Sentinel events in Australian public hospitals 2004–05

The Australian Institute of Health and Welfare is Australia's national health and welfare statistics and information agency. The Institute's mission is *better information and statistics for better health and wellbeing.*

Please note that as with all statistical reports there is the potential for minor revisions of data in this report over its life. Please refer to the online version at <www.aihw.gov.au>.

SAFETY AND QUALITY OF HEALTH CARE SERIES
Number 2

Sentinel events in Australian public hospitals 2004–05

Australian Institute of Health and Welfare
and
the Australian Commission on Safety and Quality in Health Care

July 2007

Australian Institute of Health and Welfare
Canberra
AIHW cat. no. HSE 51

This publication is part of the Australian Institute of Health and Welfare's Safety and quality of health care series. A complete list of the Institute's publications is available from the Institute's website <www.aihw.gov.au>.

ISSN 1833-7422

ISBN 978 1 74024 700 9

Suggested citation

Australian Institute of Health and Welfare & Australian Commission on Safety and Quality in Health Care 2007. Sentinel events in Australian public hospitals 2004–05. Cat. no. HSE. 51 Canberra: AIHW.

Any enquiries about or comments on this publication should be directed to:

Jenny Hargreaves
Australian Institute of Health and Welfare
GPO Box 570
Canberra ACT 2601

Phone: (02) 6244 1121

Published by the Australian Institute of Health and Welfare

Printed by Union Offset Pty Ltd

FOREWORD

This report is the first joint publication of the Australian Commission on Safety and Quality in Health Care (the Commission) and the Australian Institute of Health and Welfare (the AIHW). It demonstrates a shared commitment to the use of information that will help to make Australia's health care as safe and high quality as possible. The report is Australia's first national report of sentinel events and builds on important earlier work by all Australian governments.

Safety and quality in health care are of major importance to Australians and their representatives. All Australians will receive health care at some time in their lives. As our health improves, and knowledge about health and health care grows, there are increasing expectations that our health system will achieve better standards of safety and quality.

To help meet these expectations, Australian Health Ministers recently created the Commission. The Commission's role is to lead, coordinate and monitor improvements in the safety and quality of patient care. For its part, the AIHW aims to promote better health and wellbeing through national leadership in developing and providing health and welfare statistics and information. With these complementary functions, the partnership of the two agencies will be a key to the Commission's success in improving national information on safety and quality.

We must remember that the primary purpose of the health-care sector is to look after the sick. Our goal should be that professionals treat each person as they themselves would wish to be cared for. Health care of the future will require shared decision making between providers and consumers, with both taking responsibility for the trade-offs inherent in their choices. Information in this and subsequent reports should be increasingly useful to inform these choices.

We commend this report to you.

Dr Diana Horvath, AO

Chief Executive Officer
Australian Commission on
Safety and Quality in Health Care

Dr Penny Allbon

Director
Australian Institute of
Health and Welfare

CONTENTS

Abbreviations

ABO	refers to the 'ABO' blood group system
ACSQHC	Australian Council for Safety and Quality in Health Care (now the Australian Commission on Safety and Quality in Health Care)
AIHW	Australian Institute of Health and Welfare
ACT	Australian Capital Territory
Commission	Australian Commission on Safety and Quality in Health Care
NSW	New South Wales
NT	Northern Territory
Qld	Queensland
SA	South Australia
SAC	Severity Assessment Code (in South Australia, Safety Assessment Code)
US Joint Commission	United States' Joint Commission on Accreditation of Healthcare Organizations (now named 'the Joint Commission')
US VA	United States Department of Veterans Affairs
Vic	Victoria
WA	Western Australia

Acknowledgments

This report is a joint publication of the Australian Institute of Health and Welfare and the Australian Commission on Safety and Quality in Health Care. Within the AIHW, contributions were made to the report by Jenny Hargreaves, with assistance from Paul Magnus, Liz Treglown, Jane McIntyre, Bev Paterson and Kim O'Dea. Geoff Sims, of Geoff Sims Consulting Pty Ltd, also contributed to the report on behalf of the AIHW.

The reporting of sentinel events in public hospitals in 2004–05 would not have been possible without the cooperation of the state and territory health authorities. The health authorities provided the data on the sentinel events, and also provided valuable assistance and advice on the analysis and presentation of the sentinel event information.

The data originate from reports of front line health practitioners who treat patients daily, often in difficult circumstances. Without their courage and dedication to improving the safety and quality of the health system this information would not be available.

The printing and publication processes were coordinated by Judith Abercromby at the AIHW, and by Graham Bedford at the Commission.

The report was funded by the Australian Commission on Safety and Quality in Health Care.

1 OVERVIEW AND INTRODUCTION

In an era of strong public interest in health care and its standards, this publication is a significant step towards informed discussion and decision making.

In 2004, all states and territories agreed to contribute to a national report on 'sentinel events'—a specific set of adverse events considered to be serious. This report presents information on sentinel events that were reported from Australian public hospitals in 2004–05.

It is a landmark report in two ways. It is the first such national report for Australia and, indeed, rare in the international arena. It is also the first joint report by the Australian Commission on Safety and Quality in Health Care (the Commission) and the Australian Institute of Health and Welfare (AIHW), and thus marks the beginning of an important collaboration. This work serves as an example of national safety and quality reporting that will help to inform future, more broadly based reports on the safety and quality of health care in Australia.

Sentinel events and the value of reporting

The overwhelming majority of patients treated in the Australian health care system have excellent outcomes. However, there are occasions when patients suffer harm that is unexpected and unintentional. Sentinel events represent a very limited range of serious events, which can provide a 'window' into the vulnerabilities and safety of the health care system.

Sentinel event reporting in Australia is in its infancy. The systems that support effective reporting are developmental. Individual practitioners and hospitals have previously been reluctant to report such events for fear of litigation and adverse publicity. This 'reporting culture' is improving and, as this occurs, a greater number of clinical incidents will be reported nationally. Improved identification and reporting of events is essential to the development of better safety systems in health care, and should be welcomed rather than viewed as evidence of worsening national safety performance.

Most states and territories have now developed more comprehensive reporting systems. Clinicians appear to be becoming more confident that reporting will lead to proper investigation and appropriate action to prevent the problem recurring.

The numbers of events or incidents reported are expected to rise as confidence in the system grows. Patients and their families, and health care workers should welcome this improved transparency of the health care system as it is essential for informing the actions necessary to improving patient safety. The problems in the health system that lead to adverse events cannot be corrected unless they are known and understood.

This first national report is developmental. Reporting will rapidly mature to reflect better consistency across the states and territories, and more categories of incidents than only the most severe sentinel events. 'Near misses' that did not result in harm can provide valuable information about 'accidents waiting to happen' in the health system.

The value in reporting sentinel events is not in enumerating the events and, indeed, 'true' rates of adverse events are unlikely to be discoverable with certainty. A traffic analogy illustrates this point. If 1000 speeding tickets were issued on one day in a city, this does not mean that only 1000 motorists were speeding on that day. Nor does it mean that twice as many motorists were speeding on that day, if 2000 tickets were issued because of a blitz on detecting speeding. The same is true of adverse event reporting. Reporting is there to provide information for, and to help prioritise, action—not merely for tracking purposes. It is the ability to understand why events occur, and take action to prevent them, that is the real value of reporting. Future reports will focus more on what is being done nationally to improve safety in the health care system.

This report includes information from public hospitals as required by Ministers. It is important that practitioners in private hospitals enter into this process. That they are keen to do so reflects the increasing recognition of the need for much improved safety systems in our hospitals. In the future, information is also needed on health services provided in the community, general practice and specialists consulting rooms, as well as by community-based health service providers, whether in the public, private or charitable sector.

The value of this initial report is that it has piloted a system of national reporting and revealed ways of improving the quality of the information gathered.

The Commission has been charged by Ministers to lead the process to develop more comprehensive reporting and analysis. It will develop the necessary systems in cooperation with public and private sector health providers.

Australian Commission on Safety and Quality in Health Care

The Commission has been established to lead and coordinate safety and quality improvements in the Australian health sector. The Commission does this by developing national goals and facilitating action in close collaboration with all governments, professional, community and other stakeholders.

The present Commission is the result of a review of the former Australian Council for Safety and Quality in Health Care (the Council) and its five very productive years. The Commission is building on the sound base of standards, guides and other material developed during that time. The former Council successfully embedded the safety message in the health system. It made considerable advances in the areas of governance, standards and credentialing, and in advocating reliance on research and evidence for methods of improvement, relying largely on a process of funding grants.

The Commission functions differently. Its charter is to lead and coordinate initiatives across the whole of the health care delivery system including:

- public and private hospitals
- primary and ambulatory care
- mental and physical health.

The functions of the Commission, as proposed by the review team and endorsed by Ministers, are to:

- lead and coordinate improvements in safety and quality in health care in Australia by identifying issues and policy directions, recommending priorities for action, disseminating knowledge, and advocating for safety and quality
- report publicly on the state of safety and quality, including performance against standards
- recommend national data sets for safety and quality, working within current multilateral governmental arrangements for data development, standards, collection and reporting
- provide strategic advice to Health Ministers on 'best practice' thinking to drive quality improvement, including implementation strategies
- recommend nationally agreed standards for safety and quality improvement.

This report represents an important early step towards improving national data and reporting, as key tools in collaborating nationally to improve the safety and quality of the health system.

Overview: sentinel events in Australian public hospitals, 2004–05

There is a great deal of hospital activity in Australia and in 2004–05 there were about 4.3 million hospitalisations involving 759 public hospitals (AIHW 2006a). The same hospitals reported 42.6 million occasions of service to non-admitted patients in that period. This report analyses 130 events that caused or had the potential to cause serious harm to some of those patients.

The events analysed in this report are called 'sentinel events' because they are regarded as potentially or actually leading to serious harm to patients, as probably signalling serious failures in the system and as events that should be the subject of robust analysis to determine causal factors and to prevent recurrence. To ensure that similar failures may be avoided across the health care system, Australian Health Ministers decided in April 2004 that:

> All public hospitals [are] to report all sentinel events either to the state department or to an agreed third party, and all states and territories will contribute to a national report on sentinel events.

This first Australian report on sentinel events in hospitals is published to encourage learning about the causal factors of these events. As state and territory reporting systems improve, sentinel events will be better captured, and a consequential increase in reported (but not actual) events can be expected to occur.

The sentinel events that Ministers agreed for national reporting are:

- procedures involving the wrong patient or body part
- suicide of a patient in an inpatient unit
- retained instruments or other material after surgery requiring re-operation or further surgical procedure

- intravascular gas embolism resulting in death or neurological damage
- haemolytic blood transfusion reaction resulting from ABO incompatibility
- medication error leading to the death of a patient reasonably believed to be due to incorrect administration of drugs
- maternal death or serious morbidity associated with labour or delivery
- infant discharged to the wrong family (ACSQHC 2003).

Outcomes

Analysis of information about the 130 events reported for 2004–05 showed that the most commonly reported sentinel event type was *Procedures involving the wrong patient or body part*. The most commonly reported contributing factor was *Lack of, problems with or breakdown in rules/policies/procedures*.

Actions that were taken as a result of local analyses of the sentinel events included:

- local responses involving change to established practice or to physical facilities in a hospital unit
- writing or re-writing of local policies or procedures for dealing with certain patient conditions or high-risk situations
- referral of the contributing factor analysis to another body for consideration of broader policy implications.

Arising from these first analyses, a number of recommendations are made for improvements in national sentinel events information. They relate to improving and standardising definitions of sentinel events, harmonising sentinel events with the risk assessment systems used in broader incident monitoring by hospitals and improving the categorising of contributing factors for assignment before information is submitted. These improvements will lead to a broadening of the data collection and a likely increase in the numbers of incidents reported and available for analysis. Without such improvements to the data collection, the value of further such reports is questionable.

Structure of the report

The second chapter presents background information on reporting on sentinel events in Australia, and the specific aims of this national reporting on sentinel events.

The chapter on methods describes the compilation of the national sentinel events reports, and the development of the categorisation of issues that were considered to be factors contributing to the occurrence of the sentinel events. Appendix 1 provides supplementary information about the ways in which the categorisation of contributory factors relates to similar categorisations used elsewhere.

The fourth chapter presents information on the sentinel events reported for Australian public hospitals in 2004–05.

The last chapter presents a discussion of the quality and limitations of the data on the 2004–05 sentinel events, and methods by which future sentinel event reporting could be improved. Appendix 1 presents information comparing contributing factor categories used in other reports. Appendix 2 provides additional detail on differences in sentinel event definitions used by states and territories in 2004–05.

Future reporting on sentinel events will be of limited utility unless the recommendations of this report are implemented. The selected events are limited in scope and cannot clearly be related to the broader systems of incident reporting in existence or being developed in several states and territories. Related to this is the fact that nationally consistent definitions have not been agreed. The result is that the data are of inadequate quality to inform policy. Nevertheless, a number of useful lessons have been learnt from the collaboration on this work, and point the way forward to ways in which such data, improved and expanded, may form part of the overall system of reporting and feedback. Improving and broadening the scope of the collection will provide a greater range and larger number of incidents available for analysis, thus providing richer information on which to base improvements to safety and quality of the health system.

2 REPORTING ON SENTINEL EVENTS IN AUSTRALIA

In its second report to Australian Health Ministers, the Council set out some principles for using data to improve patient safety and quality of care across the health system. It proposed a national approach to 'using data to identify, learn from and prevent error and system failure'. This approach included looking to analyses of incidents and adverse events to identify contributing factors and act upon them to better manage hazards and risks and to improve systems of care (ACSQHC 2001).

In its third report to Australian Health Ministers, in July 2002, the Council again drew attention to the concept of sentinel events, which it then described as a 'small but significant number of adverse events [that] lead to serious patient harm'. It pointed out that they probably signal serious system failure and so 'should be the subject of robust analysis to determine causal factors and to prevent recurrence' (ACSQHC 2002).

From this, the Council recommended to Australian Health Ministers that a subset of sentinel events 'that are those which, though rare, are catastrophic for patients' should be monitored in public hospitals nationally. The Council saw the potential to share lessons about these events so that similar system failures may be avoided across the health care system. The Council consulted states and territories and, drawing from the experience of sentinel event reporting in other countries, recommended a national focus on the eight sentinel events described in Chapter 1.

State and territory sentinel event reporting

States and territories have established sentinel event reporting systems from which the sentinel events for national reporting are derived. Reporting of the sentinel events is mandatory at the jurisdiction level.

Most states and territories extend the mandatory reporting requirements for the sentinel events to other serious adverse events, identified by the severity of outcome and likelihood of recurrence. Where it is not mandatory to report at jurisdiction level, analysis and remedial action is taken at the hospital level.

Various models for investigation of the sentinel events and other incidents have been adopted by jurisdictions and yield the information on contributing factors analysed in this report. The process of analysis of sentinel events to identify factors influencing their occurrence is root cause analysis, a systematic process whereby the factors that contributed to an incident are identified (ACSQHC 2004; US VA 2004).

The sentinel event monitoring systems operate in a just context. Individual blame for an event is not attributed unless there is evidence of intent to harm on the part of the practitioner(s). Emphasis is placed on reporting to enable analysis of contributing factors, leading to specific risk reduction strategies to prevent recurrence of similar

events. Reported information is generally subjected to qualified privilege legislation that restricts the type of information that can be released by investigation teams.

At the time of release of this report, sentinel event reports had been published by health authorities in Victoria, New South Wales, Queensland, South Australia and Western Australia (Queensland Health 2007; Department of Human Services, Victoria 2006; NSW Health 2006; Department of Health, South Australia 2006; Department of Health, Western Australia 2006).

Australian hospitals covered by this report

In 2004–05, there were 759 public hospitals and 534 private hospitals operating in Australia, with over 7 million patient separations combined. The health care establishments covered by information for this report are the 759 public hospitals, from which there were 4.3 million patient separations for the year and 42.6 million occasions of service to non-admitted patients (AIHW 2006a).

This report does not provide any information about sentinel events which may have occurred in private hospitals, which had 2.6 million separations in 2004–05. This reflects the decision of Health Ministers to restrict the coverage of this initial report to public hospitals only. Similarly, the scope of the report does not cover sentinel events which may have occurred during any non-hospital occasion of care.

Aims of this national sentinel event report

By presenting a national view of sentinel events in this report, the principal aim is to reflect the Australian Health Ministers' commitments to openly report sentinel events occurring in public hospitals and to act together to reduce the risk of recurrence anywhere in the Australian health system.

This first reporting step is being taken at the start of, rather than at the conclusion of, a potentially lengthy process of data refinement. It shows a determination to use existing information, however imperfect, to convert each incident causing serious harm into an opportunity to improve the safety of health care right across Australia.

A second aim of this report is to be a catalyst for standardising reporting and analysis around agreed best practice for identifying vulnerabilities in health care.

As data systems develop to improve their coverage of sentinel events and a higher degree of comparability across jurisdictions is achieved, national data will begin to support more meaningful analysis. Pooling of standardised data across jurisdictions may increase the chance of recognising systematic failure behind rare events and provide the opportunity for state and territory health systems to develop and implement responses that they may not achieve alone. Thus, analysis and shared learning from national sentinel events has the potential to reinforce local change in dealing with risk in health care.

3 METHODS

Compilation of data for this report

In accordance with the decision by Australian Health Ministers in April 2004, the health authorities of all states and territories have introduced sentinel event monitoring systems in hospitals. The data for this report have been derived from these systems and provided by states and territories to the AIHW for compilation of this report.

The AIHW works with governments, including under the National Health Information Agreement, to compile national statistics from administrative health records of many kinds. Information provided to the AIHW has the protection of the *Australian Institute of Health and Welfare Act 1987*. The AIHW protects the confidentiality of data and, as is also required under its legislation, complies with any conditions of use that are set by data providers. For this report on sentinel events, it was agreed that statistics that identify any information with an individual jurisdiction would not be published.

The AIHW requested that each state and territory health agency provide de-identified information about sentinel events reported by public hospitals during 2004–05. It was requested that the information be provided in as rich a form as possible, including detailed narrative, so that a standardised categorisation of contributing factors could be developed and applied to the information for this national report.

Information available for compilation of the report varied widely. Some jurisdictions provided aggregated summaries of sentinel events by event type. Others provided detailed descriptions of the events and results of analysis of contributory factors. Four states provided the most complete data sets, containing de-identified patient records describing the sentinel events, analysis of contributing factors and resultant actions taken. Other jurisdictions were unable to supply most information beyond aggregated counts of events by sentinel event type, supported by general or selected information about actions taken.

A summary of the sentinel event information provided by the states and territories was compiled in a Microsoft Access database via a data entry form that facilitated the assignment of contributing factors for each event. Wherever information provided for a sentinel event was sufficient to determine that it did not match the descriptions of the sentinel events for national reporting, that event was excluded.

Once the contributory factor categorisation had been agreed with the states and territories, it was applied to the sentinel event information provided by the jurisdictions, as far as the detail of the sentinel events would allow. State- and territory-specific copies of the database, with the contributing factor categorisations, were then returned for review and revision (as required) of the assignment of contributing factor categories for each sentinel event.

As 2004–05 was the first year for which national data have been compiled, there had been little opportunity for states and territories to agree on or adopt rigorous reporting standards. Various programs for managing the safety and quality of health care had been or were in the process of being implemented. For some jurisdictions, this first year of national data collection coincided with the first year of implementation of sentinel events reporting. Chapter 5 includes a more detailed discussion of factors affecting the quality of the data.

Development of the contributing factor categories

The identification of contributing factors is a core component of a sentinel events monitoring system. They are identified through careful analysis of the circumstances in which the events occur, using root cause analysis or other methods.

In compiling this first set of national statistics of sentinel events it was necessary to adopt a standard set of contributing factors for analysis of the events, because there is variation in the contributing factor categories presented in the sentinel event reporting that is already established in some states. For instance, 'patient assessment' is not used as a contributing factor category in published sentinel event information from one state. In another, it is a subcategory under 'problems with application of procedures or guidelines'. These varied systems of categorising factors have emerged via pragmatic development paths from adaptations of existing schemes. For instance, contributing factor descriptions published in the *Sentinel Event Program annual report 2003–04* for Victoria (Department of Human Services, Victoria, 2004) refer to antecedents in the root cause analysis template of the United States Joint Commission on Accreditation of Healthcare Organizations (now The Joint Commission) and the *Checklist flip chart for root cause analysis* of the New South Wales Health Institute for Clinical Excellence (NSW Health 2004).

The categorisation of contributing factors that is used in this report has also emerged in a pragmatic manner. The goal was to accommodate the existing classification schemes that are being used by states and territories for analyses of sentinel and other adverse events. A high-level set of categories that appeared to accommodate these different schemes was circulated to state and territory sentinel event analysis teams in the form of a trial framework. Its initial purpose was to be a guide for the level of detail that would be needed for categorisation of factors.

As data were received at the AIHW, the framework was tested by application of the event information. Progressive changes were made until a satisfactory match was found for contributing factors mentioned in the event reports. After the AIHW had analysed more than 100 sentinel events from several states and territories, the revised categorisation was discussed with the states and territories in terms of both the reasonableness of the categories assigned and on the analytical usefulness of the framework. Further revisions were made to the categorisation until there was agreement that it was suitable for use for this report.

Contributing factor categories

The following list shows nine major categories of contributing factors that resulted from the process described above. Each is described further by a set of subcategories (Box 1) that could also enable the capture of information at a finer level of detail. Aggregate data in this report use only the higher level of detail.

For a comparison of the contributing factor categories adopted for this report with those used in reports published by Australian states, the United States Department of Veterans Affairs and the United States Joint Commission see Appendix 1.

Patient assessment

This category covers initial assessment and ongoing monitoring of the patient's physical and mental state for evaluation of patient risk. Behavioural assessment is particularly relevant in the case of patients who may be at risk of harming themselves.

Staff factors

This category covers factors of a human resource nature, including inadequacies of knowledge or skills to undertake required duties or to deal with a situation that might be expected to arise. It includes training and continuing education (including for tasks specific to the unit or procedure being performed).

Patient factors

This set of factors covers situations where the patient's clinical condition or their action or inaction affects the risk of adverse outcomes. Pre-existing morbidities may cause the patient to have a high risk of an adverse outcome.

Equipment

All contributing factors that relate to hospital equipment are covered by this category, including design or operating faults, maintenance or calibration deficiencies, or suitability for purpose for which the equipment is provided.

Work environment

This category includes factors arising from any aspect of the environment in which the hospital service is provided, including design and security. It includes management of external factors such as contracted services (for example pathology, maintenance or information technology).

Information/documentation

This category covers all factors relating to documentation of information about a patient's care. It includes missing medical records and ambiguous or illegible documentation about the patient.

Communication

This category includes issues arising from lack of effective communication between staff, including across disciplines, units or hospitals, and between staff and patients or their family, carer or advocate. Staff–patient communication issues include medical or technical language problems, difficulties with non-English-speaking patients and other culturally influenced impediments to understanding. It covers all forms of communication.

Rules/policies/procedures

This category includes any situation in which policies or procedures were not understood, not followed or not available.

Coordination

This category deals with factors associated with coordination of patient care arrangements, whether immediate (for example transportation between sites) or longer term (for example a coordinated care plan involving community-based services).

A note on assigning categories of contributing factors

As noted above, some jurisdictions were able to provide more detailed reports of sentinel events than others. Even within jurisdictions, reporting methods and depth of analysis varied, possibly between hospitals or hospital groups. Because of the varied content and depth of the reports, no assurance can be given that the assignment of contributing factors was undertaken in a standardised manner.

In addition, in many situations there can be overlap or confusion about the 'proper' assignment of contributing factor categories. For instance, a factor may be assessed as communication by one assessor and as coordination by another, and perhaps both by a third. Similarly, a staff factor associated with inadequate supervision may be a breach of a policy or procedure referring specifically to the situation. These are the inevitable results of a pragmatic rather than a rigorous categorisation.

The underlying purpose of assigning contributory factors is usually not the production of statistics but the identification of a focus for remedial action to prevent recurrence. In such a context it is less important that an event may attract a number of overlapping categories of contributing factors.

Box 1: Subcategories of contributing factors (content guides for categories)

Patient assessment
- Physical
- Behavioural
- Observation

Staff factors
- Training
- Knowledge/skills/competency
- Supervision
- Staff allocation/scheduling/availability
- Other, for example recruitment/appraisal

Patient factors
- Comorbidity
- Non-compliance
- Aggressive behaviour

Equipment
- Failure
- Availability
- Incompatibility
- Appropriateness

Work environment
- Physical environment
- Design/safety
- Security
- Facilities management
- Work culture

Information/documentation
- Availability of information
- Clarity of information
- Quality of information
- Completeness of information

Communication
- Staff-staff
- Staff-patient
- Staff-family/carer/advocate
- Patient consent issues
- Cultural diversity issues

Rules/policies/procedures
- Availability of or clarity of procedures/guidelines
- Failure to follow procedures/guidelines
- Patient identification
- Site identification

Coordination
- Coordination of care
- Inter-hospital issues
- Transportation issues

4 SENTINEL EVENTS REPORTED IN AUSTRALIAN PUBLIC HOSPITALS, 2004–05

This chapter presents summary information on the number of sentinel events reported in 2004–05 and their contributing factors, as a combined group.

The chapter also includes information about each of the eight individual sentinel event types, including information on the contributing factors, and some detail on the nature and circumstances of the events, and types of actions that followed the events.

Included with the analysis by sentinel event type are case studies selected from sentinel events reported in 2004–05. The case studies provide a summary of the type of information contained in a complete report of a sentinel event. They include information on the actions and recommendations for risk reduction that have emerged from analysis of the sentinel event.

A comparison of the patterns of contributory factors reported for the sentinel events is also included.

Interpretation of the data in this chapter needs to be in the context that the reference year 2004–05 is the first year for which national data have been compiled. Comments on the quality of the data are in Chapter 5 Discussion.

All sentinel events

During 2004–05 Australian public hospitals recorded and acted on 130 events of the type agreed by Australian Health Ministers for national sentinel event reporting (Table 1). The single type of sentinel event that accounted for the greatest number was *Procedures involving the wrong patient or body part*. The next highest counts were of cases of *Retained instruments or other material after surgery requiring re-operation or further surgical procedure* and *Suicide of a patient in an inpatient unit*.

Table 1: National sentinel events reported in Australian hospitals, 2004–05

Sentinel event type	Number of reports
Procedures involving the wrong patient or body part	53
Suicide of a patient in an inpatient unit	25
Retained instruments or other material after surgery requiring re-operation or further surgical procedure	27
Intravascular gas embolism resulting in death or neurological damage	1
Haemolytic blood transfusion reaction resulting from ABO incompatibility	1
Medication error leading to the death of a patient reasonably believed to be due to incorrect administration of drugs	7
Maternal death or serious morbidity associated with labour or delivery	16
Infant discharged to the wrong family	0
Total	**130**

Contributing factors

Along the path from reporting of sentinel events through risk identification to implementation of remedial action, states and territories analyse the circumstances of each event to identify contributory factors. As described in the Methods chapter, the information provided by states and territories on the sentinel events was used to develop and apply a categorisation of contributory factors for this report.

Table 2 shows analysis using the nine high-level contributing factor categories described in the methods. This means that events are not counted more than once against any of the nine categories, regardless of the number of subcategories in which a more specific contributing factor was identified.

The most commonly assigned contributing factor was *Lack of, problems with or breakdown in rules/policies/procedures*. *Lack of, problems with or breakdown in information/documentation* and *Lack of, problems with or breakdown in communication* were also relatively more commonly assigned.

Table 2: Contributing factors reported by sentinel event type,[(a)] 2004–05

	Sentinel event type							
Lack of, problems with, breakdown in or not followed:	Wrong patient/ body part	Suicide of inpatient	Retained instrument/ other	Intravascular gas embolism	Blood transfusion reaction	Medication error	Maternal death/ morbidity	All event types
Rules/policies/ procedures	36	5	7	0	1	2	3	54
Information/ documentation	17	9	4	0	0	3	2	35
Communication	18	3	2	0	0	3	6	32
Patient factors	1	10	0	0	0	0	7	18
Staff factors	10	2	6	0	0	2	3	23
Equipment	2	1	6	0	0	1	2	12
Work environment	6	5	0	0	1	1	1	14
Patient assessment	1	6	1	0	0	0	1	9
Coordination	3	2	0	0	0	0	1	6

(a) Events for which no information on contributing factors could be extracted (43 events overall) are excluded. See Table 7 for the numbers of contributing factors reported by sentinel event type.

The data presented in Table 2 show a greater number of contributing factors (203 in total) than the number of sentinel events reported in Table 1 (130). However, this ratio of contributing factors to events is lower than expected, because of constraints on the level of detail about events that could be provided by some states and territories. Table 2, and the tables shown below for specific sentinel event types, should be interpreted as indicative of the relative contribution of those factors to sentinel events.

Figure 1 at the end of this chapter provides a graphic description of the relative patterns of contribution of factors to different sentinel event types.

Individual sentinel event types

Procedures involving the wrong patient or body part

Of 53 reports of this sentinel event, 20 involved the wrong patient. For these 20 patients the numbers were approximately evenly divided between invasive procedures and diagnostic procedures such as radiology and other imaging.

Ten patients had invasive procedures performed on the wrong body site and five were given anaesthetics/blocks to the wrong area of the body.

There was insufficient information from which to describe the nature of the event for the remainder of patients involved in this type of sentinel event.

The degree of harm experienced by patients was not always catastrophic. Even invasive procedures on the wrong patient or body part included some relatively minor surgical procedures (for example, relating to teeth). See comments on this point in Chapter 5 Discussion.

At least one contributing factor was identified for 41 of the 53 events of this type. Most of the events could be associated with failures related to policies and procedures, including guidelines for identification of the correct side and correct site for the procedure (Table 3). Problems with communication and with the availability or quality of information about the patient each contributed in a proportion of cases.

Table 3: Contributing factors reported for procedures involving the wrong patient or body part, 2004–05

Lack of, problems with or breakdown in:	Number of contributing factors
Rules/policies/procedures	36
Information/documentation	17
Communication	18
Patient factors	1
Staff factors	10
Equipment	2
Work environment	6
Patient assessment	1
Coordination	3

Risk reduction strategies that were recommended or implemented in various hospitals after their analysis of these sentinel events included:

- requiring patients to state their own name rather than accepting a 'yes' response to a staff member's statement
- ensuring that request, consent and recommendation for admission are all on one form
- making individual rather than joint appointments for family members attending clinics together, and allowing only one patient's medical record into the consulting room while that patient's consultation is in progress

- assessing the adequacy of signage in ambulatory care clinics, including the need for signs in community languages other than English
- implementing 'Correct side' and 'Correct site' surgery guidelines
- carrying 'Left' and 'Right' side identification tags with portable X-ray equipment
- placing a double X-ray viewing box in the emergency department.

Case study 1 provides an illustration of a sentinel event in 2004–05 that involved a procedure being undertaken on the wrong patient.

Case study 1: Procedure involving the wrong patient or body part

Event description

Two non-English-speaking patients, with a common surname, each presented themselves for a colonoscopy. Each was accompanied by an interpreter. A doctor called the full name of patient 1 but was answered by patient 2 and went ahead with the procedure. The identification error was discovered when patient 1 approached clinic staff after waiting 3 hours to be called. Patient 2 was then correctly identified. Both patients had been awaiting the same procedure.

Contributing factors

Communication: The coincidence of two non-English-speaking patients having a common surname contributed to communication problems associated with identification of the correct patient. Absence of signage in languages other than English could have contributed to patient 2 not checking into the clinic reception.

Policies and procedures: Lack of a formal process by which staff were required to positively identify each patient contributed to the incorrect patient undergoing the procedure.

Risk reduction

After the analysis of contributing causes, action was taken by the hospital to assess all of its ambulatory clinics for the adequacy of signage, in English and relevant community languages, clearly instructing patients to register at the clinic's reception. Management also actively implemented the 'Correct patient, correct site, correct procedure' policy and reinforced to all staff the need to use available resources, including interpreters, to ensure correct patient identification.

System-wide issues

The hospital chief executive was to write to university training centres to request that patient identification practices be included and/or reinforced in relevant curricula and that staff responsibilities concerning patient identification be included in medical and nursing handbooks.

Suicide of a patient in an inpatient unit

Of the 25 suicides reported to have occurred in inpatient units, at least one contributing factor could be identified in 16 events. Patient factors, including predisposition to suicide when the patient was admitted, were identified as contributing in the majority of these 16 events. Overlapping with this were problems with patient information that was available to staff. Patient assessment factors contributed in over one-third of cases (Table 4).

Table 4: Contributing factors reported for suicide of a patient in an inpatient unit, 2004–05

Lack of, problems with or breakdown in:	Number of contributing factors
Rules/policies/procedures	5
Information/documentation	9
Communication	3
Patient factors	10
Staff factors	2
Equipment	1
Work environment	5
Patient assessment	6
Coordination	2

Risk reduction strategies that have been implemented or recommended include:

- ensuring mandatory suicide awareness training for clinic staff and maintaining a database for monitoring implementation
- review of the suicide risk assessment tool in use in emergency departments
- preparing a system-wide suicide prevention strategy
- removal of bathroom fittings that may facilitate suicide attempts in mental health unit.

Case study 2 describes a typical case of this type and the actions that were taken to change practice and to improve the safety of the facility for future patients.

Case study 2: Suicide of a patient in an inpatient unit

Event description

A patient, rated a high suicide risk, was admitted to a mental health unit following assessment in a community mental health service. Standard 15-minute observations were instituted after a review by a consultant medical officer and visiting medical officer. Later, after a shift changeover, the patient was found hanged, within 5 minutes of a routine observation. A faulty emergency alarm caused staff some delay in contacting the emergency resuscitation response team.

Contributing factors

Equipment: The design of a tap fitting on the bathroom hand basin allowed it to be used as a point of ligature for suicide by hanging. Staff were unaware that a wall alarm in the mental health unit was faulty.

Policies and procedures: The unit did not have standardised guidelines for communication of risk at shift changeover, after which the fatal incident occurred.

Risk reduction

Within the unit a regular maintenance and testing regimen was recommended to ensure that the wall alarm remains in working order. Standardised procedures were recommended for risk assessment, shift handover and level of observation. Review and replacement of all fittings in the unit was recommended, to minimise the risk that they provide a point of ligature.

System-wide issues

A review of mental health facility planning guidelines in regard to tap designs for hand basins was recommended.

Retained instruments or other material after surgery requiring re-operation or further surgical procedure

Of the 27 events of this type reported, at least one contributing factor was identified in 16 cases. Analysis of the contributing factors for these events is shown in Table 5.

Table 5: Contributing factors reported for retained instruments or other material after surgery requiring re-operation or further surgical procedure, 2004–05

Lack of, problems with or breakdown in:	Number of contributing factors
Rules/policies/procedures	7
Information/documentation	4
Communication	2
Patient factors	0
Staff factors	6
Equipment	6
Work environment	0
Patient assessment	1
Coordination	0

A range of different factors contributed to surgical patients requiring re-operation to remove instruments or other material from an earlier operative procedure. In nearly half of the events a contributing factor was failure to follow policies and procedures, for example relating to counts of instruments and material used. Equipment problems, generally associated with instrument breakage, were the next most common for this event type, along with staff factors. Some staff factors were related to time pressures or to staff being distracted by other duties during the course of surgery. Sometimes there was a breakdown in supervision of less experienced staff.

For some of the cases, a re-operation was not reported, and it was not clear whether re-operation had been considered necessary to remove material left in the patient. Such cases are included in these statistics.

Case study 3 describes a typical case for which multiple contributing factors were identified.

Case study 3: Retained instruments or other material after surgery requiring re-operation or further surgical procedure

Event description

A surgical sponge was reported missing after peritoneal suturing was complete and wound closure was under way. The patient had undergone a lumbar spinal fusion procedure. Sponges were inserted into the wound during a nursing shift changeover that occurred during the operation. The patient had begun to awaken from the anaesthetic when a post-operative X-ray confirmed retention of the sponge in the patient's abdomen. Immediate retrieval of the sponge was not feasible. It was removed during an uneventful return to theatre on the following day.

Contributing factors

Work environment: Staff were under pressure to begin a tightly scheduled afternoon theatre list during which lengthy procedures were to be undertaken.

Staff factors: Although experienced in a wide range of surgery it was the scrub nurse's first operation of this type. The surgeon left the operating theatre after peritoneal suturing was complete, leaving wound closure to the registrar.

Policies and procedures: Incorrect setup of the operating lists due to pressure to start.

The registrar was unaware of a policy requiring an immediate X-ray check of the patient when a count discrepancy arose. Instead, an earlier, intra-operative X-ray that had been enhanced for a different purpose was reviewed in the first instance, with inconclusive results.

Communication: The surgeon had placed sponges inside the patient during changeover, without knowledge of the scrub nurse. Once the sponge count discrepancy was realised, communication of the situation to the Registered Nurse coordinator was not immediate.

Risk reduction

A general review of the theatre setup process was recommended. Specific matters for attention included the scheduling of potentially long cases and scheduled list times, the method of allocating cases and changeover strategies. A review of appropriate policy/procedures was performed to ensure that:

- scrub nurse was notified of surgical sponges placed in cavities
- surgeons remain in the theatre area until verification of count
- discrepancies be communicated to all members of the surgical team.

The appropriateness of viewing X-ray material for other than its primary purpose was also recommended for review. The hospital is to develop strategies to ensure policy procedure compliance for all disciplines.

Risk reduction strategies that were implemented or recommended after review of other cases include:

- advising manufacturers directly and via the Therapeutic Goods Administration of instrument failure, leaving broken parts inside patients during operations
- implementing a policy that an X-ray be taken immediately when counts of instruments or other materials used in operating theatres do not reconcile with inventory lists
- using a whiteboard in operating rooms to record swabs inserted and removed from body cavities during operations.

Intravascular gas embolism resulting in death or neurological damage

One sentinel event involving intravascular gas embolism resulting in death or neurological damage was reported as having occurred in 2004–05. No contributing factors were identified in the information provided for this report.

Haemolytic blood transfusion reaction resulting from ABO incompatibility

One sentinel event involving haemolytic blood transfusion reaction resulting from ABO incompatibility was reported as having occurred in 2004–05. It is not analysed in the same format as the sentinel event types reported above but is presented here as a case study that illustrates the risk of this type of error, how it was analysed and the response.

Case study 4: Haemolytic blood transfusion reaction resulting from ABO incompatibility

Event description

Blood transfusions were required for two patients on the same ward. The blood product was delivered by courier from another site and taken to the ward by the nursing coordinator. The coordinator only knew of one transfusion order and assumed the blood was for that patient.

The patient receiving the transfusion had only just been admitted to the unit directly from theatre so staff were unfamiliar with the patient. A nurse was called from another area to assist in the set-up and checking of the transfusion as per protocol. Given disruption and workload, neither nurse realised that the patient-checking procedure had not been completed.

During the next hour the patient became restless and distressed and developed a high temperature. On checking the unit of blood, the nurse discovered the blood was for another patient and the transfusion was ceased. The patient was medically reviewed and closely monitored overnight.

Contributing factors

Communication: Staff did not communicate who the blood was for or check the patient details on the unit of blood.

Staff factors: Staff were distracted because it was a busy night shift and their workload was high because of a large number of patients.

Policies and procedures: There was a failure to follow the correct identification protocol, which requires two nurses to check all details against the unit of blood and patient identification label to ensure that they match and that the correct patient receives the correct unit of blood.

Risk reduction

The following risk reduction strategies were implemented:

- having laboratory staff communicate directly with the off-site unit receiving the blood product about its delivery and who it is being delivered for
- using only unique patient identifiers, such as patient name, date of birth and unit record number, when requesting blood or blood products
- developing an education program for all staff to ensure the use of the correct protocol in managing blood and blood products in order to ensure that the right patient receives the right transfusion. This protocol includes two staff checking all blood and blood products when commencing transfusions, and checking unique patient identifiers, such as patient name, date of birth and unique record number, against the unit of blood/blood products.

Medication error leading to the death of a patient reasonably believed to be due to incorrect administration of drugs

Of the seven sentinel events involving medication error, contributing factor information was reported for only three cases. There was one overdose of morphine resulting from wrong settings for a new infusion pump, a large overdose of a psychiatric drug and a death resulting from a dose error after a change of medication for pain management. Though the small numbers do not support detailed analysis of contributing factors, it can be noted that that problems with communication and with information were identified as contributing factors in each of these cases.

Examples of risk reduction strategies reported to have been employed to prevent medication errors include:

- establishment of a quality use of medicines reference group
- use of smart pumps technology to prevent intravenous medication dose error
- participation in a National Medical Safety Breakthrough Collaborative sponsored by the Council.

Maternal death or serious morbidity associated with labour or delivery

Among the 16 events involving maternal death or serious morbidity associated with labour or delivery, there were five cases of maternal death. Of the remaining events for which sufficient information was provided nine involved complications leading to an hysterectomy. Documentation of the remaining two events did not indicate whether a death was involved.

There were 10 events for which contributing factor information was reported.

Table 6: Contributing factors reported for maternal death or serious morbidity associated with labour or delivery, 2004–05

Lack of, problems with or breakdown in:	Number of contributing factors
Rules/policies/procedures	3
Information/documentation	2
Communication	6
Patient factors	7
Staff factors	3
Equipment	2
Work environment	1
Patient assessment	1
Coordination	1

Patient factors, generally a high-risk pregnancy because of pre-existing morbidities, were identified as contributing factors in three-quarters of these cases. Communication factors contributed in over half. The 11 cases for which detailed information was analysed included 3 where post-partum haemorrhage or other complication led to an hysterectomy.

Risk reduction strategies that were implemented or recommended following analysis of these events include:

- assigning a staff member for code blue (emergency resuscitation) coordination
- adding a maternal emergency checklist to emergency response trolleys
- development of a massive blood transfusion policy.

Infant discharged to the wrong family

There were no events of this type reported in 2004–05.

Contributing factor reporting patterns

Figure 1 illustrates how the patterns of reporting of contributing factors varied by sentinel event type.

Problems with the existence or application of policies and procedures were the leading contributors to procedures involving the wrong patient or wrong body part as well as to retained instruments after surgery. Patient factors, usually involving comorbidity, were leading contributors to suicides of patients in inpatient units and to maternal death or serious morbidity associated with labour or delivery.

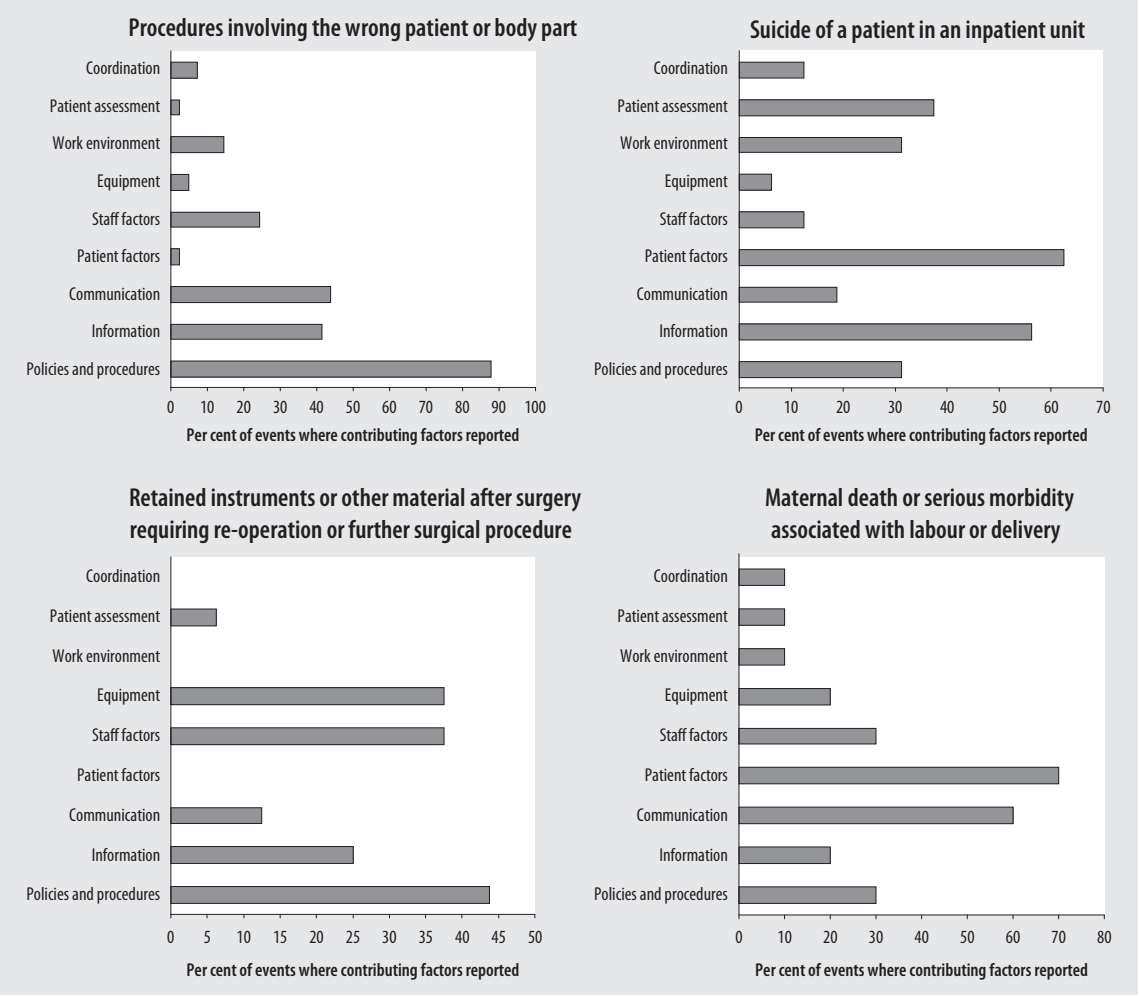

Figure 1: Pattern of contributing factor reporting for selected sentinel events, 2004–05 (per cent)

5 DISCUSSION

The quality of sentinel event data for 2004–05

Several factors have limited the quality of information that could be compiled for this report. They relate to definitions of sentinel events, coverage of events reported, adequacy of the categorisation and a varying depth of the reports from which the statistical component of this report has been compiled. These shortcomings are judged to be outweighed by the value of publishing the information as a demonstration of commitment to improved patient safety.

Definitions of sentinel events

The list of sentinel events nominated by Australian Health Ministers for national reporting includes eight event types. These event types were defined only by their title, without supporting documentation. Not all of the titles, or descriptions, serve well as unambiguous definitions of the group of sentinel events as a whole, or of the individual sentinel event types.

Available definitions of sentinel events are more indicative than prescriptive. Four separate definitions have been offered by the Council in its shared meanings project (see Glossary). They incorporate a mixture of concepts that include some or all of:

- severity of outcome for a patient (death or serious harm)
- whether such outcome actually occurred (actual or potential harm)
- whether the event could have been expected (unexpected outcome).

Other references add frequency of occurrence as a qualifier (for example, rare but catastrophic).

In these circumstances the inclusion or exclusion of an event from national sentinel event reporting is open to interpretation in a number of ways.

In their own descriptions relating to the eight national sentinel event types, state and territory documentation contains variations from the nationally agreed wording (Appendix 2). Even where event descriptions are similar, or even identical, local policy may determine variations in scope, such as whether or not a patient on day leave should be regarded as 'in an inpatient unit'. At the least, variations of this kind lead to uncertainty about the consistency of reporting that takes place at the hospital level.

An issue that became especially evident in the analysis of events reported was the interpretation of what might be actual or potential serious harm. It became evident in discussions with states and territories that some, but not all, jurisdictions had applied a severity 'filter' to incidents reported as sentinel events. There was, for example, variation between jurisdictions in reporting events as 'sentinel events' if they related to procedures involving wrong site administration of anaesthetics. Jurisdictions also varied their reporting of diagnostic imaging, corrected without serious harm to the patient, or procedures involving the wrong tooth. Questions were also raised in discussion with the states and territories about interpretations of 'serious maternal morbidity'.

Coverage of sentinel event reporting

Sentinel event reporting is newly established, still subject to implementation processes in several states and territories. In one jurisdiction the data may not relate to complete implementation for a full year and to that extent will undercount the number of events that may have occurred during 2004–05.

Overseas experience would indicate that reporting is likely to increase as hospital staff become comfortable with a process that may initially invoke the fear of being blamed for error.

Both of these factors suggest that 2004–05 data will underestimate the true incidence of sentinel events and that growth will occur in the number of sentinel events reported for subsequent years.

Categories of contributing factors

As is described in the Methods chapter, the categorisation of contributing factor information distilled from event reports has been developed pragmatically for the purposes of this report. Its origins were in analysis for implementing actions to improve patient safety and quality of health care, rather than in statistics. Many of the categories of contributing factors overlap and there are no formal definitions to guide selection of a category for a particular factor. Users should note this fact when evaluating information based on this categorisation.

In addition, the number of contributing factors identifiable from the reports was affected by the level of detail available (as indicated in the Methods chapter). Up to six contributing factors were identified for a single sentinel event but for one-third of all sentinel events there were no contributing factors identified. Table 7 presents information on the distribution of the number of contributing factors able to be identified, and may assist interpretation of the data on contributing factors.

Table 7: Number of contributing factors (distribution), 2004–05

	Number of contributing factors reported or identified in the reported information							
Sentinel event type	**0**	**1**	**2**	**3**	**4**	**5**	**6**	**Total**
Procedures involving the wrong patient or body part	12	11	13	11	6	0	0	53
Suicide of a patient in an inpatient unit	9	5	3	3	2	3	0	25
Retained instruments or other material after surgery requiring re-operation or further surgical procedure	11	10	2	4	0	0	0	27
Intravascular gas embolism resulting in death or neurological damage	1	0	0	0	0	0	0	1
Haemolytic blood transfusion reaction resulting from ABO incompatibility	0	0	1	0	0	0	0	1
Medication error leading to the death of a patient reasonably believed to be due to incorrect administration of drugs	4	0	1	0	1	0	1	7
Maternal death or serious morbidity associated with labour or delivery	6	2	3	2	3	0	0	16
Infant discharged to the wrong family	0	0	0	0	0	0	0	0
Total	**43**	**28**	**23**	**20**	**12**	**3**	**1**	**130**

Other sources of information related to sentinel events

Sources of related information may assist with interpretation of some of the information presented in this report.

Maternal deaths in Australia 2000–2002 is a comprehensive report on maternal deaths in Australia, and provides information about events related to the sentinel event *Maternal death or serious morbidity associated with labour or delivery* (Sullivan & King 2006).

The Council's *Charting the safety and quality of health care in Australia* (ACSQHC 2004) presents a number of performance indicators related to the safety of hospital care. Included are estimates of deaths associated with adverse events, drug adverse events and post-operative pulmonary embolism.

Australian hospital statistics 2004–05 (AIHW 2006a) includes summary information on adverse events identifiable in routinely collected hospital separations data.

Medical indemnity national data collection, public sector 2004–05 (AIHW 2006b) presents data on the number, nature, incidence and costs of public sector medical indemnity claims for the period 1 July 2004 to 30 June 2005. It describes incidents that gave rise to claims, the people affected by these incidents, and the size, duration and finalisation of medical indemnity claims.

Further information about statistical reports relevant to the safety and quality of health care in Australia is available on the AIHW website subject portal 'Safety and quality in health care' at <http://www.aihw.gov.au/safequalityhealth/index.cfm>.

Recommendations for sentinel event data development

Recommendations for the development of sentinel event data for national reporting will inevitably affect data and systems in place at the state and territory level. Much effort has been made over recent years to establish incident reporting and analysis with the prime aim of improving patient safety. This section therefore includes information on what could be done in the short term to improve the quality and comparability of national sentinel event information that can be distilled from existing incident reporting and analysis systems. Possible directions for improvement in the longer term are also indicated.

Any data development (and future national reporting of sentinel events data) would be undertaken within the framework being developed by the Commission for improving information on the safety and quality of health care in Australia.

In this context, the Commission will be undertaking work to consider the merits and potential for improving and sharing national information on clinical incidents, including sentinel events, with the aim of improving patient safety.

Short-term strategies

Scope and definition of sentinel events

As noted earlier in this chapter, no detailed definitions of sentinel events have been available to support national reporting. Clearer definitions would give more certainty to those making judgments on specific events and add to the quality of national statistics. Definition development is desirable at both the general level, to clarify the scope of events that are 'sentinel', and at the level of each type of sentinel event, to clarify the meaning of terms such as 'serious morbidity' (as in *Maternal death or serious morbidity associated with labour or delivery*) or 'neurological damage' (in relation to *Intravascular gas embolism resulting in death or neurological damage*).

Agreement on detailed definitions of sentinel events of each type would also remove the potential for inconsistent reporting that is created by the variations in descriptions used by states and territories. See Appendix 2 for an understanding of those variations from national sentinel event descriptions.

An aspect of definition development that would be beneficial at the general level is to define a relationship with the risk assessment criteria that are assigned in incident reporting systems of several states and territories. While applications vary to some extent, risk assessment is usually against a matrix with dimensions of seriousness of outcome and likelihood of occurrence. Some states, in effect, categorise events with the highest seriousness/likelihood combination as a locally defined 'sentinel event', requiring full root cause analysis and remedial response. They appear as an 'other' category of sentinel event in state-based reports. They include events such as deaths or other serious outcomes from complications of surgery or other patient management, medication error causing patient harm without death, fetal complication and neonatal death, and patient falls. As risk assessment matrixes are an integral part of most state and territory incident reporting and monitoring systems, their relationship with the concept of 'seriousness' in sentinel event definitions could be articulated.

The possibility exists for an expansion of the national sentinel event reporting list to include some or all of the 'other sentinel events' analysed and in some cases reported by states and territories.

On the other hand, some events presently included as sentinel events could be reviewed. For instance, adverse outcomes related to rare but known complications of pregnancy could be excluded.

As the number of sentinel events reported by each state and territory is a subset of events examined locally, and is not large, it should be feasible to implement refined definitions of national sentinel events at the point of reporting, without affecting current reporting requirements for hospitals. Therefore the following recommendations are made for implementation in the short term, to improve national sentinel event reporting.

Recommendation 1: That practicable definitions of sentinel events in general, and of national sentinel event types in particular, be prepared before further national reporting on sentinel events in Australian hospitals.

Recommendation 2: That the concept of severity in sentinel event definitions be harmonised with concepts associated with risk assessment (severity of outcome and likelihood of recurrence).

Categories of contributing factors

Categories of contributing factors described in the Methods chapter have received broad endorsement by states and territories for use in this report. While some issues for further development have been identified, for instance in relation to the relevance of comorbidity as a contributing factor, the list of categories can be a benchmark for continuing the reporting process and a starting point for developing a more robust scheme. The latter may become part of longer term objectives. Nevertheless, an immediate improvement in the quality of information could be obtained by augmenting the current categories with guidelines for their use, and by applying them within states and territories as closely as possible to the primary reporting source. This would go a long way towards overcoming the limitations in applying the categories at a national level, where reports of variable format and content constrained the analysis (as described earlier in this chapter).

Recommendation 3: That the categories of contributing factors described in this report be articulated more fully and assigned at state and territory level before data, including narrative information, are submitted for future national sentinel events reports.

Although categories of contributing factors would be assigned before submission for a national report, narrative reports could also be contributed to enrich the information from which national reporting takes place.

Longer term strategies

Longer term development strategies will depend on the objectives that are determined for ongoing national reporting of sentinel events and other measures of the safety and quality of health care in Australia.

For statistical analysis and contribution to statistical information about the safety and quality of health care in Australia, developments parallel to those applied to mainstream national data systems could be considered. These would include standardising data elements and modes of data collection, further developing categories of contributing factors, harmonising concepts with related national health data collections and perhaps specifying a national minimum data set to be managed under the National Health Information Agreement.

For the classification of contributing factors, the development path would include definitions and resolution of areas of overlap, leading to a coding manual for use in root cause analysis or other incident investigation techniques. A timeframe for such work, if it proceeds, should take account of the investment already made by state and territory hospital systems to implement incident monitoring and reporting to its present stage.

Greater compatibility of sentinel events reporting systems with other health services data could be achieved by adding patient characteristics consistent with those of the National Minimum Data Set for Admitted Patient Care and information about the harm caused, harmonised with the International Classification of Diseases and Related Health Problems, 10th Revision, Australian modification (as used to record diagnosis information for admitted patients in hospitals).

Medium to longer term developments should be in conjunction with work being undertaken by the World Health Organization on an International Patient Safety Event Classification (http://www.who.int/patientsafety/taxonomy/en/). The objectives of this program include standards for classification of contributing factors and actions taken. This work has obvious parallels with the work to develop sentinel event reporting in Australia. Participation would bring the added benefit of enabling international comparisons and benchmarking the performance of Australian health systems for patient safety.

APPENDIX 1—COMPARISON OF CONTRIBUTING FACTOR CATEGORIES

This report	NSW	Victoria	WA	SA	US VA[a]	US JCAHO[b]
Communication	Communication	Communication	Communication	Communication	Communication	Communication
			Translation issues			
Information/ documentation		Health information	Health information	Health information	Lack of information (or misinterpretation of information)	Availability of information
Patient factors	Patient factors		Other factors (patient comorbidity)	Patient factors		
Equipment	Equipment	Equipment	Equipment		Equipment	
Patient assessment		Procedures/ guidelines:	Policy, procedures and guidelines:		Patient assessment	Patient assessment
Policies and procedures	Policies, procedures or guidelines	Patient assessment	Patient assessment	Procedures and guidelines	Rules/policies/ procedures (or lack of)	Procedural compliance
Coordination:		Coordination of care	Coordination of care			Continuum of care
Coodination of care		Facilities management	Inter-hospital issues			
Inter-hospital issues		Transportation	Transportation issues			Care planning
Transportation						
Staff factors:	Knowledge, skills and competence	Human resources	Human resources	Human resources	Staff training or staff competency	Orientation, training
Allocation/ scheduling						Competency, credentialing
Supervision					Personnel or personal factors	Staffing
Work environment:	Work environment / scheduling	Physical environment	Physical environment	Physical environment	Work environment	Environment, safety, security
Physical environment	Safety mechanisms				Barriers (to protect patients, staff, equipment or environment)	
Design/safety						
Security						
Facilities management		External factors		External factors		
Work culture						
				Organisation, incl. culture		Organisation culture
						Leadership

(a) US VA = United States Department of Veterans Affairs.

(b) US Joint Commission = The former United States' Joint Commission on Accreditation of Healthcare Organizations, now The Joint Commission.

APPENDIX 2—SENTINEL EVENT DESCRIPTIONS USED BY STATES AND TERRITORIES

The following is the agreed national list of sentinel events, annotated with variations evident in state/territory documentation about their sentinel event monitoring arrangements and/or the sentinel event information provided for this report. All variations are indicated, regardless of apparent significance. Sources are listed below.

Procedures involving the wrong patient or body part

NSW: Procedure …

Vic: Procedure … (Note: used in published tables)

Qld: Surgery/procedure on the wrong patient/wrong body part

Suicide of a patient in an in-patient unit

NSW: Suicide in hospital

Vic: Suicide in an inpatient unit

Qld 1: (from general list of sentinel events) Suicide of a patient (Note: is a component of 'Deaths including:' – see Additional, below)

Qld 2: (from mental health specific list of sentinel events) Suicide or unexpected death in respect of:

Any patient (inpatient or community) of a mental health service

Any person who has been in contact with a mental health service or emergency department within the 7 days preceding the incident

SA: Suicide in an inpatient unit

ACT: Suicide of a patient in an in-patient facility (Note: on Sentinel Event Report Form is '… in an in-patient unit')

Retained instruments or other material after surgery requiring re-operation or further surgical procedure

NSW: Retained instrument or other material after surgery

Qld: Instrument or other materials inadvertently left in body cavity or operation wound following a procedure

SA: Retained instruments or other material after surgery requiring further surgical procedure

Intravascular gas embolism resulting in death or neurological damage

SA: Intravascular gas embolism resulting in serious neurological damage or mortality

ACT: Intravascular gas embolus resulting in death or neurological damage

Haemolytic blood transfusion reaction resulting from ABO incompatibility

No variations.

Medication error leading to the death of a patient reasonably believed to be due to incorrect administration of drugs

NSW: Medication error resulting in death of a patient

Qld: Death of a patient as a direct and immediate result of medication error (Note: a component of 'Deaths including:' – see Additional, below)

Maternal death or serious morbidity associated with labour or delivery

NSW: Maternal death or serious morbidity associated with labour or delivery EXCLUDING neonates and babies

Qld: Direct maternal death (Note: a component of 'Deaths including:' – see Additional, below)

Infant discharged to the wrong family

NSW: Infant discharged to wrong family

Vic: Infant discharge to wrong family (Note: 'Infant discharged …' in published tables)

Qld: Infant discharged to wrong family

WA: Infant discharged to wrong family or infant abduction

SA: Infant discharge to the wrong family

ACT: Infant discharged to wrong family or infant abduction

NT: Infant discharged to wrong family or infant abduction

Additional sentinel events, not in agreed national list of core sentinel events

Vic: Other event

Qld: Deaths including:

- suicide of a patient (also listed above)
- death of a patient as a direct and immediate result of medication error (also listed above)
- death of a patient during inter-hospital transfer
- direct maternal death (also listed above)
- sudden and unexpected death of an infant associated with labour or delivery
- unexpected death of a patient during surgery
- unexpected death of a patient

WA: Other catastrophic event resulting in serious harm or patient death

NT: Harm to a client in custody

NT: An event resulting in serious client harm or client death other than in the list above

NT: An event that could have resulted in one of the above outcomes (Near miss)

Sources of state and territory sentinel event descriptions:

NSW: NSW Health. *Patient Safety and Clinical Quality Program: second report on incident management in the NSW public health system 2004–2005*

Vic: Victorian Government Department of Human Services. *Sentinel event program: annual report 2003–04.* (Note: there are minor variations between text and table listings, involving swapping of singular and plural for some words)

Qld: Queensland Health policy statement. Incident Management Policy 10. June 2004.

WA: Statewide Sentinel Event Reporting Policy

SA: South Australian Department of Health. *Improving the system: South Australian patient safety report 2003–2004.*

ACT: ACT Health Sentinel Event Report Form

NT: Northern Territory Government Department of Health and Community Services Sentinel Event Reporting Policy, February 2006.

GLOSSARY

Adverse event	An incident in which unintended harm resulted to a person receiving health care (ACSQHC).
Blame	Being held at fault (implies culpability) (ACSQHC).
Error	Error will be taken as a generic term to encompass all those occasions in which a planned sequence of mental or physical activities fails to achieve its intended outcome, and when these failures cannot be attributed to the intervention of some chance agency (Reason 1990).
Health care	Services provided to individuals or communities to promote, maintain, monitor or restore health. Health care is not limited to medical care and includes self-care (ACSQHC).
Incident	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 (ACSQHC).
Near miss	An incident that did not cause harm (ACSQHC).
Open disclosure	The process of open discussion of adverse events that result in unintended harm to a patient while receiving health care, and the associated investigation and recommendations for improvement (ACSQHC).
Patient safety	The avoidance or reduction to acceptable limits of actual or potential harm from health care management or the environment in which health care is delivered (National Health Performance Committee 2001).
Public hospital	A hospital controlled by a state or territory health authority. Public hospitals offer free diagnostic services, treatment, care and accommodation to all eligible patients (AIHW 2006a).
Qualified privilege legislation	Qualified privilege legislation varies between jurisdictions but generally protects the confidentiality of individually identified information that became known solely as a result of a declared safety and quality activity. Certain conditions apply to the dissemination of information under qualified privilege (ACSQHC).
Risk	The chance of something happening that will have an effect upon objectives. It is measured in terms of consequences and likelihood (AS/NZS 4360:1999 Risk Management Standard).

Root cause analysis	A systematic process whereby the factors which contributed to an incident are identified (ACSQHC).
Safety	The degree to which the potential risk and unintended results are avoided or minimised (ACSQHC).
Sentinel events	Events that lead to serious patient harm (ACSQHC). Events in which death or serious harm to a patient has occurred (Victorian Department of Human Services). An unexpected occurrence involving death or serious physical or psychological injury, or the risk thereof (Reason 1990). An incident with actual or potential serious harm, or death (Standards Australia 2001).
System failure	A fault, breakdown or dysfunction within an organisation's operational methods, processes or infrastructure (ACSQHC).

REFERENCES

ACSQHC (Australian Council for Safety and Quality in Health Care) 2001. Safety in practice: making health care safer, second report to the Australian Health Ministers' Conference, 1 August 2001. Canberra: ACSQHC.

ACSQHC 2002. Safety through action: improving patient safety in Australia. Third report to the Australian Health Ministers' Conference, 19 July 2002. Canberra: ACSQHC.

ACSQHC 2003. Patient safety: towards sustainable improvement. Fourth report to the Australian Health Ministers' Conference, 31 July 2003. Canberra: ACSQHC.

ACSQHC 2004. Charting the safety and quality of health care in Australia. Attachment to Maximising national effectiveness to reduce harm and improve care. Fifth report to the Australian Health Minister' Conference, 29 July 2004. Canberra: ACSQHC.

AIHW (Australian Institute of Health and Welfare) 2006a. Australian hospital statistics 2004–05. Health Services Series no. 26. Cat. no. HSE 41. Canberra: AIHW.

AIHW 2006b. Medical indemnity national data collection, public sector 2004–05. Health Services Series no. 42. Cat. no. HSE 42. Canberra: AIHW.

Department of Health, South Australia 2006. Improving the system: South Australian patient safety report 2003–2004. Adelaide: South Australian Department of Health.

Department of Health, Western Australia 2006. Delivering safer health care in Western Australia: the second WA sentinel event report 2005–2006. Perth: Western Australian Department of Health.

Department of Human Services, Victoria 2004. Sentinel event program annual report 2003–04. Melbourne: Victorian Government Department of Human Services.

Department of Human Services, Victoria 2006. Sentinel event program: annual report 2005–06. Melbourne: Victorian Government Department of Human Services.

Joint Commission on Accreditation of Healthcare Organizations 2005. Root cause analysis matrix: minimum scope of root cause analysis for specific types of sentinel events. October 2005. Viewed 25 September 2006, <http://www.jointcommission.org/SentinelEvents>. Oakbrook Terrace, Illinois: Joint Commission on Accreditation of Healthcare Organizations.

NSW Health 2006. Patient Safety and Clinical Quality Program – third report on incident management in the NSW public health system 2005–2006. North Sydney: NSW Health.

NSW Health 2004. Checklist flipchart for root cause analysis. North Sydney: NSW Health.

Queensland Health 2007. Patient safety: from learning to action. First Queensland Health report on clinical incidents and sentinel events. Brisbane: Queensland Health.

Sullivan EA & King JF (eds) 2006. Maternal deaths in Australia 2000–2002. Maternal Deaths Series no. 2. Cat. no. PER 32. Sydney: AIHW National Perinatal Statistics Unit.

US VA (United States Department of Veterans Affairs, National Center for Patient Safety) 2004. Glossary of patient safety terms. Washington, DC: United States Department of Veterans Affairs. Viewed 22 May 2007, <http://www.va.gov/ncps/glossary.html#rca>.

TABLES

FIGURE