staff realised part way through – the surgery was completed on the correct side.

Example 5 – Withdrawal of component

A patient received feeding fluid meant for her gut (through a stoma) into her vein instead**.** She was not harmed, but in the investigation it was found that the staff were using a special connector (called a male-to -male connector) to get around an incompatibility in lines. Unfortunately this also made it possible to connect the feeding fluid to the intravenous line. These connectors were able to circumvent the safety barrier. These connectors have now been withdrawn from the hospital. This is a strong forcing function that will prevent a similar case occurring.

Case-note Investigation Of Adverse Events In New Zealand Public Hospitals

A national study of adverse events in New Zealand public hospitals was carried out on a sample of hospital admissions in 1998 by a team led by Professor Peter Davis. Unlike the OIA process that DHBs have gone through over the last month – relying on voluntary reporting of adverse events - the Davis study, used a random sample of case notes from 13 hospitals to ascertain the occurrence, impact and preventability of adverse events.

It is important to note that the Davis study reported all adverse events, not just sentinel and serious events.

This study found that 12.9% of hospital admissions were associated with an adverse event occurring before or during the admission. Of those 6.6% occurred before hospitalisation.

An adverse event occurred in 6.3% of admissions:

- 5.0% of admissions had an event with limited evidence of preventability with current knowledge
- 1.3% of admissions had a preventable adverse event:
  - 0.2% of admissions had a preventable event causing permanent disability and/or death
  - 0.06% of admissions had a preventable adverse event causing death

There is clearly a difference between the case-note and voluntary reporting approach which suggests voluntary reporting is not as comprehensive.

The important thing is that the work of the Management of Healthcare Incidents Programme and the development of a national reporting system will provide a baseline for future reporting and it is quite likely that our reported figures will rise.

Case-note Studies In Other Countries

The table below compares the results of similar published case note studies in several countries. These studies have some differences so it is important to interpret the results with caution.

Study	Study focus	No of cases reviewed	Adverse event rate per 10,000
USA (Harvard Medical practice study)	Acute care hospitals	30,195	380
USA (Utah and Colorado)	Acute care hospitals	14,565	1,000
Australia	Acute care hospitals	14,719	1,660
UK	Acute care hospitals	1,014	1,170
Denmark	Acute care hospitals	1,097	900
New Zealand	**Acute care**	**6,579**	**1,290 overall 630 in hospital**
Canada	Acute and community hospitals	3,720	750

Sentinel Event Reporting In Australia

New South Wales Patient Safety and Clinical Quality Programme

In 2003, NSW became the first state in Australia to put in place a systematic process for examining serious events occurring in its public hospitals. In 2004 a comprehensive system for managing incident information and reporting was introduced.

Their third report contains information on all serious incidents occurring in the NSW health system, the results of investigations into them, and the prevention strategies being implemented at local health service and at state level. (Their definitions are slightly different from New Zealand's definitions: their 'serious' incident definition is closer to the New Zealand definition for 'sentinel' event.)

The report notes "Such a comprehensive task relies on the establishment of a purposeful system that is able to improve itself on a continual basis in an atmosphere of trust, open communication, shared responsibility and accountability, continuous learning and teamwork". It should be noted that the NSW Department of Health has invested $55 million dollars over five years to put a system into operation to collect and manage this information.

NSW public hospitals – reportable incidents 2003–2006 ***

Incident type	2003–2004	2004–2005	2005–2006
Clinical management problems	157	145	178
*Suspected suicide – in hospital	4	8	6
*Suspected suicide – in the community	128	134	137
Attempted suicide in hospital	8	4	2
Patient at risk – absent against medical advice	27	10	3
Maternal and perinatal problems	26	29	37
Falls	22	32	30
Wrong patient/site/procedure	13	14	36
Medical devices, equipment failure	11	5	3
Retained instruments/materials	9	5	11
Medication or intravenous fluid problems	7	5	4
Blood and blood products problems	5	5	4
Other	35	38	48
TOTAL	452	429	499

http://www.health.nsw.gov.au/pubs/2006/pdf/patient_safety_3.pdf

The total number reported in 2005-6 was 499, which gives an approximate rate of 3 per 10,000 hospital discharges.

Appendix

Ministry of Health Reportable Guidelines, 2001

Sentinel Events:

(a) The characteristics of a sentinel event include:
   i. Major system failure
   ii. Multiple teams, departments or services involved
   iii. The potential for serious adverse media attention
   iv. The potential to seriously undermine public confidence
   v. When a group of consumers have potentially suffered harm

(b) Examples of sentinel events are:
   i. An event which has resulted in an unanticipated death or major permanent loss of function not related to the natural course of the consumer's illness/underlying condition/pregnancy/childbirth
   ii. The event is one of the following (even if the outcome was not death or major permanent loss of function):
      (A) Suicide of a consumer while in intensive psychiatric care
      (B) Infant abduction or discharge to the wrong family
      (C) Invasive procedure or intervention on the wrong patient or wrong body part
      (D) Attempted or alleged sexual abuse or rape
      (E) Errors of omission or commission that result in significant additional treatment or are life-threatening e.g. medication errors, iatrogenic injury, recall of patients.

Serious Events:

(a) The characteristics of a serious event include:
   i. A system failure resulting in a reduction in the quality of service
   ii. Significant deviation from the organisation's usual process
   iii. Did not result in, but had the potential to result in significant harm
   iv. An event that must be reported to regulatory bodies under statute
   v. An event that needs to be reported to the organisation's insurance carrier
   vi. The potential for adverse media attention

(b) A serious event that has the potential to result in death or major permanent loss of function, not related to the natural course of the consumer's illness or underlying condition.

(c) Examples of serious events include:
   i. Missed or misdiagnosis
   ii. Incorrect or incorrectly performed procedure/medication
   iii. Contraction of notifiable blood borne disease

iv. Harm resulting in admission to intensive care unit from ward or transfer to another provider
v. Employment of a person fraudulently posing as a registered health professional
vi. Absence without leave of a client who may be seen as a danger to themselves or others
vii. Serious harm involving staff
viii. Failure in emergency management procedures resulting in a major disruption to patient care