



Government of **Western Australia**  
Department of **Health**

# Your Safety in Our Hands in Hospital

**An Integrated Approach to Patient Safety Surveillance in  
WA Hospitals, Health Services and the Community: 2014**

Delivering Safer Care Series Report Number 3



### Acknowledgements

The PSSU would like to thank and acknowledge the contribution of all clinical and administrative staff who have devoted their time and effort to notify, report and investigate clinical incidents with the goal to improve health care delivery. We would also like to acknowledge the patients and their families who have experienced unintended harm whilst receiving care in our health system. By reporting, investigating, implementing change and sharing the lessons learned, we aim to reduce error and improve patients' safety.

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**Suggested citation:** Patient Safety Surveillance Unit (2014), Your Safety in Our Hands in Hospital. An Integrated Approach to Patient Safety Surveillance in WA Hospitals, Health Services and the Community: 2014. Delivering Safer Care Series Report Number 3. Department of Health: Perth.

Version 1

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## Foreword

Key to the delivery of quality health care is the provision of systematic approaches to patient safety that enable staff to notify, investigate and understand the nature and magnitude of clinical incidents and the factors that have contributed to their occurrence.

Western Australian (WA) Health is committed to providing the safest possible environment to assist staff in delivering excellent and efficacious health care to our patients whether it is in an outback nursing post or a busy intensive care unit. This commitment to patient safety is further demonstrated by the state-wide release of the Datix Clinical Incident Management System (CIMS). This online notification, investigation and management of CIMS, enables WA Health staff to manage clinical incidents in real time.

The release of Datix CIMS on the 1st February 2014 has been embraced by WA Health staff with the number of clinical incident notifications increasing dramatically from 16,407 incidents reported in 2012/13 to 25,534 in 2013/14 even after data lags have been taken into consideration. Rather than be alarmed at this increase, patients and families should view it as a sign of a mature and responsible health care system that continually looks to review and improve the way that we practice.

While a web based CIMS is greatly beneficial, patients need to know that patient safety surveillance is both a constant and integral part of the health care they receive. During the course of a patient's treatment there will be numerous times when their safety status will be reviewed and addressed. This occurs at the patient's bedside every time a nurse checks their identity before administering their medication or in an operating theatre where a surgical team will complete the WA Surgical Safety Checklist before commencing surgery. Completing the WA Surgical Safety Checklist ensures that theatre staff are operating on the correct patient, undertaking the correct procedure and operating on the correct site or when a community health nurse make follow up contact with a patient who didn't attend their appointment. Your safety is in our hands and we take that seriously.

This is the third report in the WA Health Patient Safety series which continues the integration of clinical incident reporting within WA. The aim of this report is to provide evidence of the types of patient safety issues that require greater focus that will assist clinicians and researchers in finding solutions that further improve our health care delivery.

We must focus on **every patient, every time, everywhere**. Delivering safe care is in our hands.

**Karen Lennon**  
**Assistant Director**  
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## Common Acronyms

ABF/M	Activity Based Funding/Management
ACSQHC	Australian Commission on Safety and Quality in Health Care
AMI	Acute Myocardial Infarction
ANZASM	Australian and New Zealand Audit of Surgical Mortality
CIMS BAG	Clinical Incident Management System Business Advisory Group
CHADx	Classification of Hospital Acquired Diagnoses
CIM	Clinical Incident Management
CIMS	Clinical Incident Management System database
CLU	Coronial Liaison Unit
COF	Condition onset flag
CPoA	Condition Present on Admission
C/S	Caesarean Section
DCP	Department for Child Protection
DOH/WA	Department of Health, Western Australia
DVT	Deep Vein Thrombosis
FNOF	Fractured Neck of Femur
HDU	High Dependency Unit
HIN	Health Information Network
HMDC	Hospital Morbidity Data Collection
HS	Health Services
HSMR	Hospital Standardised Mortality Ratio
ICD-10-AM	International Classification of Diseases 10th Revision-Australian Modification
IT	Incident type
IV Fe	Intravenous iron
NMHS	North Metropolitan Health Service
NSQHS	National Safety and Quality Health Service (Standards)
PIRC	Peak Incident Review Committee
PMF	Performance Management Framework
PSSU	Patient Safety Surveillance Unit
PE	Pulmonary Embolism
QoCF	Quality of Care Framework
RACS	Royal Australasian College of Surgeons
RCA	Root Cause Analysis
ROD	Review of Death
ROGS	Report on Government Services
SAC	Severity Assessment Codes
VLAD CM	Variable Life Adjusted Display Clinical Monitoring
WAASM	Western Australian Audit of Surgical Mortality
WA Health	Western Australian Health

# Patient Safety Process

Western Australian Health (WA Health) is committed to delivering safe and high quality health care which is achieved through the provision of health care that is:

- evidence based
- governed by sound clinical practice
- efficient
- focussed on preventing and reducing the impact of clinical incidents.

While prevention is always the best strategy, it is also important to investigate and address clinical incidents when they occur. The reporting and investigation of a clinical incident enables strategies to be put into place to improve the safety of health care delivery and prevent another patient being harmed. To further enhance the clinical incident process, Severity Assessment Codes (SAC see Figure 1), are used to guide incident analysis, action and escalation. Clinical incidents are categorised according to the harm caused to the patient by the delivery of health care and not the patient's underlying condition/illness.

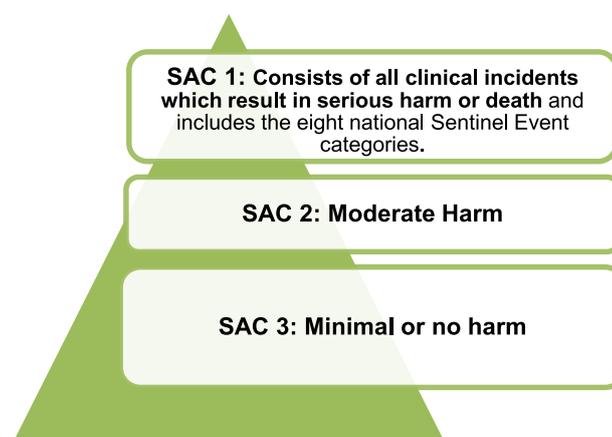
**SAC 1** rating refers to clinical incidents resulting in serious harm, death, or near miss, and includes the eight nationally reported clinical incidents known as sentinel events:

1. Procedure involving wrong patient or body part resulting in death or major permanent loss of function.
2. Suicide of a patient in an inpatient unit (or whilst on leave).
3. Retained instruments or other material after surgery requiring return to theatre.
4. Intravascular gas embolism resulting in death or neurological damage.
4. Haemolytic blood transfusion reaction resulting from ABO incompatibility.
6. Medication error resulting in death of a patient.
7. Maternal death or serious morbidity associated with labour or delivery.
8. Infant discharged to wrong family or infant abduction.

**SAC 2** rating refers to clinical incidents resulting in moderate harm/near miss and

**SAC 3** rating refers to clinical incidents resulting in minimal/no harm/near miss.

Figure 1: **Clinical Incidents by SAC**



When a clinical incident is identified, immediate action is taken to provide care to the patient involved. Once this has occurred a clinical incident form is completed to notify senior staff and enable an appropriate investigation to take place. The clinical incident is then assigned a SAC rating that guides the type of investigation method used (see Figure 2).

Clinical incidents resulting in serious harm or death (SAC 1) require a detailed and rigorous investigation to be undertaken. Analysis of the clinical incident is then undertaken which results in the implementation of recommendations to prevent the clinical incident from recurring. All clinical incidents were then captured in the CIMS database and the SAC 1 database. This clinical incident data is then used at a local and state-wide level to review trends and identify areas where practice improvements can be achieved. Complementing this annual report is the internal release of the CIM Quarterly Report which includes all SAC 1 and CIM data. The quarterly CI Check-Up Report is a one page poster report that focuses on specific state-wide clinical incident trends. These reports are available at:

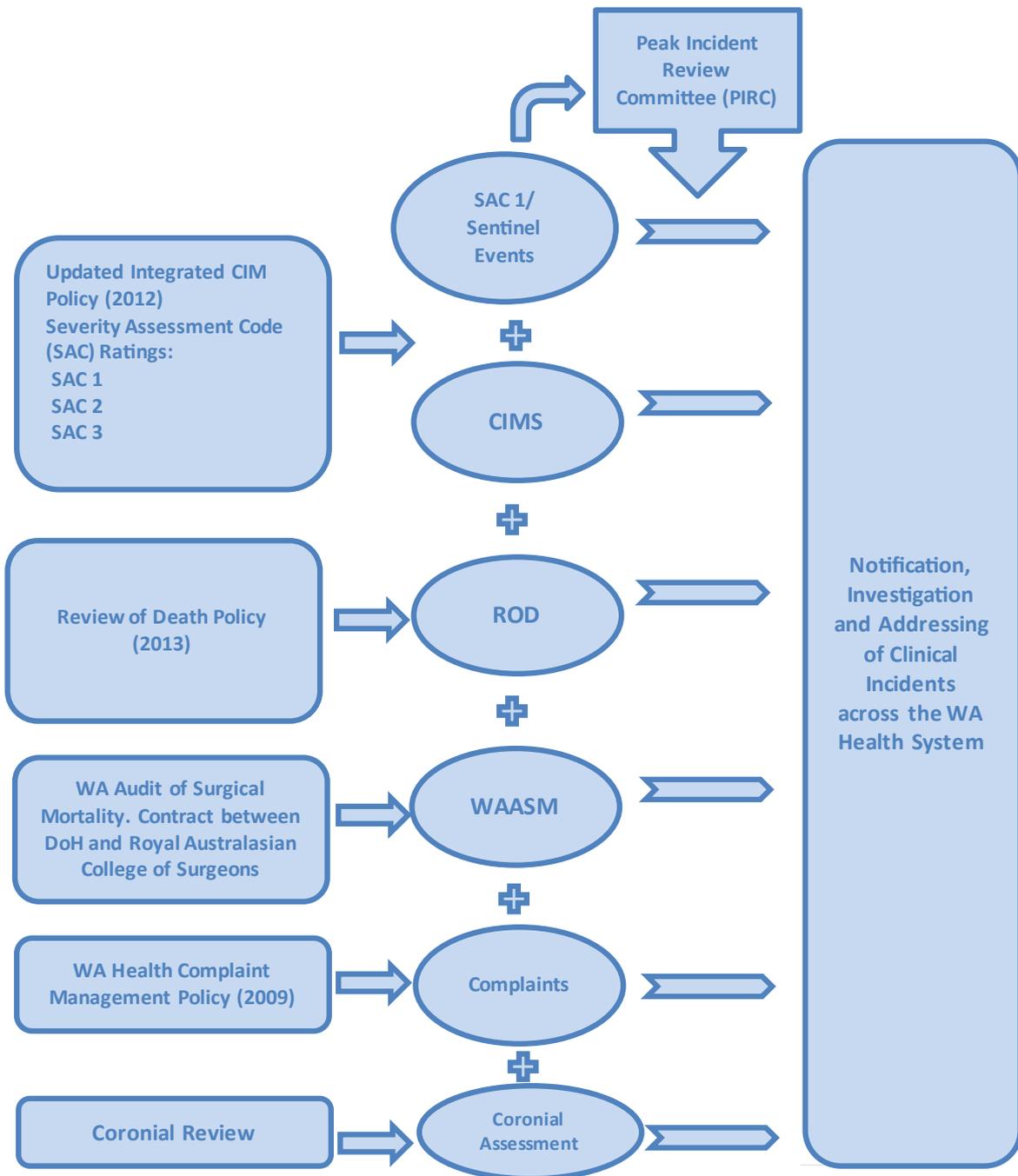
<http://intranet.health.wa.gov.au/osqh/reports/>

Additional strategies to further strengthen the clinical incident notification process include the WA Review of Death (ROD) Policy<sup>1</sup> and the WA Audit of Surgical Mortality (WAASM). The purpose of ROD and WAASM is to systematically review patient deaths to identify those that may have been preventable so that lessons can be learnt. These separate state-wide review processes (SAC 1 clinical incident notification, ROD, and WAASM) ensure that clinical incidents resulting in a patient's death are captured, notified and investigated. Complaints are also an integral component of CIM as it informs patient centred care. All health related findings from coronial inquests are reviewed and assessed, with recommendations then considered by Health Services (HS) and implemented where appropriate.



<sup>1</sup> The WA Review of Death Policy (2013) available at: <http://www.health.wa.gov.au/circularsnew/attachments/767.pdf>

Figure 2: **Clinical Incident Notification Processes**



Considerable initiatives and resources have been invested to improve patient safety within WA Health, with the overarching goal of addressing clinical incidents at the local and system level, analysis of contributory factors, and raising awareness/education to prevent the recurrence of clinical incidents. Resources to guide clinical incident management include the CIM Policy<sup>2</sup> and CIM Toolkit, which were first released in September 2011 and updated in February 2014.

<sup>2</sup> Clinical Incident Management Policy (2012; Updated February 2014: Operational Directive 0521/14).

## Executive Summary

This third edition of the Your Safety in Our Hands Report 2013/14 provides to the WA public, information and data on how WA Health manages and resolves clinical incidents and coronial recommendations resulting from health care delivery. During 2013/14 there were 555,339<sup>3</sup> hospital separations, with 25,534 clinical incidents notified. Clinical incidents were associated with 4.6% of separations.<sup>3</sup> The majority of clinical incidents (n=16,851; 66%) reported in 2013/14 resulted in minimal or no harm to the patient (SAC 3).

There were 407 SAC 1 clinical incidents notified and investigated, of which 53 were declassified, with 354 confirmed clinical incidents reported by public hospitals, private licensed healthcare facilities, and other non-government organisations which is a substantial increase in notifications compared to the previous reporting periods (174 notifications in 2011/12 and 326 notifications in 2012/13). The substantial increase in the number of SAC 1 clinical incidents reported clearly demonstrates both the effectiveness of the revised CIM Policy and the uptake of the on line Datix CIMS. Specifically, the refinement of the CIM Policy has enabled staff to better classify a clinical incident and thereby ensure that the appropriate SAC is assigned and that the most suitable investigation methodology is undertaken. Furthermore, increased clinical incident reporting is evidence of a system that has embraced patient safety and is continually working toward improving the delivery of health care by notifying, investigating and implementing system improvements.

Twelve SAC 1 clinical incidents comprised one of the eight national sentinel event incident categories. The most frequently reported category of confirmed SAC 1 clinical incident included the absconding of any mental health patient (n=64), complications of an inpatient fall (n=63) and the unexpected death of a mental health patient (n=47). The rate of SAC 1 clinical incidents continues to remain low and was calculated at seven clinical incidents per 10,000 hospital separations.<sup>4</sup>

Communication factors and issues in relation to policies, procedures and guidelines continue to be the major contributory factors identified in the investigation of SAC 1 clinical incidents and therefore warrant continued focus if improvements in patient safety are to be achieved.

Clinical incident management in WA Health is entering a new phase with the recent implementation of a state-wide electronic system to capture, monitor and analyse clinical incidents. The procurement of this new web based Datix CIMS is a huge coup and one that will benefit not only WA Health staff but more importantly will benefit our patients. Specifically, the utilisation of an electronic CIMS is streamlining the clinical incident process by offering a complete seamless patient safety work flow which allows the notification of clinical incidents to be easily and quickly managed and investigated. The new Datix CIMS is providing access to clinical incident data in real time thereby eliminating the two to three month time lag experienced in the previous AIMS paper based system. The implications of this mean that not only will the actual clinical incident be addressed faster but clinical incident trends and detailed reports can be developed and disseminated more quickly to allow clinical incident issues to be addressed promptly.

The second standard 'Partnering with Consumers' of the *National Safety and Quality Health Service Standards* (NSQHS) highlights the importance of patient centred care which is responsive to consumer input as an element of high quality health care. Engaging with the consumer in the complaints process, enables health services to recognise and understand areas for improvement from a consumer's perspective. A total of 2,058 complaint issues assigned to the category 'Quality of Clinical Care' were reported by consumers throughout 2013/14, which constituted 28.3% of the total 7,274 complaint issues.

<sup>3</sup> Public hospital separations include public patient separations from Joondalup and Peel Health Campus.

<sup>4</sup> Please note that the numerator for the SAC 1 clinical incident rate includes incidents reported from WA Health hospitals and community health services, private licensed health care facilities and contracted non-government organisations while the denominator only includes separation data from WA Health hospitals' inpatient activity. Separation data from private hospitals and non-hospital organisations are not included in the SAC 1 rate calculations.

'Quality of Clinical Care' complaints comprised two categories which referred to:

1. General health complaints such as inadequate treatment, therapy, assessment or pain management. These complaints comprised 93% of all quality of clinical care complaints.
2. Mental health complaints accounted for the remaining 7% of complaints and included issues such as inadequate assessment, inadequate treatment/therapy, discharge or transfer issues or medication issues.

The Coronial Liaison Unit (CLU) continues to work effectively with the Office of the State Coroner to share lessons learned from inquested cases to improve future patient care.

There has been a considerable increase in the number of inquests released in the 2013/14 year with 27 findings relevant to WA Health: a total of 17 health recommendations are currently being implemented across all relevant HS. Ten of the 27 findings were part of the Graylands Hospital inquests.

All deaths that occur whilst the patient is under the care of a surgeon are notified to the WAASM office during each calendar year, with 546 deaths notified in 2013. The WAASM Annual Report (2014) identified three adverse events that caused death in 2012 (two of these were considered preventable) and two adverse events that caused death in 2013<sup>5</sup> (neither of these was considered preventable). The WAASM report is available at:

<http://www.surgeons.org/for-health-professionals/audits-and-surgical-research/anzasm/waasm/>

Clinical incident management is only one component in the delivery of high quality health care, with WA Health using many different methods to identify, investigate and improve clinical and service outcomes. This annual report will also present data captured from administrative data sources to provide insight into surgical complications, appropriate care delivery, mortality review, hospital acquired diagnoses and complications of care.

Finally, patient safety is a critically important component of health care delivery. In 2013/14, WA Health provided 555,339 episodes of care to inpatients. Encouragingly, reported clinical incidents were associated with only 4.6% (n=25,534) of separations and an even lower figure was reported for confirmed SAC 1 clinical incidents (n=354; 0.6%). However, more work in enhancing communication and engaging staff in adopting safer practices is required if further advancements in patient safety are to be achieved. Staff need to see that their reporting of clinical incidents is embraced by WA Health management who is committed to addressing system factors that can prevent the occurrence of clinical incidents.

WA Health with the introduction of online clinical incident reporting has taken a positive step toward improving health care delivery to our patients with the electronic health care data combined with clinical incident data to discover trends and identify system wide areas of improvement.

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<sup>5</sup> Partial analysis – 2013 data includes that for which the audit process was complete at March 1, 2014.

## About this Report

This comprehensive patient safety report for 2013/14 is the third WA Health report of this kind to integrate data captured from the:

- CIMS/AIMS and Datix CIMS (online) and SAC 1 databases
- Hospital Morbidity Data Collection (HMDC)
- Review of Death (ROD)
- Western Australian Audit of Surgical Mortality (WAASM)
- Coronial Review process
- State-wide Complaints Management Process
- Complication of Surgical Care data from the Epidemiology Branch
- Classification of Hospital Acquired Diagnoses (CHADx) system
- Model of Premium Payments Program.

Data for 2013/14 are presented with the following caveats:

- CIMS data consists of seven months of AIMS data and five months of Datix CIMS data. Datix CIMS is an online electronic clinical incident management system released across WA Health on the 1 February 2014.
- Datix CIMS data categories have been, where possible, aligned to AIMS clinical incident categories. Where this alignment has not been compatible a data note is provided to explain exactly which data have been used in the figures and tables.
- SAC 1 data consists of seven months of data captured in the SAC 1 database and five months of data captured within the Datix CIMS.
- There is a two to three month HMDC data coding/reporting lag.
- There is also a time lag in Datix CIMS for the confirmation of SAC which will cause figures to change over time.
- The ROD data reflects a nine month period (July 1 2013 – March 31 2014), with April 1 to June 30 2014 data not due for submission at the time of this report.
- The SAC 1, Coronial data and 'Quality of Clinical Care' complaints include a full 12 months of financial year data.
- The WAASM data are captured by calendar year.

Care should be taken when comparing data from previous reports as the data summarised here are taken from dynamic systems and the number of clinical incidents will vary over time.

Declassification of a reported SAC 1 clinical incident may occur if it is identified that no healthcare causative factors contributed to the incident outcome. Declassification requests are tabled at the Peak Incident Review Committee (PIRC), which provides oversight of SAC 1 clinical incidents, the WA Sentinel Event program and mandatory mortality review processes.

The inclusion of composite case studies for each of the three SAC categories is used to facilitate learning opportunities by highlighting a few examples of the hundreds of quality improvement projects undertaken across WA Health to address and improve patient safety.

While complaints data is an important aspect of the quality improvement cycle, it is important to acknowledge that a patient complaint is not usually associated with a reported adverse event/clinical incident. The inclusion of complaints data, relating to the quality of clinical care, is to reinforce the importance of one aspect of consumer engagement (via the complaints process) to assist HS in recognising and facilitating quality improvements driven from a consumer's perspective.

This report is further strengthened by the inclusion of administrative data from the:

- Hospital Morbidity Data Collection (HMDC) which captures all inpatient discharge summary data, including clinical incidents that have occurred during the inpatient stay.
- Epidemiology Department which uses ICD-10-AM complication codes to calculate risk adjusted rates for surgical complications associated with hip replacements, fractured neck of femur, knee replacement and prostatectomy procedures.
- Premium Payments Program which is a performance based payment program designed to improve sustainability of clinical practice improvements.
- Classification of Hospital Acquired Diagnoses (CHADx) system which enables the monitoring of hospital acquired diagnoses from routine administrative inpatient data sources such as the HMDC, to assist clinicians in improving the care that is delivered to patients.

This report will also reintroduce the Variable Life Adjusted Display Clinical Monitoring (VLAD CM) system which is a local quality monitoring system that provides clinicians and administrators with the ability to monitor risk-adjusted patient outcomes to identify unexpected trends through the application of statistical process control charts.



## Clinical Incident Management: Overall Notifications

WA Health uses the CIMS for reporting, whereby staff, patients, clients, carers or visitors who witness a clinical incident are encouraged to notify the clinical incident. The CIMS facilitates the notification, investigation, analysis and monitoring of the clinical incidents that occur within all public hospitals in Western Australia.

Severity Assessment Code (SAC) 1 is used to identify clinical incidents that result in serious harm/death or near miss. It is a mandatory requirement for all public hospitals/health services as well as all private licensed health care facilities and contracted non-government organisations to notify and investigate SAC 1 clinical incidents.<sup>6</sup>

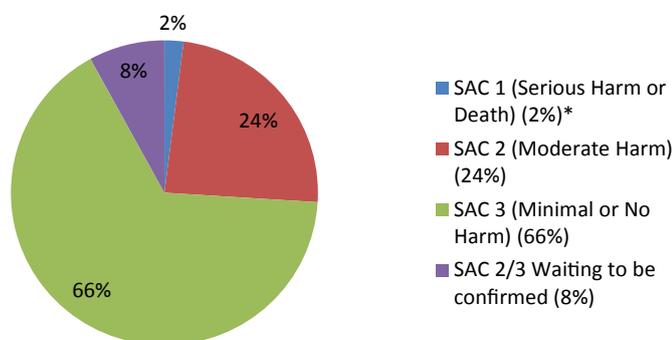
Between 1 July 2013 and 30 June 2014 there were 555,339 separations from public hospitals and public patients attending two private hospitals (Peel Health Campus and Joondalup Health Campus). Reported clinical incidents were associated with 4.6% (n=25,534) of hospital separations.

The rate of clinical incidents observed between July 2013 and June 2014 was calculated at:

- Seven SAC 1 clinical incidents per 10,000 separations<sup>7</sup>
- 112 SAC 2 clinical incidents per 10,000 separations
- 303 SAC 3 clinical incidents per 10,000 separations.

Clinical incidents categorised as SAC 3 (n=16,851; 66%)<sup>8</sup>, referring to minimal or no harm, were the most frequently reported category of clinical incidents (see Figure 3). The next most frequently reported incident category was SAC 2 clinical incidents (n=6,240; 24%) followed by SAC 1 clinical incidents (n=407; 2%). Please note that as of the 18 July 2014, 2,036 SAC 2/3 cases yet to have a SAC code confirmed.

Figure 3: **Percentage of Clinical Incidents by SAC (2013/14)**



\* SAC 1 clinical incidents include clinical incidents from public and private hospitals and non-government organisations in accordance with their license or contract with WA Health.

The five most frequently reported confirmed SAC 1 clinical incident categories representing 71% (n=251) of confirmed SAC 1 clinical incidents are presented in Table 1.

<sup>6</sup> Further information on the licensing of private healthcare facilities can be found at: [http://www.public.health.wa.gov.au/2/1350/2/licensing\\_of\\_private\\_healthcare\\_facilities.pm](http://www.public.health.wa.gov.au/2/1350/2/licensing_of_private_healthcare_facilities.pm)

<sup>7</sup> Please note that the numerator for the SAC 1 clinical incident rate includes incidents reported from WA Health hospitals and community health services, private licensed health care facilities and contracted non-government organisations while the denominator only includes separation data from WA Health hospitals' inpatient activity. Separation data from private hospitals and non-hospital organisations are not included in the SAC 1 rate calculations.

<sup>8</sup> Please note that for SAC 2/3 categories there are 2,036 incidents awaiting a SAC classification.

**Table 1: Frequency and Percentage of the Top Five Confirmed SAC 1 Clinical Incident Categories (2013/14)**

<b>SAC 1 Category</b>	<b>(n)</b>	<b>(%)</b>
Absconding of any mental health patient	64	18.1
Complication of an inpatient fall	63	17.8
Unexpected death of a mental health patient	47	13.3
Any other clinical incident resulting in serious harm or death	46	13.0
Hospital process issues	31	8.8
<b>Total</b>	<b>251</b>	<b>71.0</b>

The most frequent SAC 1 clinical incidents involving mental health patients accounted for 32.2% (n=114) of all confirmed SAC 1 clinical incidents, with 50 clinical incidents resulting in the death of a mental health patient (see Table 2).

**Table 2: Frequency and Percentage of the Top Three Confirmed SAC 1 Clinical Incident Categories for Mental Health Patients (2013/14)**

<b>SAC 1 Category</b>	<b>(n)</b>	<b>(%)</b>
Absconding of any mental health patient	64	18.1
Unexpected death of a mental health patient	47	13.3
Suicide of an inpatient (or whilst on authorised leave)	3	0.8
<b>Total</b>	<b>114</b>	<b>32.2</b>

The five most frequently reported Incident Types (IT) categories, which represent 77.9% (n=19,872) of all SAC 2 and 3 clinical incidents reported during the 2013/14 period, are presented in Table 3. Falls continue to be the most frequently reported clinical incident accounting for 21.5% (n=5,478) of all clinical incidents in 2013/14, followed closely by medication incidents (n=5,473; 21.4%).

**Table 3: Frequency and Percentage of the Top Five Incident Types for SAC 2 and 3 Clinical Incidents (2013/14)\***

<b>Incident Type SAC 2/3</b>	<b>(n)</b>	<b>(%)</b>
Falls	5,478	21.5
Medication	5,473	21.4
Other	3,767	14.8
Behaviour	2,822	11.1
Injury	2,332	9.1
<b>Total</b>	<b>19,872</b>	<b>77.9</b>

\* Remaining IT included: Blood, Oxygen, Gas clinical incidents, Documentation clinical incidents, Nutrition clinical incidents, Safety or Security incidents and Therapeutic devices incidents.

## SAC 1 Clinical Incidents

The reporting of SAC 1 clinical incidents is mandatory for WA public hospitals, all private licensed health care facilities and non-government organisations (in accordance with their license or contract with WA Health). The 2013/14 reporting period reflected the second complete period HS have reported SAC 1 clinical incidents as per the CIM Policy, which was introduced in September 2011.

In 2013/14, 407 SAC 1 clinical incidents were notified by WA public, private licensed health care facilities, and non-government organisations. Fifty three SAC 1 clinical incidents have been declassified at the time of this report (based on data as of the 18 July 2014), with 354 SAC 1 clinical incidents confirmed.

The majority of confirmed SAC 1 clinical incidents notified in 2013/14 were of non-sentinel event categories (n=342; 97%), with the remainder of SAC 1 clinical incidents identified as sentinel events (n=12; 3%; See Figure 4).

Figure 4: **Percentage of Confirmed SAC 1 Clinical Incidents by Category (2013/14)**

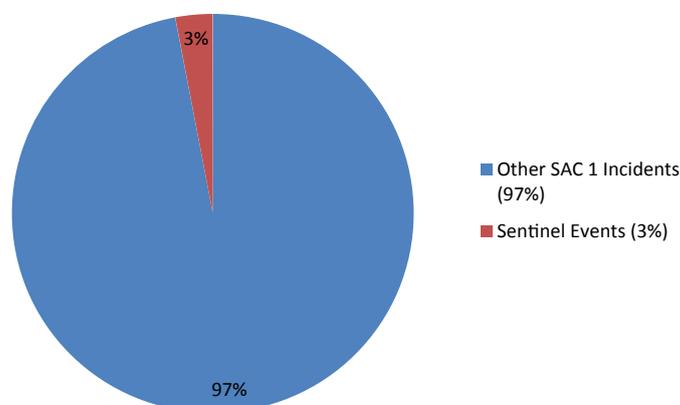


Table 4 illustrates the frequency of confirmed SAC 1 clinical incidents over a ten year period. Findings show that while sentinel events have fluctuated over time, these types of incidents remain low in comparison to other SAC 1 clinical incidents.

Table 4: **Frequency of Confirmed SAC 1 Clinical Incidents by National Sentinel Event and Other SAC 1 Clinical Incident Type (2004/05 to 2013/14)**

SAC 1 Category	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14
Sentinel Events	19	13	15	37	25	11	16	15	14	12
Other SAC 1 incidents	23	31	32	45	56	34	73	159	290	342
<b>TOTAL</b>	<b>42</b>	<b>44</b>	<b>47</b>	<b>82</b>	<b>81</b>	<b>45</b>	<b>89</b>	<b>174</b>	<b>304</b>	<b>354</b>

Note: Data reflects confirmed SAC 1 clinical incidents and excludes declassified SAC 1 clinical incidents.

Death was an outcome in 133 (37.6%) of confirmed SAC 1 clinical incidents. Utilising separation data from all public hospitals and public patients at Peel and Joondalup Health Campus, this equated to a rate of 2.4 deaths per 10,000 hospital separations.<sup>9</sup>

<sup>9</sup> Calculation includes all notified SAC 1 clinical incidents with an outcome of death including those notified by private hospitals and non-hospital organisations. Separation data from private hospitals and non-hospital organisations are not included in calculations.

## Sentinel Event Notifications

Sentinel events represent eight specific types of clinical incident that were endorsed by Australian Health Ministers in 2004 (see Appendix One). Western Australian public hospitals (and later licensed private healthcare facilities) have provided notification of their occurrence since 2004.

In addition to the annual reporting of sentinel events within this report, sentinel event notifications by WA Public Hospitals are included in the Australian Government Productivity Commission Report on Government Services (ROGS) annual report, and aggregated at a national level in the Australian Commission for Safety and Quality in Healthcare publication *Windows into Safety and Quality in Healthcare*.<sup>10,11</sup>

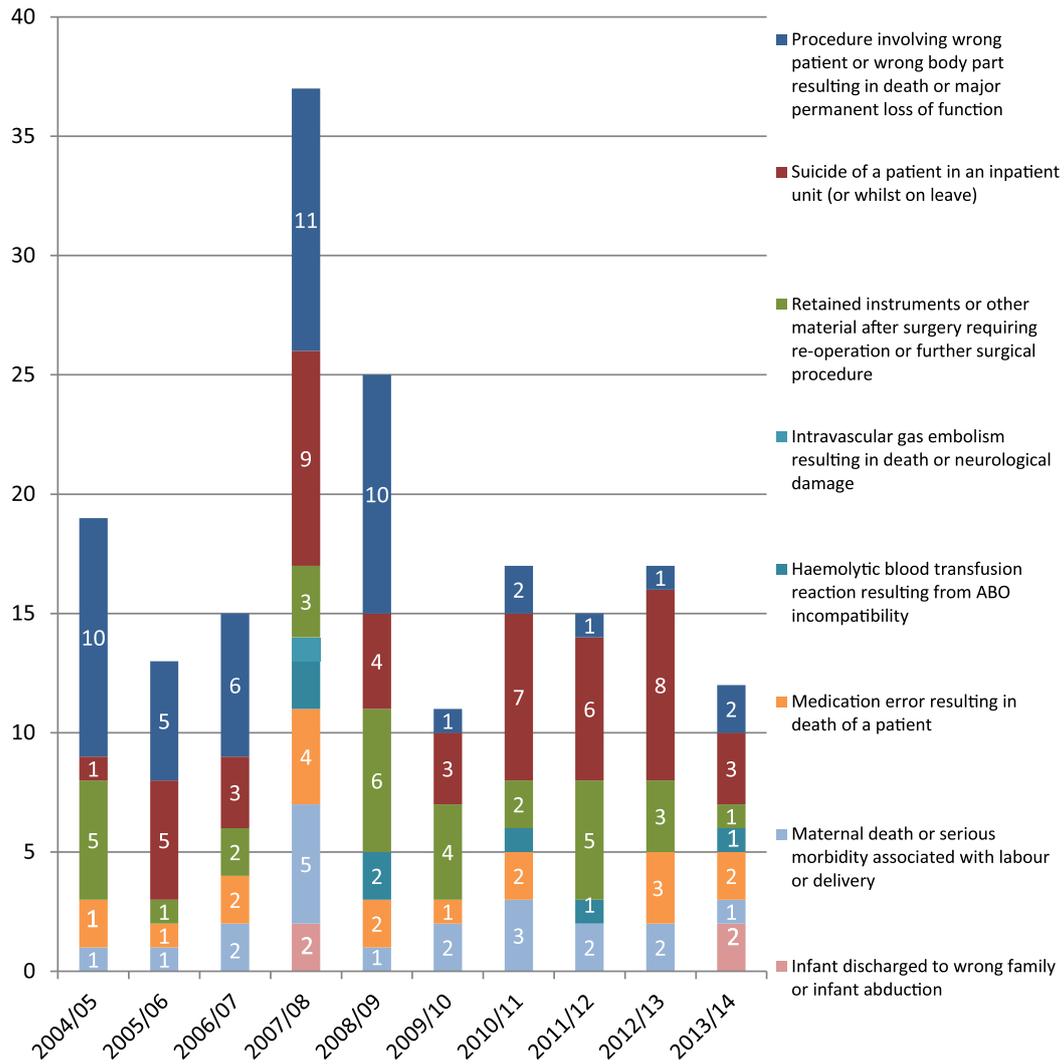
Figure 5 identifies the different categories of sentinel events notified from 2004/05 to 2013/14. The most frequently reported Sentinel Event categories in 2013/14 was suicide of a patient in an inpatient unit (n=3; see Figure 5). In 2013/14 there were no notifications of haemolytic blood transfusion reaction resulting from ABO incompatibility resulting in death or neurological damage.



<sup>10</sup> Productivity Commission Report on Government Services Reports can be accessed at: <http://www.pc.gov.au/gsp/rogs>

<sup>11</sup> The Australian Commission on Safety and Quality in Healthcare, 'Windows into Safety and Quality in Healthcare' reports can be accessed at: <http://www.safetyandquality.gov.au/publications/annual-report-201213/>

Figure 5: Frequency of Sentinel Event by Category (2004/05 to 2013/14)

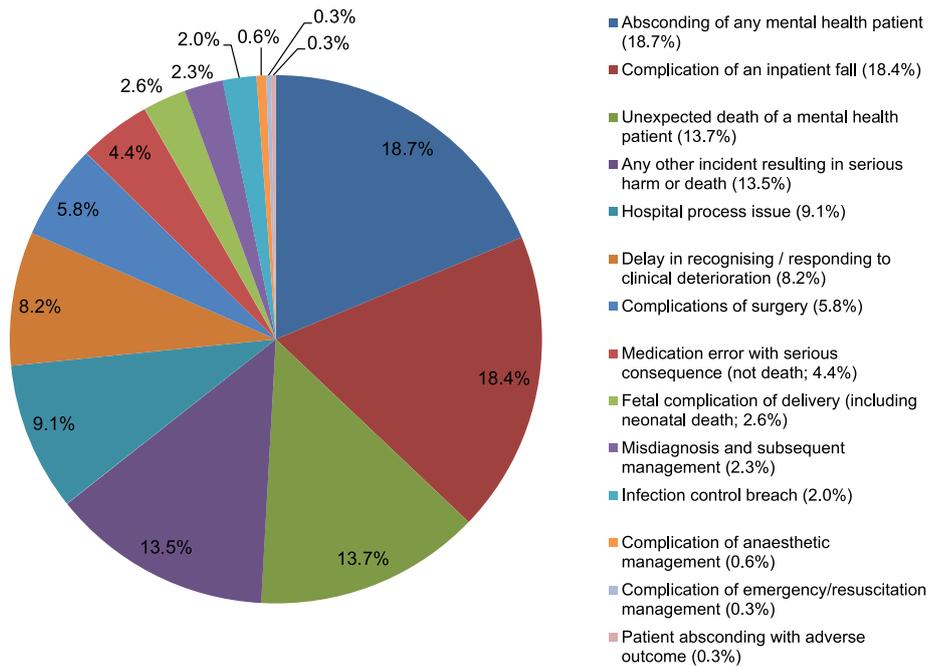


Data note: In 2009/10 the definition ‘procedure involving the wrong patient or body part’ was changed to only include clinical incidents ‘resulting in death or major permanent loss of function.’

### Other Confirmed SAC 1 Clinical Incident Notifications

In 2013/14, there were 342 SAC 1 clinical incidents other than sentinel events notified (see Figure 6). Absconding mental health patients (n=64; 18.7%) was the most frequently reported SAC 1 clinical incident type followed by complication of an inpatient fall (n=63; 18.4%).

Figure 6: **Percentage of Other Confirmed SAC 1 Clinical Incidents by Category (2013/14)**



Other SAC 1 Clinical incidents notified by HS have increased from 23 clinical incidents in 2004/05 to 342 clinical incidents in 2013/14 (see Table 5). Over the last three years complications from an inpatient fall continues to be one of the most frequently reported SAC 1 incidents. It should be noted that prior to 2011 clinical incidents involving inpatient falls were captured in the AIMS database and were generally not reported as a separate SAC 1 clinical incident. Reporting of mental health patients who abscond has more than doubled since 2012/13.

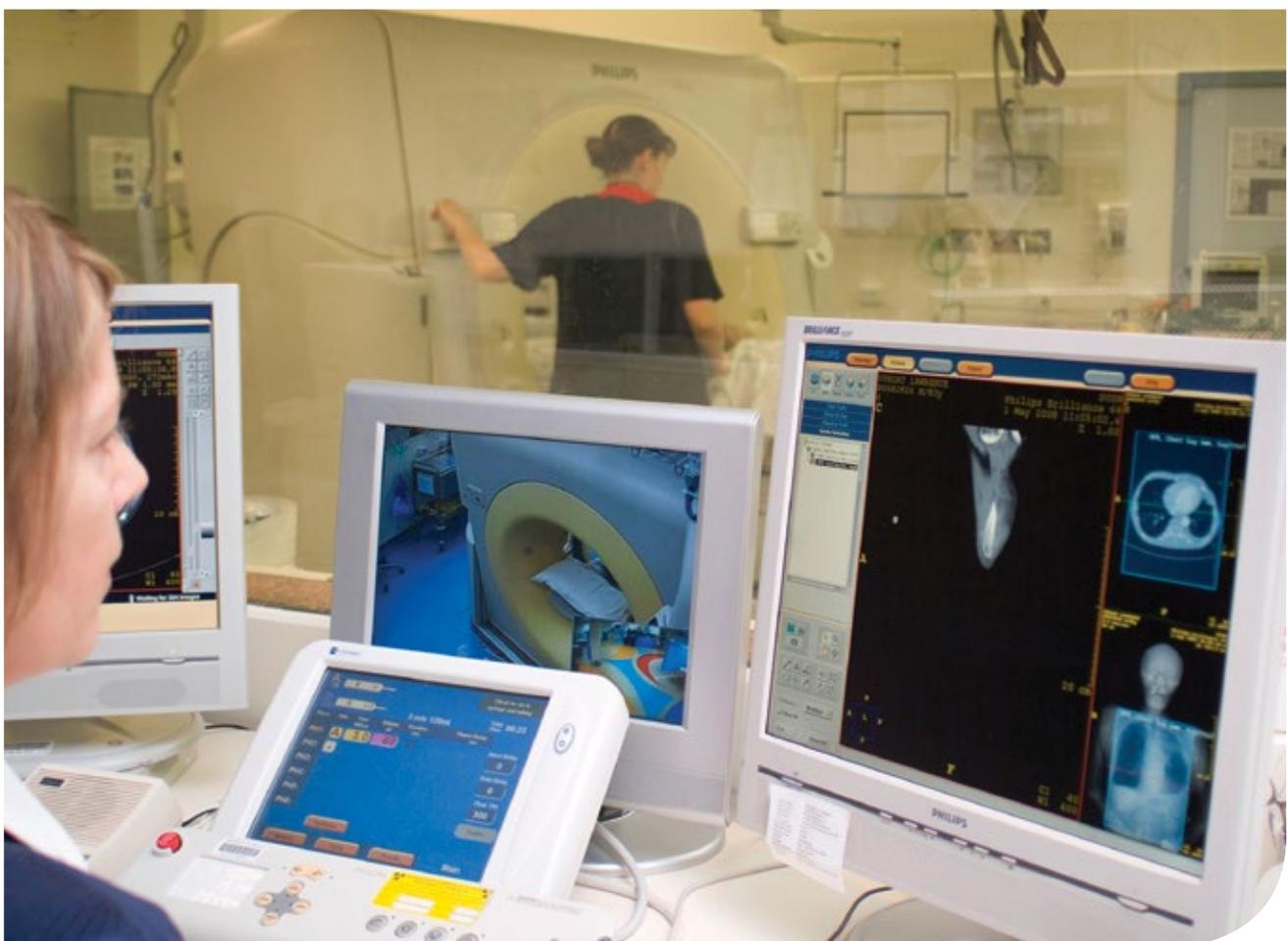


Table 5: **Frequency of Confirmed SAC 1 Clinical Incidents Other than Sentinel Events (2004/05 to 2013/14)**

	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14
Absconding of any mental health patient (iv)	-	-	-	-	-	-	-	4	26	64
Complications from an inpatient fall (iv)	-	2	5	6	7	1	11	34	73	63
Unexpected death of a mental health patient (iv)	-	-	-	-	-	-	-	30	32	47
Any other incident resulting in serious harm/death	0	5	5	0	0	10	14	13	29	46
Hospital process issue	9	7	7	22	16	2	14	11	20	31
Delay in recognising/responding to clinical deterioration (iv)	-	-	-	-	-	-	-	10	15	28
Complications of surgery	6	7	5	8	8	6	4	18	18	20
Medication error with serious consequence (not death)	2	1	0	0	1	1	4	17	12	15
Fetal complication of delivery (including neonatal death)	2	6	5	6	14	2	6	4	5	9
Misdiagnosis and subsequent management (iii)	-	-	-	-	1	5	10	6	23	8
Infection control breach (ii)	-	-	1	0	1	2	1	2	2	7
Complication of anaesthetic management	1	0	1	0	1	0	2	2	0	2
Complication of emergency/resuscitation management	3	1	2	2	4	3	2	3	4	1
Patient absconding with adverse outcome	0	0	0	1	3	2	4	5	0	1
Mental health incident (i)	-	2	1	0	0	-	-	-	-	-
<b>TOTAL</b>	<b>23</b>	<b>31</b>	<b>32</b>	<b>45</b>	<b>56</b>	<b>34</b>	<b>72</b>	<b>159</b>	<b>259</b>	<b>342</b>

Note: Data reflects confirmed SAC 1 clinical incidents and excludes declassified SAC 1 clinical incidents. The SAC 1 data base is a cumulative data base, with data changing over time as events are investigated retrospectively. The addition of new subcategories to the SAC 1 data base has resulted in reclassification of events to different sub categories.

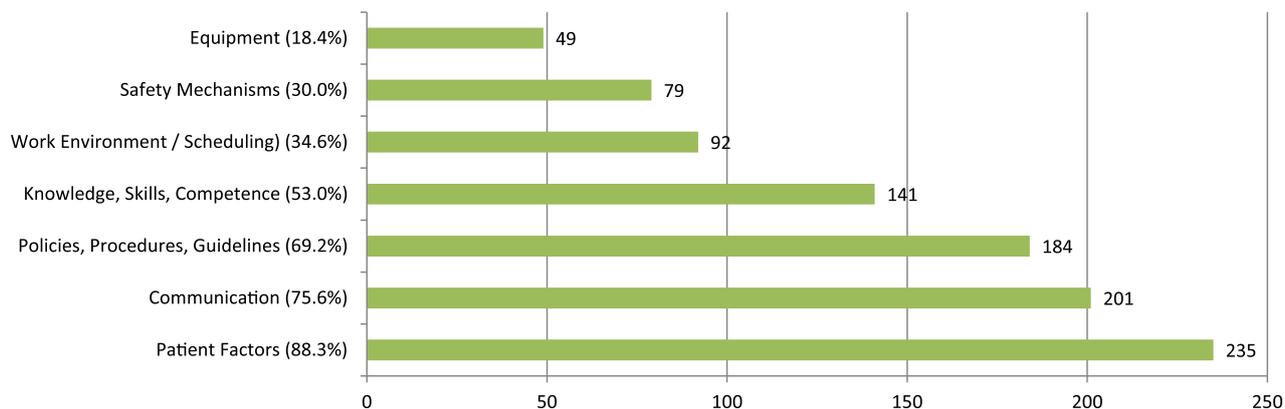
- (i) New category added for 2005/06. With the introduction of specific other mental health categories reporting for this category is non-existent.
- (ii) New categories added 2011/12.
- (iii) The category “not appropriate” was renamed “misdiagnosis and subsequent management” from the 2009/10 period.
- (iv) New categories added 2011/12.

### SAC 1 Contributory Factors

Figure 7 shows the contributory factors identified following the investigation of 266 SAC 1 clinical incidents by public hospitals, private licensed health care facilities and non-government organisations (representing 75.1% of all confirmed incidents in 2013/14). At the time of reporting, 88 SAC 1 clinical incident investigations were being progressed.

The most frequently identified contributory factors were those relating to patient factors (n=235; 88.3%) of investigated clinical incidents (see Figure 7). This was followed by communication issues (n=201; 75.6%), and policy, procedures and guideline issues (n=184; 69.2%).

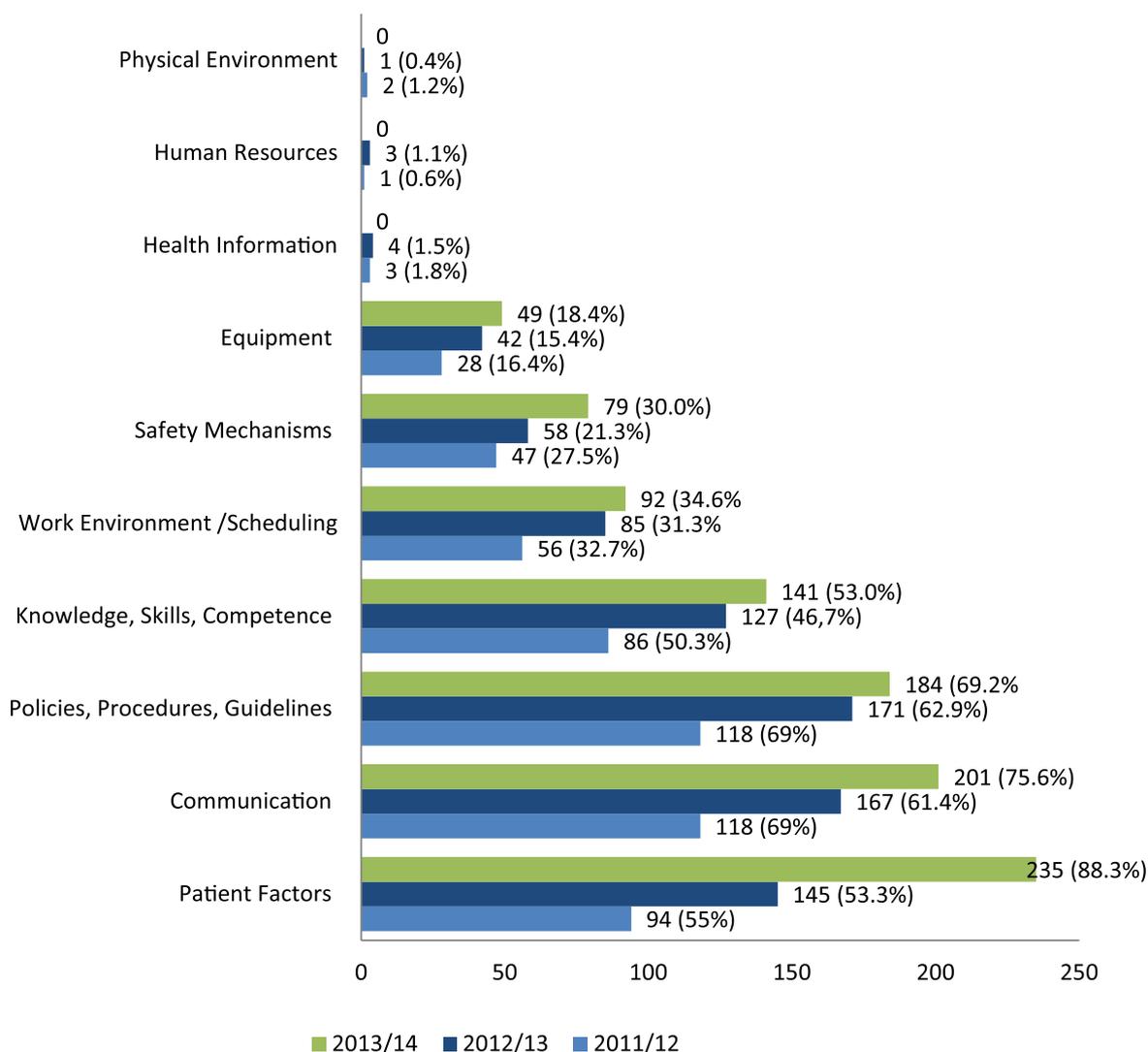
Figure 7: **Frequency and percentage of Contributory Factors Identified for SAC 1 Clinical Incidents (2013/14)**



Contributory factors identified in 2013/14 were compared with those identified in two previous reporting periods (see Figure 8). Over the last three years patient factors, communication issues along with policy, procedure and guideline issues were consistently reported as the most frequent SAC 1 contributory factors.



Figure 8: **Contributory Factors Identified for SAC 1 Clinical Incidents (2011/12 to 2013/14)**



### Sentinel Events and Lessons Learnt

Of the twelve sentinel events reported during the 2013/14 period, ten (83%) investigation reports were received at the time of reporting. The investigation of sentinel events in 2013/14 identified 20 contributory factors (see Table 6). The main themes revolved around refreshing staff training and education, enhancing communication between staff and strengthening or establishing protocols and pathways to assist in addressing patients’ needs.

Table 6: **Sentinel Events Identified Contributory Factors (2013/14)**

<b>Identified Issues</b>	<b>Hospital /Health Service Improvements/Initiatives</b>
<b>Procedure involving wrong patient or wrong body part resulting in death or major permanent loss of function</b>	
Variations in processes for marking surgical sites, increasing the risk of a miscommunication of the appropriate site.	<ul style="list-style-type: none"> <li>– Expected surgical site marking process was clarified with staff.</li> <li>– Audit of practices targeting 100% compliance with preferred marking.</li> </ul>
Current shift to shift handover practices increased the risk of not all pertinent clinical information being available to maintain continuity of care.	<ul style="list-style-type: none"> <li>– Clarification and communication to clinical staff as to the minimum handover standard between clinicians as identified in the WA Department of Health Clinical Handover Policy (2012) was undertaken.</li> <li>– Audit of handover practices targeting 100% compliance with expected handover requirements was implemented.</li> </ul>
Team Time Out processes (participation of all members involved in the surgical procedure) not consistent with agreed standards.	<ul style="list-style-type: none"> <li>– Re-communication of Team Time Out processes, supported by observational audit and feedback to staff of practices targeting 100% compliance with all Team Time Out requirements.</li> </ul>
Issues related to the scheduling of the procedure was identified as a contributing factor.	<ul style="list-style-type: none"> <li>– Establishment of an approval process for performing of elective and semi-elective procedures out of hours.</li> </ul>
Lack of appropriate consent documentation and policy information.	<ul style="list-style-type: none"> <li>– Amend policy and the generic consent form to allow for detailed consent instructions.</li> </ul>
<b>Suicide of a patient in an inpatient unit or whilst on authorised leave</b>	
Assisting mental patients access to other services to help improve their social situation with regard to child access, housing, debt etc.	<ul style="list-style-type: none"> <li>– Establishment of a social work consultation for mental health inpatients to access via clear referral pathways.</li> </ul>
Work place design with door used as a ligature point.	<ul style="list-style-type: none"> <li>– The hospital is investigating options such as sensors to be used on top of doors to try to reduce the likelihood of further incidents.</li> </ul>
<b>Suicide of a patient in an inpatient unit or whilst on authorised leave</b>	
All three clinical incidents resulting in suicide identified several patient factors pertaining to their mental health conditions.	<ul style="list-style-type: none"> <li>– Reinforcement of clinical protocols used in individual treatment of patients suffering from mental health conditions.</li> </ul>

Identified Issues	Hospital /Health Service Improvements/Initiatives
<b>Retained instruments or other material after surgery requiring re-operation or further surgical procedure</b>	
The non-identification of an incorrect count of swabs used during an invasive procedure resulting in a retained swab.	<ul style="list-style-type: none"> <li>– Revision of surgical count orientation and mandatory training requirements for medical and nursing staff working in the theatre setting, including incorporating the incident as a case study in training resources.</li> <li>– The addition of compliance with surgical count staff education attendance to the suite of Key Performance Indicators for the Executive team with accountability for the Theatre setting.</li> <li>– Revising the surgical count sheet to capture verbal confirmation from the surgeon that the wound has been explored for foreign bodies prior to closure.</li> </ul>
<b>Intravascular gas embolism resulting in death or neurological damage</b>	
The use of a specific piece of medical equipment that resulted in the inadvertent flow of gas.	<ul style="list-style-type: none"> <li>– The removal of equipment that does not provide fail-safe prevention of gas flow.</li> <li>– The provision of CO2 angiosets for all cases where CO2 is being used.</li> </ul>
No verbal communication between the operator and radiological staff when contrast is being injected.	<ul style="list-style-type: none"> <li>– Verbal notification is required between the operator and the radiological staff each time a contrast medium is injected.</li> </ul>
Set up procedures for the use of CO2 did not preclude the use of non-fail safe equipment.	<ul style="list-style-type: none"> <li>– Implementation of policy and procedures regarding the use of CO2 as a medium contrast.</li> <li>– Education of hospital staff regarding these policy requirements.</li> </ul>
<b>Medication error resulting in death of a patient</b>	
The documentation of a medication order did not ensure accurate information was captured.	<ul style="list-style-type: none"> <li>– Delivery of medication competency education to the clinicians concerned.</li> <li>– The revision of medical orientation programs to incorporate the key learnings from the clinical incident.</li> <li>– The purchase and placement of specific medication safety resources in treatment areas.</li> </ul>
The medication order was not clarified.	<ul style="list-style-type: none"> <li>– Delivery of medication competency education to the clinicians concerned.</li> </ul>
The use of the patient’s own medication from a dosing device.	<ul style="list-style-type: none"> <li>– Development of a Policy regarding the practice of using patients own medication from dosing devices.</li> </ul>

Identified Issues	Hospital /Health Service Improvements/Initiatives
<b>Infant discharged to wrong family or infant abduction</b>	
Information regarding social and behavioural risk factors related to the mother/patient were captured in three sets of medical records but not consistently shared with or available to key staff.	<ul style="list-style-type: none"> <li>– Integrated social work notes with the medical record of mother and baby has been implemented.</li> <li>– Hard copy complex care file to be accessed by security co-ordinator.</li> <li>– Review Complex Care Meeting Group to include security to receive necessary information.</li> </ul>
Security staff were contacted via phone rather than via a Code Black call which resulted in delays.	<ul style="list-style-type: none"> <li>– Code Black emergency response codes have been reinforced with staff.</li> <li>– Code Black screen saver re-run.</li> <li>– Security Department to implement a plan to increase visits to clinical areas.</li> <li>– Code Black drill to take place in specified clinical areas.</li> </ul>
There was no current policy for managing contact between parents and their babies who are in the care of the Department for Child Protection (DCP).	<ul style="list-style-type: none"> <li>– Social Work Department to review policy and procedures regarding the management of families where the baby is in the care of the DCP.</li> </ul>
There were no automated locking mechanisms on the ward doors to prevent the mother from leaving with the baby.	<ul style="list-style-type: none"> <li>– Security co-ordinator to review lock down options and undertake a security audit.</li> <li>– Implementation of the preferred security lock down plan.</li> </ul>
<b>Maternal death or serious morbidity associated with labour or delivery</b>	
No documentation in medical record regarding contact with the patient's community pharmacist regarding her methadone program.	<ul style="list-style-type: none"> <li>– All medical staff were sent a letter and copy of the Methadone Policy.</li> <li>– Methadone Policy included in the medical induction program.</li> <li>– Medication reconciliation incorporated into practice.</li> </ul>

## Other SAC 1 Clinical Incidents and Lessons Learnt

The investigation of SAC 1 clinical incidents in 2013/14 identified that of the 342 confirmed Other SAC 1 incidents reported during the 2013/14 period, 256 investigation reports have been received, with 981 contributory factors identified covering seven categories. The contributing factors for the top three Other SAC 1 clinical incidents are presented in Table 7. The main themes revolved around refreshing staff training and education, enhancing communication between staff; and strengthening or establishing protocols and pathways to assist in addressing patients' needs.

Table 7: **Other SAC 1 Clinical Incidents Identified Contributory Factors (2013/14)**

Identified Issues	Hospital /Health Service Improvements/Initiatives
<b>Abducting of any mental health patient</b>	
Lack of clarity regarding the governance of specialty patient groups within the emergency department (ED).	– Investigate governance models and implement an equitable model for the management of all specialty groups within the ED.
Transfer of care for younger patients to appropriate hospital did not occur.	– Review/develop care pathway for the management of mentally unwell youth < 18 years within the ED.
Specialling of patients who have been assessed as high risk for absconding/self-harm and require 1:1 supervision being carried out by relief/agency staff who have nil or minimal training.	– Review staff allocations and supervision of patients deemed at high risk for absconding/self-harm.
Patients' mental health status not conducive to cooperating with ED stay.	– Acute agitation and arousal flow chart to be implemented. – Implementation of Aggression Prevention Intervention training and de-escalation for ED staff.
Inconsistent responses from clinicians when patients ask to leave ED to smoke cigarettes.	– Establish an agreed interdisciplinary standard for the management of patients who smoke which aligns with the service's policy on smoking.
A full psychiatric assessment takes an average of 2 hours.	– Review referral form to Psychiatric Liaison Services for having a graded system for ED clinicians to request full psychiatric assessment or drug and alcohol referral.
<b>Complications of an inpatient fall</b>	
Unclear when bed rails can be used.	– Update falls/restraint policies to include clear information on when bed rails are to be used.
Surveillance requirements unclear.	– Identify criteria for patients at very high risk of falls injury who require surveillance and develop an additional management plan for this cohort.
Falls occurring while patients attempting to walk to a toilet, especially at night.	– Develop toileting plan for all high risk falls patients, including any specific instructions for overnight.
No reassessment of patient's falls risk post operatively when initial condition changed - added risks included episodes of confusion, dehydration hypotension and opioid analgesia.	– All surgical unit nursing staff to complete falls risk e-learning package to ensure assessments are undertaken according to the patient's risk profile status.
No on-site senior medical supervision for Resident Medical Officers and Interns.	– Develop and implement a supervision protocol for junior medical officers.
Delirium screening not undertaken for intermittently confused patient with indwelling urinary catheter being treated with antibiotics for suspected urinary tract infection.	– Delirium screening and Confusion Assessment Methods are discussed at clinical meetings to increase staff awareness of the delirium pathway.

Identified Issues	Hospital /Health Service Improvements/Initiatives
<b>Unexpected death of a mental health patient</b>	
Lack of communication including no copy of discharge summary to private psychiatrist resulted in substandard communication.	– Formal process to notify private psychiatrists of patients being admitted to public mental health units, both on admission and at discharge.
The inability to access patient's health care record on the Psychiatric Services On-Line Information System (PSOLIS) for after hour's clinical staff may have presented a significant barrier in formulating an informed discharge plan.	– Grant global read access to PSOLIS to relevant after hours mental health clinical staff to support clinical decision making processes.
History of multiple 'did not attends' led to clinical deterioration.	– Closer case management or contact between medical appointments is recommended.
Referral to DCP mentor may have increased the chance that the patient would engage in a therapeutic relationship with mental health services.	– Recommend that any patient contact with the Acute Response Team, where there is established involvement by DCP be referred to DCP/Crisis Care as a matter of urgency.
Issues arising where patients may be cleared medically in the ED but may not have been reviewed by the psychiatric team.	– Directive defining the roles and responsibilities of the mental health service with regard to patients requiring mental health assessment/ management within the ED to be electronically communicated to all Psychiatric Medical Officers (Registrars and Consultants).

## SAC 1 Case Study

Mr P was in hospital for a relapse of his chronic schizophrenia and was improving. Mr P had worked out one of the closing mechanisms on a staff door was broken and so would use this door to slip outside for a cigarette.

On one of these occasions he was missed and reported AWOL (absent without leave). Staff eventually found him returning from a park across the road.

This clinical incident was investigated but Mr P was cagey as to how he got out of a closed ward. The investigation ended up being delayed because of various factors but eventually the faulty door was identified and fixed.

Tragically, in the interim another patient Mr G, who was admitted with severe depression managed to leave via the same faulty door and successfully suicided.

### Improving Patient Safety by the Timely Completion of SAC 1 Investigation Reports

The North Metropolitan Health Service (NMHS) implemented quality improvement activities in 2014 to improve SAC 1 Root Cause Analysis (RCA) investigations within 45 days because the timely investigation of these incidents is imperative to identify patient safety issues that require the implementation of strategies to mitigate risks.

The WA Health CIM Policy requires investigation reports to be submitted within 45 working days. Only 3% of NMHS Mental Health SAC 1 notifications in 2012 and 23% of 2013 notifications met this requirement. Delays were due to:

- A high number of investigations allocated for RCA.
- The lack of staff trained in RCA methodology.
- Delays in accessing staff for panels.
- The lack of a suitable and efficient tool to assess SAC 1 falls.

To improve timely reports:

- The Clinical Review Report template was revised to include prompts to assess organisational and or systemic contributory factors.
- A requirement for services to conduct a clinical review within seven days of the incident was introduced with thereafter the Program Clinical Director determining the need for a RCA.
- A new SAC 1 Falls Investigation Form was introduced.
- The continuation of monthly RCA workshops. As a result, timely reports increased to 61% for 2014 notifications, and the average number of SAC 1 notifications has declined from 33 in 2012, 23 in 2013 and 20 projected for 2014.

### Key SAC 1 Clinical Incident Messages

Clinical incidents resulting in serious harm or death are of paramount concern to WA Health staff as demonstrated by the increased reporting of SAC 1 clinical incidents for 2013/14. Increased reporting translates to a health care system that is mature enough to address clinical incidents in an open and transparent way by being proactive in making patient safety an inherent component of health care delivery.

While these principles are admirable the fact is that some of our patients are seriously harmed and in some cases die as a result of this harm. Therefore we have an obligation to those patients and their families to learn from our mistakes and put in place mechanisms that prevent those clinical incidents from reoccurring.

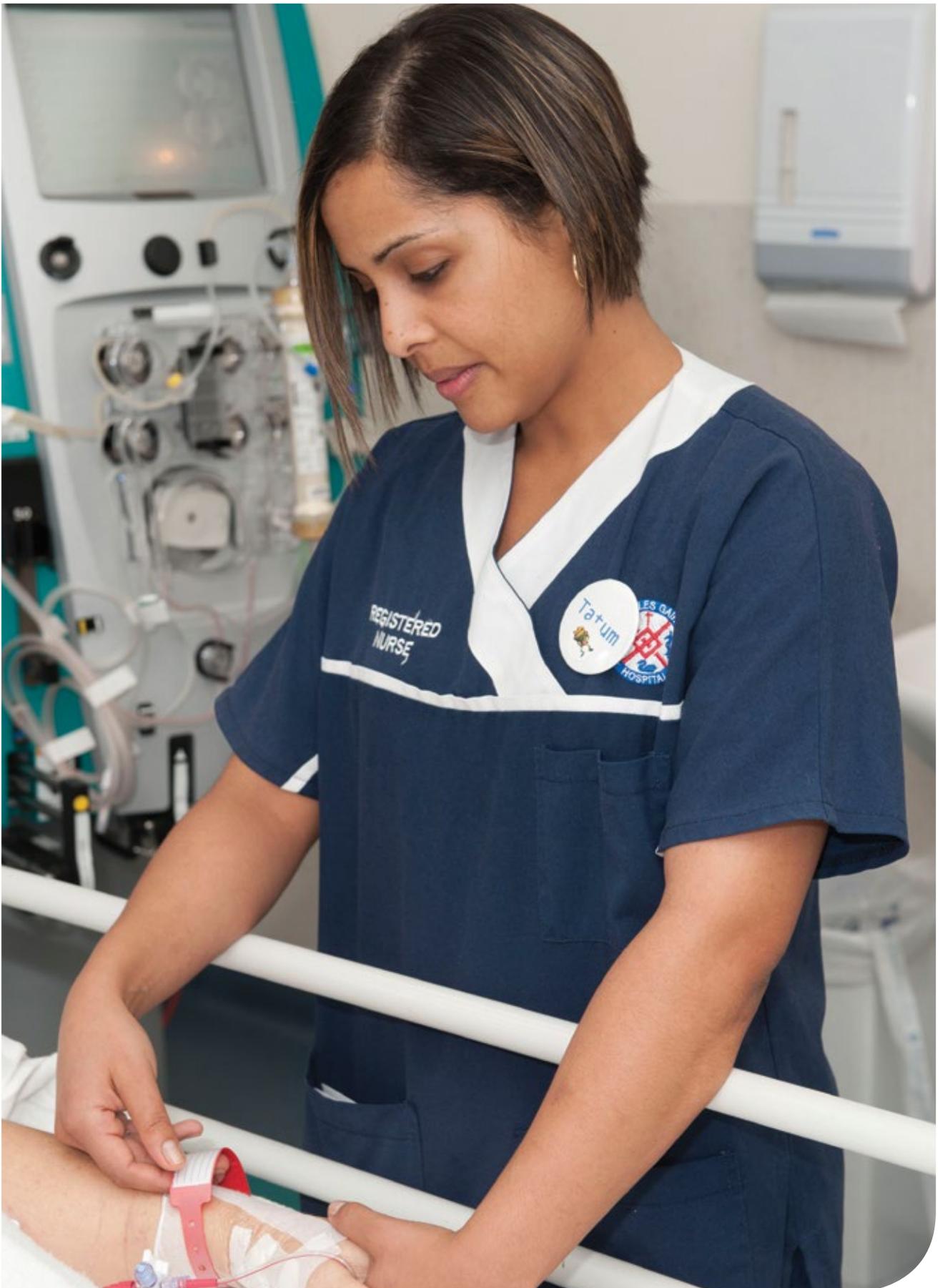
Twelve sentinel events were reported in 2013/14, representing six of the eight nationally reported sentinel events. Two sentinel event categories pertaining to wrong site surgery and retaining of a foreign object post procedure are examples of 'Never Events' which are serious events that are recognised as being preventable through the implementation of patient safety system processes.

These three Never Events were notified and investigated with the wrong site surgery incidents identifying five contributing factors that resulted in seven strategies to improve patient safety ranging from education refreshers to standardised surgical site marking processes being implemented to prevent wrong site clinical incidents from reoccurring. Additionally, for the clinical incident which resulted in a gauze swab being retained, three strategies were implemented to ensure surgical counts were correct. These strategies included mandatory training requirements for staff working in theatre, revising the surgical count sheet to capture verbal confirmation from the surgeon that the wound has been explored for foreign bodies prior to closure and making surgical count education a key performance indicator.

While sentinel events numbers remain relatively low the same cannot be said for the other SAC 1 clinical incidents which continue to increase, especially with regard to the number of falls that result in serious harm or death of our patients. In 2013/14 63 falls SAC 1 incidents were notified of which 16 patients died as a result of a complication from a fall. We acknowledge that the best falls interventions can all be in place and a confused patient at high risk of falling will still climb out of bed and fall. However, busy clinicians need to ensure that the right assessments are made so that the best available interventions are used to keep our most vulnerable and ageing patients from injuring themselves whilst receiving care.

Absconding is a major patient safety issue for patients with a mental health illness because of the risk of increased harm when unwell patients take unauthorised leave from a health care facility. In 2013/14, there was a substantial increase in the number of mental health patients absconding from care, with more than double the number of clinical incidents reported (n=64) compared to 2012/13 (n=26). The use of clinical risk assessments for mental health patients who abscond need to be refined to enable clinicians to focus on investigating SAC 1 incidents that result in serious harm or death (or near miss) rather than investigating less serious incidents of absconding.

Similarly, refinement of the reporting of mental health deaths occurring in the community is warranted to ensure that clinical incident investigations are targeting those patients who are actually receiving health care from WA Health.

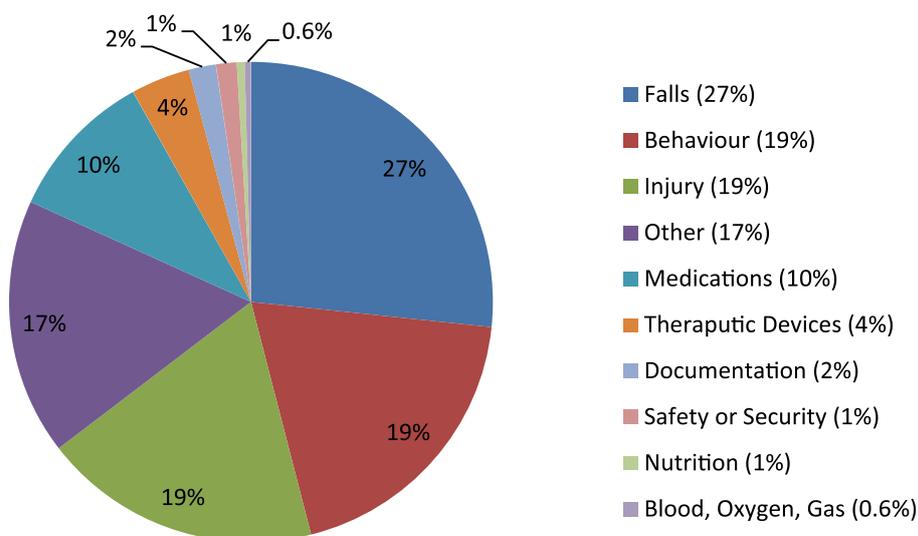


## SAC 2 Clinical Incidents

The category **SAC 2** includes all clinical incidents/near misses where **moderate harm** is/could be specifically caused by health care rather than the patient’s underlying condition or illness. In 2013/14, there were 6,240 (24%) clinical incidents with a SAC 2 allocation. The clinical incident types for these SAC 2 categories are presented in Figure 9.

Findings revealed that falls incidents (n=1,665; 27%) were the most frequently reported SAC 2 clinical incident followed by behaviour incidents (n=1,205; 19%). The top five clinical incident types accounted for 92% (n=5,735) of clinical incidents in this SAC 2 category.

Figure 9: **Percentage of Clinical Incident Types by SAC 2 Category (2013/14)**



The top five SAC 2 clinical incidents were reviewed to identify the nature of the clinical incident. Apart from falls\* clinical incidents, the three most frequently reported responses for each category are shown in Table 8. Results showed that physical abuse, aggression or assault (n=668; 10.7%) and no, wrong or delayed procedure or treatment (n=681; 10.9%) were the most frequent sub categories reported for the top five SAC 2 clinical incidents.

Table 8: **Frequency and Percentage of the Top Five SAC 2 Clinical Incidents by Type of Incident (2013/14)**

Type	Nature of Clinical Incident	(n)	%
<b>Falls*</b>	Witnessed and unwitnessed falls	1,665	27
Subtotal		<b>1,665</b>	27
<b>Behaviour</b>	Physical abuse, aggression or assault	668	10.7
	Absconding	211	3.4
	Intended self-harm	168	2.7
Subtotal		<b>1,047</b>	<b>16.8</b>
<b>Injury</b>	Pressure injuries	382	6.1
	Unintended injury during a procedure or treatment	239	3.8
	Result of an impact or collision	225	3.6
Subtotal		<b>846</b>	<b>13.5</b>
<b>Other</b>	No, wrong or delayed procedure, treatment or assessment	681	10.9
	Hospital acquired infection	170	2.7
	No, wrong or delayed admission, inappropriate bed or ward	55	0.9
Subtotal		<b>906</b>	<b>14.5</b>
<b>Medication</b>	Overdose	161	2.6
	Omission	102	1.6
	Other medications involved	81	1.3
Subtotal		<b>344</b>	<b>5.5</b>
<b>Total</b>		<b>4,808</b>	<b>77.3</b>

\* Falls response categories between AIMS and Datix CIMS were not compatible and did not allow categories to be combined.

## SAC 2 Clinical Incident Focus

This section will focus specifically on SAC 2 fall and behaviour clinical incidents which accounted for 46% (n=2,870) of all SAC 2 clinical incidents captured. The majority of SAC 2 falls (56%) and behaviour (57%) clinical incidents involved males (see Table 9). The mean age of patients involved in falls incidents was much older (77 years) than for patients involved in behaviour clinical incidents (40 years).

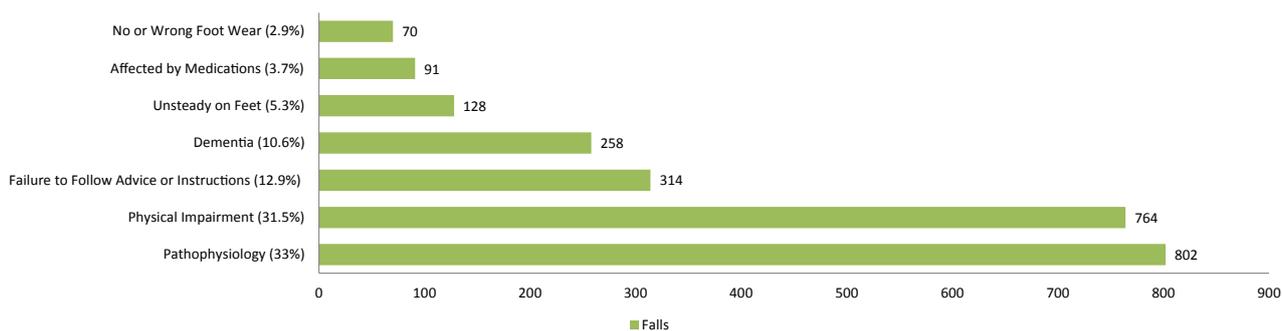
Table 9: **Demographic Data for SAC 2 Falls and Behaviour Clinical Incidents (2013/14)**

	Falls*	%	Behaviour*	%
<b>Male</b>	937	56	598	57
<b>Female</b>	722	44	451	43
<b>Total</b>	<b>1,659</b>	<b>100</b>	<b>1,049</b>	<b>100</b>
<b>Age Range</b>	1-103 yrs		7-98 yrs	
<b>Mean Age</b>	<b>77 yrs</b>	<b>SD 19 yrs</b>	<b>40 yrs</b>	<b>SD 22 yrs</b>

\*Fall clinical incidents missing data n=6; Behaviour clinical incidents missing data n=156.

For these SAC 2 Falls\* clinical incidents, pathophysiology of the patient (n=802; 33%) was the most frequently mentioned contributory factor (see Figure 10).

Figure 10: **Frequency and Percentage of Patient Contributory Factors to AIMS\*, SAC 2 Falls Clinical Incidents (2013/14)\*\***

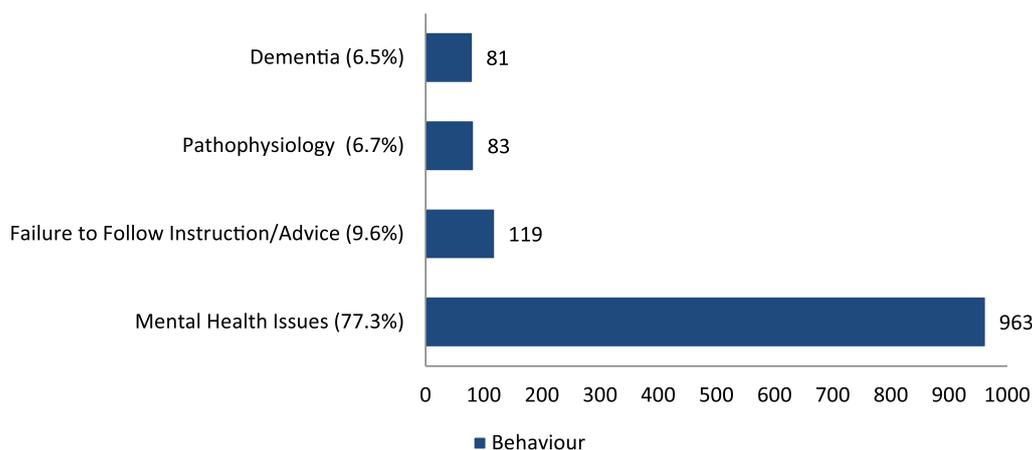


\* Please note that Datix falls data (n=89) are not included in this contributory factors figure due to incompatibility of response categories with AIMS data.

\*\* Please note that more than one contributory factor can be chosen therefore multiple responses were captured for falls categories.

For these SAC 2 Behaviour clinical incidents, the mental health of the patients (n=963; 77.3%) was the most frequently mentioned contributory factor (see Figure 11).

Figure 11: **Frequency and Percentage of Contributory Factors\* to SAC 2 Behaviour Clinical Incidents (2013/14)**



\* Please note that more than one contributory factor can be chosen, therefore multiple responses were captured for behaviour categories.

## SAC 2 Case Study

Ms M attended antenatal appointments when she was expecting her fourth child. She informed the nurse of her tiredness but then explained that she had 3 young children to run after. Her blood results showed mild anaemia but no treatment was ordered.

She was booked for a planned caesarean and baby delivered well but Ms M experienced moderate blood loss. Blood tests showed a haemoglobin of 70, and Ms M complained of dizziness on standing, so was transfused with two units of blood. Ms M had a mild transfusion reaction on the second transfusion.

Investigating this clinical incident, the clinical team queried if treating her anaemia pre-operatively could have avoided the need for a blood transfusion.

### **Improving pre-operative haemoglobin levels in women booked for planned caesarean sections.**

The Women and Newborn Health Service conducted a clinical audit to evaluate the need for a pre-operative haemoglobin (Hb) optimising strategy in women booked for planned caesarean section (C/S) within a tertiary obstetric hospital. The concept of the audit came from a concern that potential blood transfusions could be avoided in this high risk group of women. A baseline retrospective audit was developed to identify the trends of pre-operative anaemia in planned C/S and establish whether a Hb optimising programme should be implemented prior to the planned C/S.

#### **Methods used:**

The audit consisted of 50 patients who were seen in the pre-assessment clinic for the month of April 2013, prior to planned C/S. Audit data was extracted from the patient's medical records. Laboratory results and blood product use were verified from ICM© using a bespoke audit tool. The audit tool was amended to include documented oral iron supplementation and operative blood loss, as it became apparent that these factors may have an impact on anaemia prior to and following surgery. The data were analysed using basic descriptive statistics using Microsoft Excel.

#### **Results:**

In total 36% (n=18) women had some degree of anaemia in pregnancy.

Ten percent (n=5) of women received intravenous iron (IV Fe) in the 3rd trimester of pregnancy, with 80% of women demonstrating a good response to IV Fe. The patient, who failed to demonstrate a response, had been transferred from a nearby hospital with existing anaemia and had insufficient time between her IV Fe and C/S surgery to elicit a response. Twenty percent (n=10) of women experienced a blood loss of 1000mls or more. Of these women a third had a history of previous post-partum haemorrhage. Greater blood loss around surgery is associated with an increased risk of a blood transfusion.

Women who present at booking with identified anaemia were more likely to remain 'anaemic' through the pregnancy. The last opportunity to correct identified anaemia is following the 36 week Hb and antenatal check, which would generally provide two to three weeks for the haemoglobin to normalise following the administration of IV iron.

#### **Conclusion:**

Practice recommendations now include that patients with increased risk of anaemia or with an increased risk of bleeding at delivery should have iron studies evaluated alongside other screening tests. Early detection, prevention and treatment of iron deficiency are proactive with all groups of patients. The Service have emphasized the need to follow up the 36 week antenatal screening test result, which would allow the treatment of anaemia with IV Fe, if required. An educational programme has been implemented and new quality indicators are being monitored which demonstrate that practice improvements as part of a multifaceted anaemia management programme are reducing the incidence of anaemia.

## Key SAC 2 Clinical Incident Messages

Clinical incidents which have resulted in moderate harm to the patient accounted for nearly 24% (n=6,240) of all clinical incidents in 2013/14. Investigations of SAC 2 clinical incidents are reportable at a local level with each clinical incident requiring that at least a clinical review be performed, and contributory factors addressed.

Clinical incidents involving falls and behaviour issues continue to be the most frequently reported SAC 2 clinical incident types. Falls are a significant cause of avoidable harm to our older patients. Falls prevention is a major priority not only for WA Health but also at a national level, as demonstrated by its inclusion in the NSQHS Standards (2012).<sup>12</sup> Undertaking a comprehensive screening and assessment, especially targeting our most vulnerable patients, is standard practice across WA Health settings, yet falls continue to occur. This highlights that falls prevention is a complex issues that requires not only a multifactorial approach but constant vigilance. Additionally, clinicians need to ensure that their falls practices are rigorously evaluated and underpinned by strong evidence from a state, national and international perspective.

Behavioural clinical incidents or injuries were the next most frequently reported SAC 2 clinical incident in 2013/14. Mental health issues have been identified as the most frequent contributory factor for behaviour incidents occurring and like falls incidents are complex to address. However, WA Health is advancing patient safety in mental health by strengthening communication processes, standardising state-wide clinical documentation for mental health services and integrating services to provide a more seamless transition for mental health patients utilising the health care system. Furthermore the establishment of the Mental Health Network will certainly enhance the provision of health care delivery by helping staff and patients to connect and improve mental health outcomes.



<sup>12</sup> Australian Commission on Safety and Quality in Health Care (September 2012), National Safety and Quality Health Service Standards, ACSQHC, Sydney.

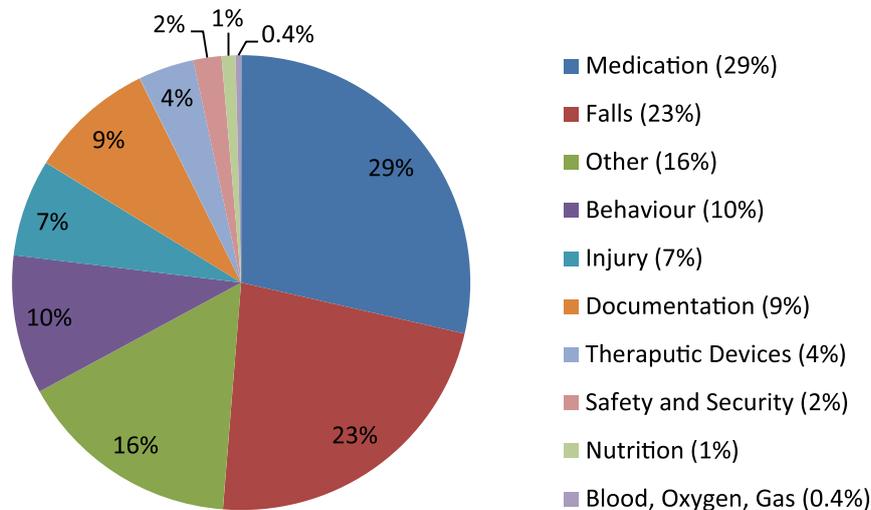
## SAC 3 Clinical Incidents

There were 16,851 clinical incidents allocated to the SAC 3 category referring to clinical incidents that resulted in minimal or no harm that is/could be specifically caused by health care delivery rather than patient's underlying condition or illness.

The clinical incident categories for these SAC 3 categories are presented in Figure 12. Findings revealed that medication clinical incidents (n=4,844; 29%) and falls (n=3,813; 23%) were the most frequently reported SAC 3 clinical incident types in 2013/14.

Eighty four percent (n=14,177) of all SAC 3 clinical incidents were captured in the top five clinical incident categories.

Figure 12: **Percentage of SAC 3 Clinical Incidents by Incident Type (2013/14)**



The top five SAC 3 incident categories were reviewed to identify the nature of the clinical incident and accounted for 61.8% of clinical incidents (n=10,365). For each of the top five SAC 3 categories, the three most frequently reported sub categories are shown in Table 10. Excluding falls, as AIMS and Datix CIMS categories did not align, wrong medication, additive or fluid (n=1,309) was the most frequently mentioned clinical incident type, followed by no, wrong or delayed procedure, treatment or assessment (n=1,136).

Table 10: **Frequency and Percentage of the Top Five Clinical Incidents by the Type of SAC 3 Clinical Incidents (2013/14)**

SAC 3 Type	Type of Clinical Incident	(n)	(%)
Falls*	Witnessed and unwitnessed falls	3,813	23.0
Subtotal		<b>3,813</b>	<b>23.0</b>
Medication	Wrong medication, additive or fluid	1,309	7.8
	Omission	956	5.7
	Overdose	611	3.6
Subtotal		<b>2,876</b>	<b>17.1</b>
Other	No, wrong or delayed procedure, treatment or assessment	1,136	6.7
	No or delayed admission, inappropriate bed or ward	269	1.6
	Hospital acquired infection	157	0.9
Subtotal		<b>1,562</b>	<b>9.2</b>
Behaviour	Physical abuse, aggression or assault	720	4.3
	Absconding	320	1.9
	Intended self-harm	248	1.5
Subtotal		<b>1,288</b>	<b>7.7</b>
Injury	Pressure injury	408	2.4
	Result of an impact or collision	344	2.0
	Unintended injury from procedure or treatment	74	0.4
Subtotal		<b>826</b>	<b>4.8</b>
<b>Total</b>		<b>10,365</b>	<b>61.8</b>

\* Falls categories between AIMS and Datix CIMS did not align and so the type of falls incident could not be presented.

### SAC 3 Clinical Incident Focus

This section focuses specifically on SAC 3 medication (n=4,844) and falls (n= 3,813) clinical incidents which accounted for 52% of all SAC 3 clinical incidents. Results showed that more females (n=2,367; 53.2%) were involved in a medication clinical incident, while more males were involved in falls clinical incidents (n=1,967; see Table 11).

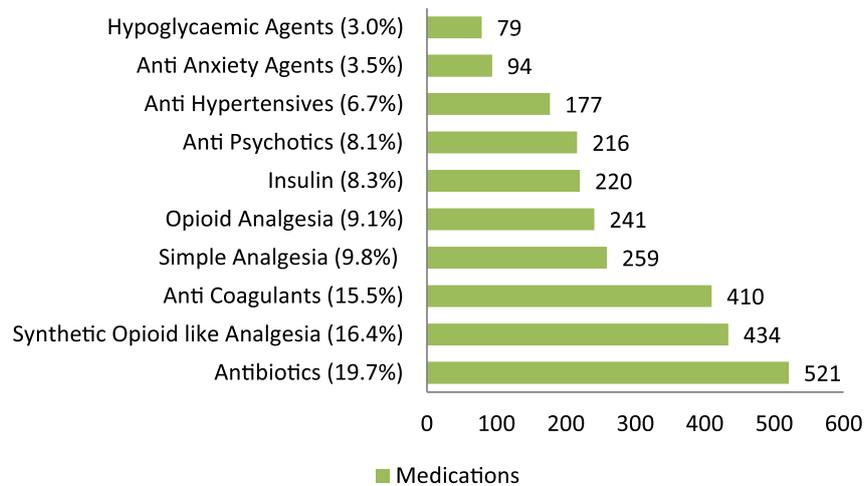
Table 11: **Demographic Data for SAC 3 Medication and Falls Clinical Incidents (2013/14)**

	Medication	%	Falls*	%
Male	2,083	46.8	1,967	53.5
Female	2,367	53.2	1,710	46.5
Total	<b>4,450</b>	<b>100</b>	<b>3,677</b>	<b>100</b>
Age Range	0-103 yrs		0-102 yrs	
Mean Age	<b>56 yrs</b>	<b>SD 28 yrs</b>	<b>71 yrs</b>	<b>SD 20 yrs</b>

\*Medication clinical incidents missing data n=394; Falls clinical incidents missing data n=136.

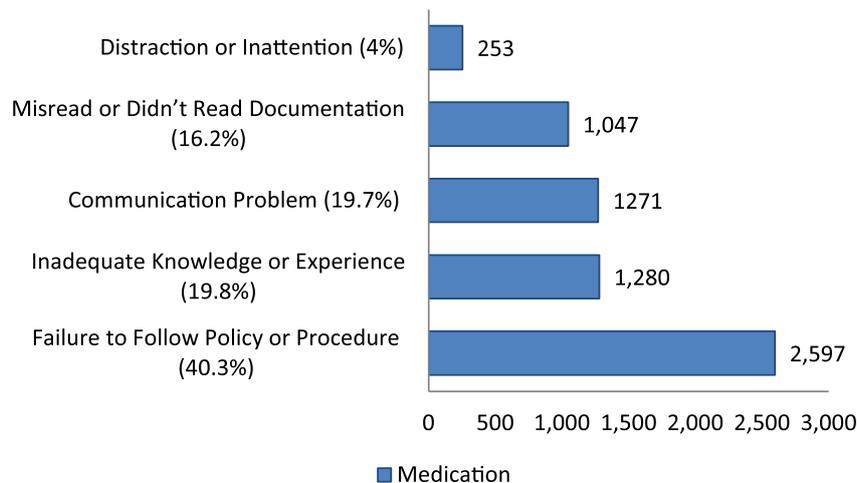
The top ten medications cited in 55% (n=2,651) of all SAC 3 medication clinical incidents are outlined at Figure 13. Antibiotics, analgesia, and anticoagulant medication accounted for 70.5% (n=1,865) of these top ten medications.

**Figure 13: Ten Most Frequently Cited Medications Involved in SAC 3 Medication Clinical Incidents (2013/14)**



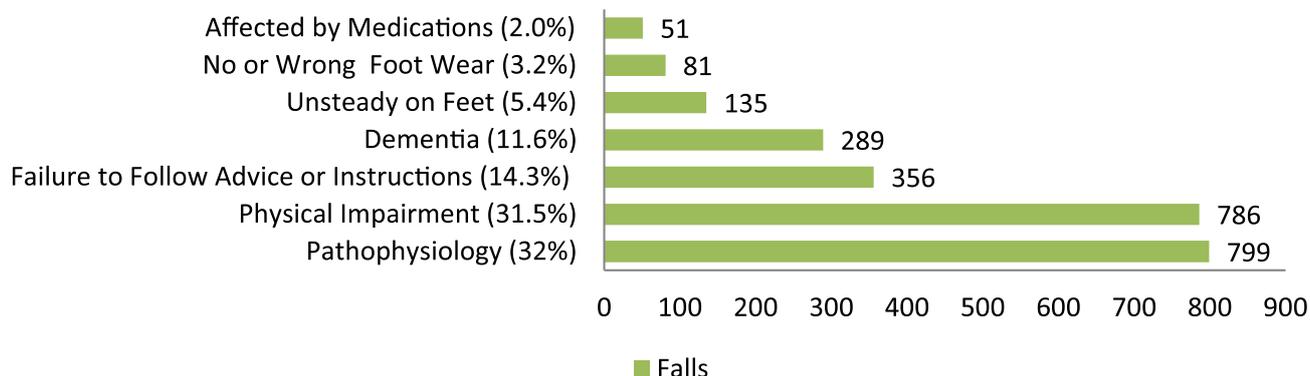
When it came to SAC 3 medication clinical incidents, staff factors were the most frequently reported reasons. Specifically, failure to follow policy (n=2,597; 40.3%) or misreading or didn't read documentation (n=1,280; 19.8%) contributed to 60.1% of medication clinical incidents (see Figure 14).

**Figure 14: Frequency and Percentage of Contributory Factors SAC 3 Medication Clinical Incidents (2013/14)**



Patient factors were the most frequently reported reasons for SAC 3 falls clinical incidents, compared to other contributory factors. Please note that Datix falls data (n=2,084) are not included in this contributory factors figure due to incompatibility of response categories with AIMS data. Patient pathophysiology (n=799; 32%) and physical impairment (n=786; 31.5%) were cited as the main contributory factors for these SAC 3 fall clinical incidents (see Figure 15).

Figure 15: **Frequency and Percentage of Patient Contributory Factors to AIMS\* SAC 3 Falls Clinical Incidents (2013/14)\*\***



\* Please note that Datix falls data (n=2,084) are not included in this contributory factors figure due to incompatibility of response categories with AIMS data.

\*\* Please note that more than one contributory factor can be chosen therefore multiple responses were captured for falls categories.

### SAC 3 Case Study

Toddler C is usually an active healthy 16 month old boy who presented to a rural health centre with a three day history of high temperature, runny nose, cough and a rash on his face which then spread across his body.

Toddler C was admitted to hospital and was diagnosed and treated for measles.

Family consultation identified that toddler C had attended the local child health clinic for all his other immunisations but the family had not been contacted with regard to the patient's 12 month immunisations.

Toddler C was treated for fever and once he began to eat and drink was discharged home.

The local child health clinic was informed of this patient's admission.

### Improving childhood immunisation rates in the Pilbara: A multifaceted approach.

The Pilbara was consistently under the 90% childhood immunisation coverage rate required for herd immunity, especially among Aboriginal children, and consequently had a relatively large number of children at increased risk of contracting vaccine preventable diseases. Pilbara Population Health aimed to turn this around and consistently exceed the target in all age and Aboriginality cohorts.

#### Methods used

Strategies used by Pilbara Population Health to improve immunisation rates focused on four key areas:

#### Monitoring and surveillance

- Use of monthly overdue lists at postcode level.
- Monthly sharing of improvements in overdue lists to all immunisation providers.
- Collation of a quarterly coverage report distributed to all immunisation providers.
- Quarterly reports tabled at all key meetings including the Pilbara Aboriginal Health Planning Forum.
- Use of monthly reminder letters for children who were coming up due for immunisation.
- Use of ward bed lists and paediatric outpatient clinic lists to check current immunisation status.

### **Clinical governance and processes**

- Review of immunisation clinic processes and set up.
- Review of cold chain processes including provision of improved temperature monitoring hardware.
- Development and distribution of immunisation clinic handbook.
- Regular audits of cold chain and clinics.

### **Clinical governance and processes**

- Review of administrative processes around immunisations and streamlining of these.

### **Workforce and development**

- Employment of Regional Immunisation Coordinator.
- Upskilling of nursing staff in acute sector to become immunisation providers to increase number of opportunistic immunisations for children/siblings who present to the hospital.
- Regular study days.
- Regular meetings with immunisation providers to discuss issues and potential solutions.

### **Health promotion and social marketing**

- Development of Immy the Immunisation Echidna to promote childhood immunisations and access to these across the community.

### **Results**

More than 12 months of coordinated work produced positive and consistent results. Since June 2013, immunisation rates have consistently been at or above target. The most noticeable change has been in the Aboriginal 12-15 month cohort who had a low immunisation rate of 66% in September 2012 and a high of 93% in June 2013. Similar changes occurred in other cohorts. This consistent improvement in rates has been noted on a state wide level. There has also been a notable change in reporting of cold chain and clinical governance issues which is fundamental to patient quality and safety.

### **Conclusions and recommendations**

Key to our success was the realisation that whilst someone had to take responsibility for strategy coordination it would only work if immunisations became everyone's business. Strategies needed to be relevant to and inclusive of all immunisation providing organisations, a multifaceted approach is required and constant communication at all levels is key.

### **Key SAC 3 Clinical Incident Messages**

Clinical incidents resulting in no or minimal harm (SAC 3) accounted for the greatest proportion (n=16,851; 66%) of clinical incidents in 2013/14. Since 2011/12 medication clinical incidents and falls have reported the highest frequency for SAC 3 clinical incidents.

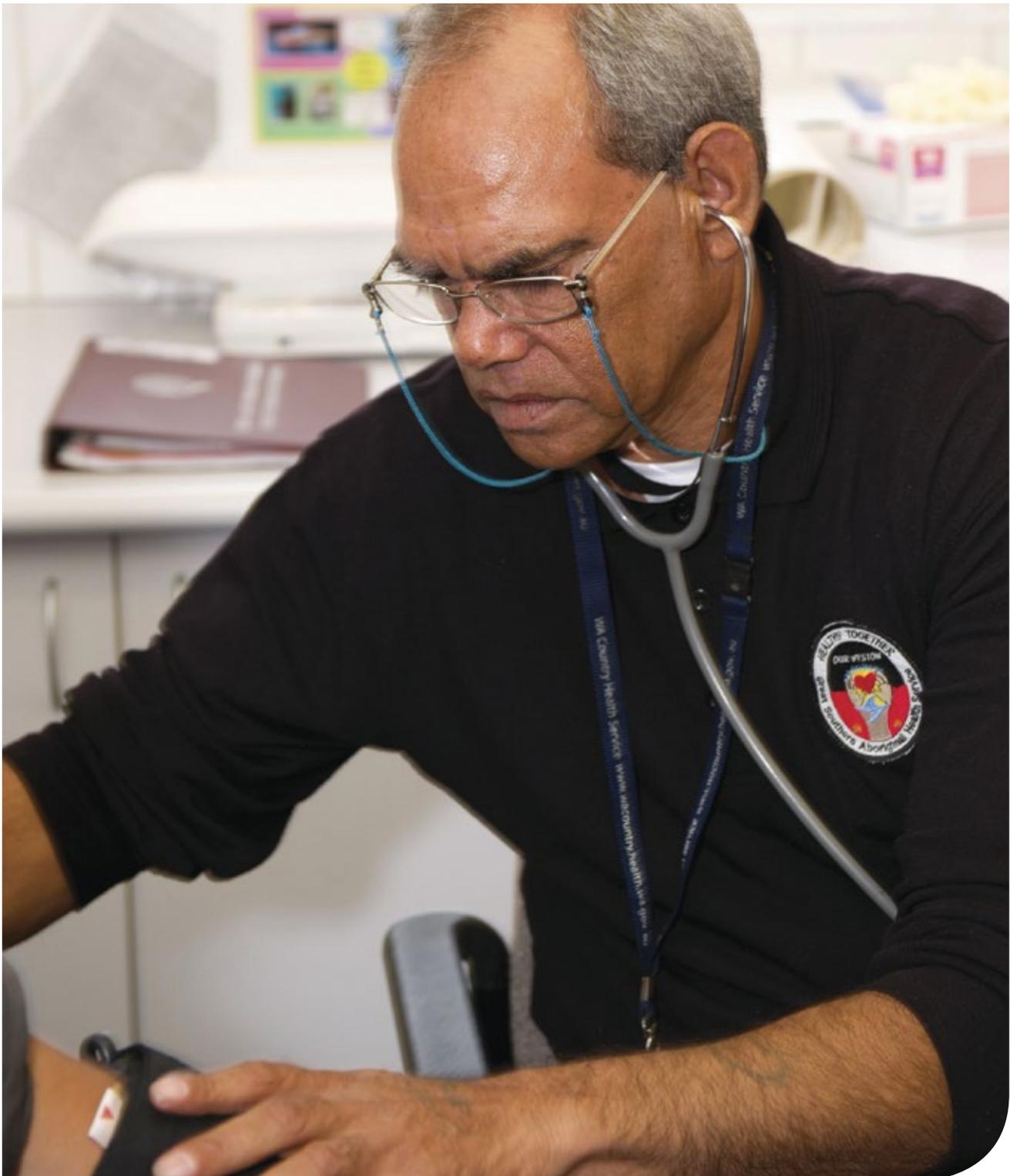
The dispensing of medicines to patients is the most common health care intervention, and makes the administration of medications a significant risk to hospitalised patients.

Antibiotics, analgesia, and anticoagulant medication accounted for 70.5% (n=1,865) of the ten most frequently administered medication SAC 3 clinical incidents. These commonly prescribed medications warrant greater consideration when being administered to patients. While clinicians are taught the fundamentals of medication administration which include the right patient, medication, dose, time, frequency, route, reason and site they are also required to exercise strong knowledge application, critical thinking and decision making skills. When any or all of these skills are absent, medication errors can occur.

Findings revealed that across WA Health, the three main factors contributing to SAC 3 medication clinical incidents were related to staff not following policy and or procedure; not having the appropriate knowledge and or experience; or resulted from communication issues. Interventions and quality improvement projects targeting the above mentioned weak spots and the system factors that facilitate these errors would be the first step to preventing medication clinical incidents. Furthermore, with the

introduction of Datix CIMS, medication clinical incidents are now able to be tracked in real time which is an additional safety net that can be used to immediately alert clinicians to medication errors and or trends and directly reinforce safe practice strategies.

Falls within the health care setting are unfortunately a common occurrence especially for our elderly patients, and impact not only their recovery but can also hinder their confidence in walking. Intrinsic factors associated with falls incidents are numerous and examples include age, gender, co-morbidities, impaired mobility, balance, gait or vision, medications and disease processes. Often more than one risk factor is associated with a fall incident and clinicians need to be cognisant of this when devising individual fall prevention plans. Falls prevention programs utilised across WA Health are steadfastly working to minimise falls within our health care settings.



## Quality of Care

The delivery of high quality health care to patients commences at the bedside, with professional nursing, medical, allied health and support staff, who strive each day to achieve this goal. The notification of clinical incidents that have resulted or nearly resulted in harm to the patient is another strategy supporting the provision of high quality care. It is through the notification and investigation of clinical incidents that improvements in health care delivery can be achieved. However, clinical incident management is only one component in the delivery of high quality health care, with WA Health using many different methods to identify, investigate and improve clinical and service outcomes.

Pivotal to the delivery of high quality health care is the use of routine reporting mechanisms that are essential not only for the strategic planning of services and for operational decision making but also to ensure that continuous performance improvements are being measured and achieved. Currently, WA Health uses the Performance Management Framework (PMF)<sup>13</sup> to report on quality of service delivery and population outcomes which include financial, workforce, activity, access, quality and safety measures. The importance of the balanced approach adopted in the PMF is reinforced by the final report of the Mid Staffordshire NHS Foundation Trust Public Inquiry (2013)<sup>14</sup>. The report highlights the appalling and unnecessary suffering when cost control is put ahead of patients and their safety.

Complementing the PMF is the Quality of Care Framework (QoCF) 2013/14 which unlike the PMF focuses on individual health outcomes (see Table 12).

The QoCF was introduced in the 2013 Your Safety in Our Hands in Hospital and focuses on two domains:

1. Helping people to recover from episodes of ill health or injury.
2. Treating and caring for people in a safe environment and protecting them from avoidable harm.

Under each QoCF domain there is a series of clinical indicators which are used to measure appropriate patient care such as complications of care, in-hospital mortality, length of stay, readmission and complications of surgery (see Table 12).

<sup>13</sup> Department of Health. (2014). Annual Performance Management Framework 2014/15. Department of Health, Perth, Australia. Available from: [http://www.health.wa.gov.au/activity/docs/20140804\\_Performance%20Management%20Framework%202014-15\\_v3.0.pdf](http://www.health.wa.gov.au/activity/docs/20140804_Performance%20Management%20Framework%202014-15_v3.0.pdf) (accessed September 2014).

<sup>14</sup> The Mid Staffordshire NHS Foundation Trust. (2013). Final Report of the Mid Staffordshire NHS Foundation Trust Public Inquiry, Mid Staffordshire NHS Foundation Trust, United Kingdom. Available from: <http://www.midstaffpublicinquiry.com/report>. (accessed September 2014).

Table 12: WA Health Quality of Care Framework 2013/14

Domain 1: Helping people to recover from episodes of ill health or injury	Domain 2: Treating and caring for people in a safe environment and protecting them from avoidable harm
Tier 1 <ul style="list-style-type: none"> <li>■ In-hospital mortality rates for acute myocardial infarction (AMI), Stroke, fractured neck of femur (FNOF), pneumonia (PMF EQ8)</li> </ul>	Tier 1 <ul style="list-style-type: none"> <li>■ Hospital Standardised Mortality Ratio (HSMR) (PMF EQ5)</li> </ul>
Tier 2 Appropriate Care <ul style="list-style-type: none"> <li>■ Model of care premium payment (Stroke, AMI &amp; FNOF)</li> <li>■ Unplanned readmissions (PMF EQ9) (Hip replacement, Knee replacement, Hysterectomy, Prostatectomy, Cataract surgery, Adult appendectomy, Paediatric Tonsillectomy and Adenoidectomy)</li> </ul>	Tier 2 Complications of Care <ul style="list-style-type: none"> <li>■ Health care acquired infection (SAB)* (PMF EQ3)</li> <li>■ Complications of surgery (FNOF, Hip replacement, Knee replacement, Prostatectomy, Abdominal hysterectomy, Vaginal hysterectomy)</li> <li>■ Complications of medical care (AMI &amp; Stroke)</li> </ul>
Tier 3 <ul style="list-style-type: none"> <li>■ VLAD in-hospital mortality (VLAD CM)</li> <li>■ VLAD long stay (VLAD CM)</li> <li>■ VLAD complications of surgery (VLAD CM)</li> <li>■ VLAD readmission (VLAD CM) for AMI, Stroke, FNOF</li> </ul>	Tier 3 <ul style="list-style-type: none"> <li>■ SAC 1 Clinical Incidents (CIM Report, PSSU)</li> <li>■ SAC 2 Clinical Incidents (CIM Report, PSSU)</li> <li>■ SAC 3 Clinical Incidents (CIM Report, PSSU)</li> <li>■ Health Service Complaints</li> <li>■ CHADx data sets</li> </ul>

\*SAB refers to Staphylococcus aureus bacteraemia.

An emerging trend in patient safety and quality improvement is the focus on health care variation that results when patients with the same condition receive different levels of care. The Australian Commission on Safety and Quality in Health Care recently released the *Exploring Healthcare Variation in Australia: Analysing Results from OECD Study (2014)*<sup>15</sup> for consultation. The report aims to identify and raise awareness of health care variations that exist within the Australian context. It is anticipated that the report will stimulate a national discussion on how to determine which variations are unwarranted and how these unwarranted variations can be reduced to improve the quality and appropriateness of health care.

## Complications of Care

WA Health's Clinical Casemix Handbook 2012-14 defines a complication as a condition not present on admission which arises during the patient stay, or is the result of a procedure or treatment during the stay. Examples include:

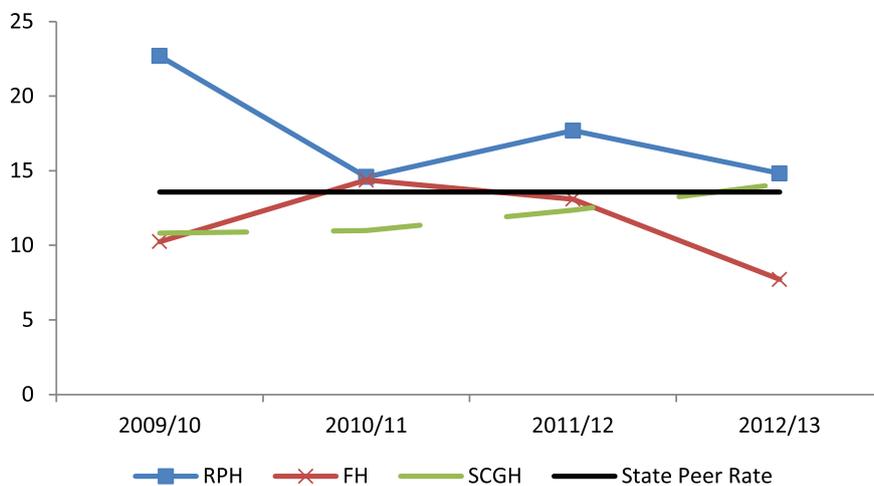
- embolism
- drug reaction
- urinary tract infection (UTI)
- post-operative infections.

<sup>15</sup> Australian Commission on Safety and Quality in Health Care. (2014). *Exploring Healthcare Variation in Australia: Analyses Resulting from an OECD Study*, Australian Commission on Safety and Quality in Health Care, Sydney, Australia. Available from: <http://www.midstaffspublicinquiry.com/report>. (accessed September 2014).

Complications of surgery or medical care cover a broader range of conditions that are deemed to arise as a result of the surgery or medical care (see Appendix Two for a full list of surgical complications). A proportion of surgical and medical care complications are captured within elements of the QoCF such as the VLAD, CHADx and SAC indicators. A review of selected complications of surgery for targeted procedures at tertiary and secondary hospitals reveals mixed results. For further results on reported complication of surgery codes from teaching and non-teaching hospitals refer to Appendices Three to Six.

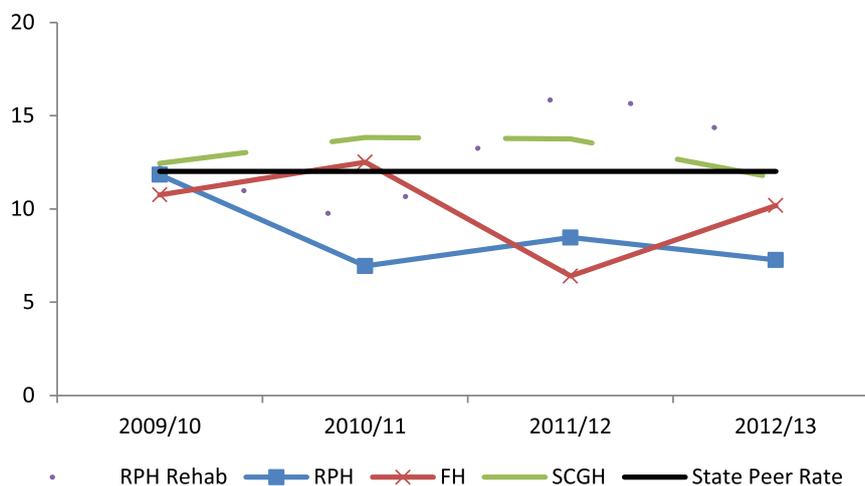
Closer examination of Surgical Complication Risk Adjusted Hospital Rates for Hip Replacement 2009-2013 per 100 Separations shows that since 2011/12 Royal Perth Hospital and Fremantle Hospital reported a decrease in the rate of complications (see Figure 16). Since 2010/11 Sir Charles Gairdner Hospital shows an increasing trend in surgical complications for hip replacement however it should be noted it is only in 2012/13 that their rate of complications rise slightly above the state peer group average.

Figure 16: **Surgical Complication Risk Adjusted Hospital Rates for Hip Replacement 2009-2013 per 100 Separations**



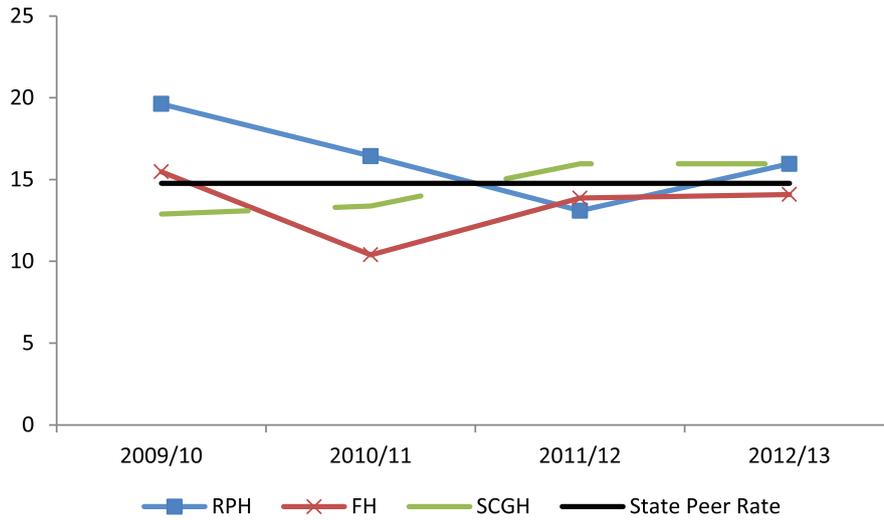
A review of Surgical Complication Risk Adjusted Hospital Rates for Knee Replacement 2009-2013 per 100 Separations shows that Royal Perth Hospital Rehabilitation, Sir Charles Gairdner and Royal Perth Hospital reported lower complication rates over the two most recently reported financial years (see Figure 17). Although Fremantle Hospital experienced an increase in the rate over the same period the hospital's rate remains below the four year peer rate average.

Figure 17: **Surgical Complication Risk Adjusted Hospital Rates for Knee Replacement 2009-2013 per 100 Separations**



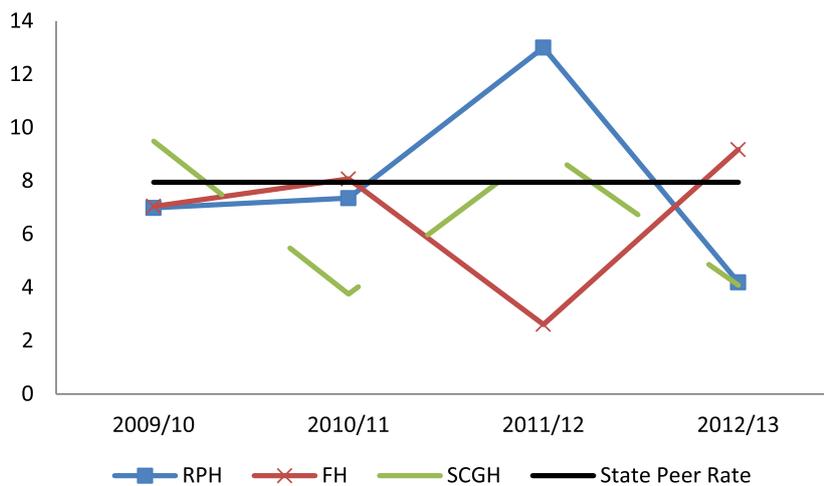
Examination of Surgical Complication Risk Adjusted Hospital Rates for Fractured Neck of Femur 2009-2013 per 100 Separations shows that since 2009/10 Royal Perth Hospital's surgical complication rates for fractured neck of femur decreased from 16.43 per 100 separations to 13.09 in 2011/12 but increased to 15.96 per 100 separations in 2012/13. Since 2010/11 Sir Charles Gairdner Hospital and Fremantle Hospitals both show increasing trends in complication rates for this condition (see Figure 18).

Figure 18: **Surgical Complication Risk Adjusted Hospital Rates for Fractured Neck of Femur 2009-2013 per 100 Separations**



A review of Surgical Complication Risk Adjusted Hospital Rates for Prostatectomy 2009-2013 per 100 Separations shows that Royal Perth Hospital and Sir Charles Gairdner experienced a decline in the rate of complications over the two most recently reported financial years while Fremantle Hospital experienced an increase in the rate of complications over the same period and remains above the four year peer rate average (see Figure 19).

Figure 19: **Surgical Complication Adjusted Hospital Rates for Prostatectomy 2009-2013 per 100 Separations**



## Classification of Hospital Acquired Diagnoses (CHADx)

In 2008, WA Health commenced collecting data on whether the onset of a diagnosed condition occurred during the inpatient episode. This condition onset flag (COF) code, allows the analysis of health care conditions/complications that happened during the inpatient stay. The COF codes, via the national data collection of Condition Present on Admission (CPoA) variables, have become an integral part of the CHADx system.

The CHADx system was commissioned for development at a national level through the Australian Commission on Safety and Quality in Health Care (ACSQHC), via researchers at the Australian Centre for Economic Research on Health. The CHADx system requires the capturing of CPoA variables, to identify if the condition was hospital acquired. The current CHADx version 5, comprises 17 categories and 145 subclasses of valid hospital acquired diagnosis codes. The purpose of CHADx is to enable the monitoring of hospital acquired diagnoses from routine administrative inpatient data sources such as the HMDC, to assist clinicians in improving the care that is delivered to patients.

A review of 2010–1 CHADx data by Utz, Johnston and Halech (2012)<sup>16</sup>, showed that 9% of all hospital admissions within Queensland included at least one hospital acquired illness or injury. A recent review of the literature shows a growing number of Australian published reports that have utilised hospital acquired diagnosis to monitor harm to patients.<sup>17</sup> Trentino *et al.* (2013)<sup>18</sup> published a Western Australian focussed report measuring the incidence of hospital acquired complications and their effect on length of stay using CHADx data obtained from the South Metropolitan Health Service Clinical Activity Data Warehouse. The paper concludes that the utilisation of CHADx data increases the emphasis on patient safety and quality of care and presents opportunities to reduce length of stays.

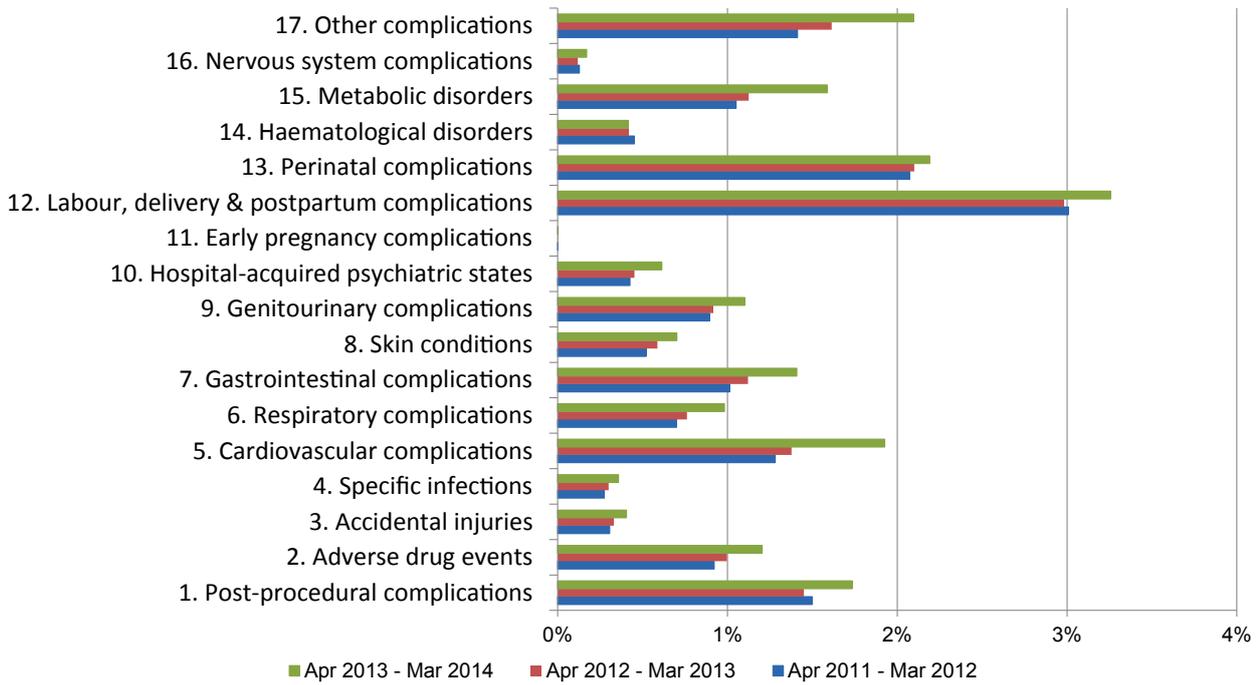
A review of the WA Health HMDC data by the 17 CHADx categories shows that labour, delivery & postpartum had the highest percentage of complications in the most recent reporting period as well as in the two previous years (see Figure 20). Perinatal, cardiovascular, “other”, and post-procedural had the next highest levels of complications over the April 2013 to March 2014 period. In terms of trends, cardiovascular, metabolic, and “other” COF codes experienced the largest increases in the percentage of complications when April 2013 to March 2014 is compared to the same period in the previous year.

<sup>16</sup> Utz, M., Johnston, T., Halech, R. (2012), A Review of the Classification of Hospital Acquired Diagnoses. Technical Report 12, Queensland Government, Brisbane, Australia. Available from: <http://www.safetyandquality.gov.au/wp-content/uploads/2013/01/A-review-of-the-Classification-of-Hospital-Acquired-Diagnoses-Utz-Johnston-and-Halech-Qld-Health-October-2012.pdf> (accessed September 2014).

<sup>17</sup> Australian Commission on Safety and Quality in Health Care. (2014). Classification of Hospital Acquired Diagnoses – Publications related to the CHADx classification (webpage). Available from: <http://www.safetyandquality.gov.au/our-work/information-strategy/health-information-standards/classification-of-hospital-acquired-diagnoses-chadx/> (accessed September 2014).

<sup>18</sup> Trentino, K. M., Swain, S. G., Burrows, S. A., Sprivulis, P. C., Daly, F. F. S. (2013), ‘Measuring the incidence of hospital-acquired complications and their effect on length of stay using CHADx’, *Medical Journal of Australia*, Vol. 199, No.8, 543-547.

Figure 20: **Percentage of WA Health Hospital Separations with CHADx, by CHADx Categories and Year**



## Variable Life Adjusted Display (VLAD)

The adoption of Variable Life Adjusted Display Clinical Monitoring (VLAD CM) methodology by the Department of Health was an outcome of the Department's response to the Auditor General Report *First Do No Harm – Reducing Adverse Events in Public Hospitals, October 2007*.

A VLAD pilot was conducted in 2009 and included the 'In Hospital Mortality indicator' for acute myocardial infarction, stroke, fractured neck of femur and pneumonia. VLAD CM (Clinical Monitoring) in WA Health was purchased and implemented in July 2013 at Sir Charles Gairdner Hospital, Royal Perth Hospital and Fremantle Hospital. Currently the VLAD CM is being implemented as an enterprise-wide quality monitoring tool, as endorsed by the Acting Director General on 26 June 2014.

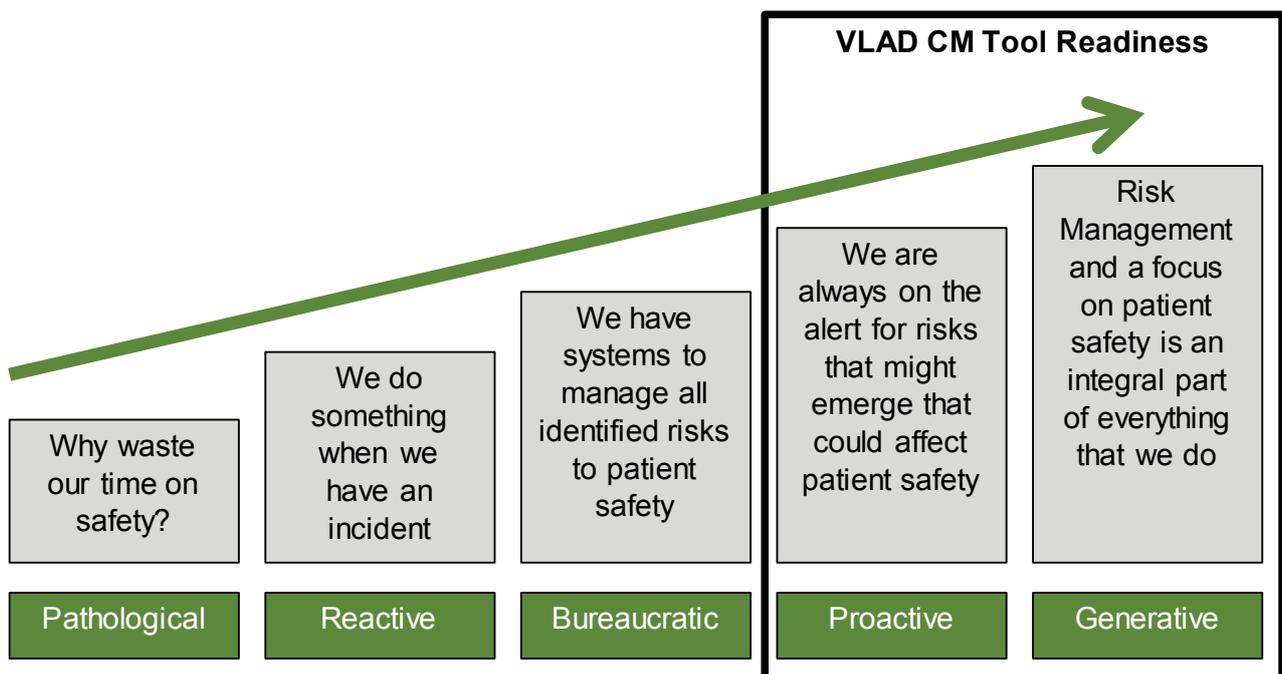
The VLAD CM system is a local quality monitoring system that provides clinicians and administrators with the ability to monitor risk-adjusted patient outcomes to identify unexpected trends through the application of statistical process control charts (see Appendix Seven). The statistical process control charts monitor patient outcomes and unexpected trends against the State averages at a hospital level for a range of in-hospital mortality, long stay and unplanned hospital readmission indicators. The VLAD CM system generates automatic flag notifications when the hospital's performance falls outside the pre-determined levels of variance from the State average for the selected indicator. The current suite of VLAD indicators is being further developed to include complication of surgery indicators.

The VLAD CM system uses a Pyramid Model of Investigation that commences with a data/clinical coding review and progresses to a clinical review of the patient records. The control charts provide drill-down features to the individual patient record level so that flagged variances between expected and actual patient outcomes to the State average can be investigated.

The WA Health Strategic Plan for Safety and Quality in Health Care 2013-2017 provides an overview of the Manchester Patient Safety Framework. The framework is an example of a Capability Maturity Model that is applied to health care. The framework aims to assist organisations in assessing the maturity of their patient safety culture.

A hospital or health service needs to reach the proactive and generative stages within the Capability Maturity Model before they are ready to adopt and fully benefit from the VLAD CM tool (see Figure 21).

Figure 21: **Five levels of maturity with respect to patient safety culture and the VLAD CM tool readiness**



Based on the Manchester Patient Safety Framework (2006).

## Premium Payment Program

The Performance-based Premium Payment Program (the Program) is designed to improve sustainability of clinical practice improvements within an ABF/M environment.

The Program is open to WA Health ABF funded hospitals. Participation is not mandatory; sites and services will be eligible for payment only if the required data is submitted. The Program has been designed to:

- Recognise and reward services which provide a very high level of best evidence-based care
- Reimburse Service Providers for any additional costs and tasks associated with participation in the scheme, including data collection and submission.

The Program was piloted in 2012/13 with five payments; it was continued in 2013/14 and 2014/15 with three payments:

- Fragility Hip Fracture Treatment
- Stroke Model of Care
- Acute Myocardial Infarction.

Clinical areas have been, and will continue to be, selected for inclusion in the Program using the following criteria:

- A strong evidence base and clinical consensus on the characteristics of best practice
- High impact, i.e. variation in practice, gap between best evidence and current practice, high volumes or significant impact on outcomes
- Availability and quality of data.

In 2013/14, Premium Payments were achieved for 2,545 cases (see Table 13).

Table 13: Total number of cases that achieved Premium Payments in 2013/14

		Hip Fracture	Stroke	AMI	Achieved
<b>NMHS</b>	SCGH	195	386	335	916
	SDH	-	168	-	168
	<b>NHMS Total</b>	<b>195</b>	<b>554</b>	<b>335</b>	<b>1,084</b>
<b>SMHS</b>	AHS	-	-	179	179
	FHHS	116	170	182	468
	RGH	-	140	32	172
	RPH	171	303	22	496
	<b>SMHS Total</b>	<b>287</b>	<b>613</b>	<b>415</b>	<b>1,315</b>
<b>WACHS</b>	Albany	-	-	49	49
	Bunbury	-	-	61	61
	Geraldton	-	26	9	35
	Kalgoorlie	-	-	1	1
	<b>WACHS Total</b>	<b>-</b>	<b>26</b>	<b>120</b>	<b>146</b>
<b>State Total</b>		<b>482</b>	<b>1,193</b>	<b>870</b>	<b>2,545</b>

Note: A dash (-) indicates that a hospital is not eligible or no cases have met the criteria for that period.

Source: Office of Patient Safety and Clinical Quality

Each year, the performance-based premium payments and incentive models are reviewed and assessed for their effectiveness in creating and maintaining clinical practice improvements in high priority care areas. These reviews can result in adjustments to existing payments, and the introduction of new payments for priority clinical areas.

Details of the 2014-2015 Performance-based Premium Payments Program are provided in the 2014-2015 Information Pack, which is available from the Office of Patient Safety and Clinical Quality.



## Coronial Review

The Coronial Liaison Unit (CLU) was established in 2005 to improve communication between WA Health and the Office of the State Coroner. It allocates health related findings from coronial inquests to appropriate stakeholders for implementation of recommendations. This information drives quality improvement in hospitals and HS which supports the provision of a high standard of health care. Health Services, and other stakeholders, provide advice and comments on coronial findings and an account of actions taken to improve patient safety. This feedback is communicated to the State Coroner in a biannual report. The CLU continues to work effectively with the Office of the State Coroner to share lessons learned from mortality review to improve future patient care within the health care system.

Table 14 provides a summary of WA Health activity and response to coronial recommendations for the last three years. Where coronial recommendations propose more than one strategy for improvement, they have been recorded as separate recommendations. Recommendations are not considered completed until they have been implemented in all applicable HS (ongoing recommendations may be partially implemented).

Table 14: **Overview of Coronial Liaison Unit Activity (2011 to 2014)**

	2011/12	2012/13	2013/14
Total number of health related coronial inquest findings received by CLU	11	12	27
Total number of health related recommendations (including mental health)*	41	23	17
Number of general health related recommendations	24	20	15
Number of general health related recommendations completed/closed*	24	18	9
Number of mental health related recommendations	17	3	2
Number of mental health related recommendations completed/closed	12	3	2

The Coronial Review Committee was established in January 2014. This Committee operates closely with the Coronial Liaison Unit and provides a mechanism for recommendations to be considered in a collaborative manner with key stakeholders across WA Health. The Committee exists to improve the governance and decision-making in relation to the state-wide implementation and response to coronial recommendations.

The following synopses are provided for coronial inquests where recommendations have implications for WA Health and where findings have been released between July 2013 and June 2014. All HS are encouraged to use these summaries to raise awareness of important messages to facilitate continuous quality improvement. All inquests summarised here can be accessed at the WA Health website: [www.safetyandquality.health.wa.gov.au/mortality/inquest\\_finding.cfm](http://www.safetyandquality.health.wa.gov.au/mortality/inquest_finding.cfm)

\* Health related recommendations that are within WA Health's jurisdiction to action (targeted toward a specific Health Service, WA Health and not external agencies; and/or are applicable to the services provided by WA Health).

❖ Status as at most recent report to the State Coroner (August 2014).

### **Ms F (September 2013)**

Ms F was a 27-year-old woman who was a member of staff at a metropolitan teaching hospital. Whilst on a shift at work in December 2009, she locked herself in the staff toilet and injected a fatal quantity of fentanyl. Colleagues discovered her shortly afterward, unresponsive; she could not be resuscitated.

The cause of death was opiate toxicity and the coroner concluded that the manner of death was by accident. The Coroner found it most likely that Ms F had removed some of the fentanyl solution from the patient controlled analgesia device in a patient's room.

Fentanyl is a controlled drug under Schedule 8 of the Poisons Act 1964. The Coroner commented on a gap in security that exists at the point of administration; however found that there was insufficient evidence to allow him to recommend a step that would be effective and economically feasible to deal with that gap.

### **Mr D (September 2013)**

Mr D was a 39-year-old man who was employed as a theatre nurse at a tertiary hospital. He was found deceased in his apartment in June 2010 by police carrying out a welfare check. The coroner concluded that as a night duty nurse, the deceased had unrestricted access to propofol which he misappropriated in order to use recreationally. At some time between 4-7 June 2010, the deceased accidentally injected an excessive amount of propofol into himself, causing his death. The coroner concluded that the manner of death was by accident. Propofol is not a restricted Schedule 4 drug under the Poisons Act 1964. The coroner recommended that WA Health implement a means of restricting the unauthorised use of propofol without placing patients at risk. It was noted at inquest that various approaches were under consideration to prevent unauthorised access to propofol whilst balancing legitimate urgent access.

### **Mrs W (September 2013)**

Mrs W suffered from ill-health that limited her mobility and rendered her housebound. In spite of a poor prognosis, cataract surgery was scheduled to improve her quality of life. She was known to have an allergy to sulphonamides which was documented on several of her notes in the medical record, and she wore a red alert ID band to draw attention to it. The surgeon had asked about allergies in the pre-surgery consultation; however, this did not include a discussion about sulphas as these were not intended to be used. The planned trabeculectomy to lower Mrs W's intraocular pressure was no longer a viable option and medication was prescribed instead. The surgeon was unaware of the deceased's allergy and the significance of the red ID band. Mrs W was resuscitated following her collapse within 10-15 minutes of taking the sulphonamide medication; she initially improved but then suffered a cardiac arrest and died. The coroner made recommendations relating to raising awareness of the importance of documenting the exact nature of allergies, and existing protocols used to communicate that the patient has an allergy (such as the red ID band).

### **Mrs T (September 2013)**

Mrs T was 87-year-old lady who resided at an aged care facility. After becoming unwell, arrangements were made for a locum doctor to attend since her regular doctor was on leave. The locum recorded blood pressure and pulse, and that Mrs T had dull chest pain, a pulmonary oedema, and peripheral and central cyanosis. She diagnosed myocardial infarction, instructed that an ambulance transfer be arranged and administered morphine. Mrs T subsequently became drowsy and unresponsive. Once at a tertiary hospital, she responded well to medication to counteract the morphine; however, prognosis was poor and she was treated palliatively until she died. The primary issue of concern at inquest was whether the administration of morphine was appropriate in the circumstances, and whether it contributed to the death.

The coroner did not make any recommendations for this case, noting that the locum doctor had since surrendered her registration as a medical practitioner, and the State Administrative Tribunal had ordered that the locum's name be removed from the Register of Medical Practitioners.

### **Mrs J (November 2013)**

Mrs J was a 75-year-old lady who died at a regional hospital following surgery to repair a recurrent umbilical hernia. The operation took place without complications; however, she reported pain and vomited later that evening. A nurse observed that analgesia seemed to have good effect as Mrs J was sleeping. Tests were ordered the following day; however, it is not clear from the integrated progress notes whether the results were received or reviewed. Tests ordered again the following day indicated acute renal failure. She did not recover, and died three days after surgery.

An evaluation of the patient's medical records revealed that documentation was inadequate in that symptoms were not recorded contemporaneously; observations were recorded in the surgeon's personal notes but not in the patient's notes; ordering and results of tests were not evident in the records.

The coroner found that death occurred from natural causes as a result of abdominal infection following surgery. Recommendations relating to the importance and requirement of effective documentation, and auditing of documentation were made by the coroner.

### **Mrs F (November 2013)**

Mrs F was a 77-year-old lady with a medical history which included aortic stenosis, atrial fibrillation, hypertension, hyperlipidaemia and urinary tract infections. She was admitted to a regional hospital following a fall at home, and underwent surgery to treat a right pertrochanteric femoral fracture.

Mrs F developed E.coli sepsis and arrangements were made to transfer her to a metropolitan tertiary hospital. However, her condition deteriorated before she could be safely transported and she died three days post-operatively.

The coroner found that death occurred by accident as a result of complications following a recent fracture and surgical repair of the right femur in an elderly lady with complex heart disease and chronic renal impairment.

The coroner noted that recent protocols to reduce the risks identified at inquest have been implemented at the facility, but made further recommendations relating to documentation, communication with carers, ordering of pathology tests, and ongoing quality audits.

### **Miss S (November 2013)**

Miss S died aged 6 months as a result of pneumococcal meningitis. Her mother was concerned after Miss S became increasingly unwell over a number of hours. The mother called Healthdirect for advice. The following morning the mother noticed that Miss S had turned blue around the mouth, had a yellow colour to her skin, had a rash on her thighs, and was grunting. An ambulance transferred Miss S to hospital, where she deteriorated over the following days and died six days later.

The function of Healthdirect is to make a clinical recommendation, based on set guidelines, to either attend a hospital emergency department immediately; see a doctor within a stated timeframe; or, recover at home. It is not designed to provide a diagnosis. However, the coroner was of the opinion that the nurse clearly left the mother with the impression that Miss S had a tummy virus and that medical intervention was unwarranted.

The coroner made recommendations for Healthdirect that related to ensuring that callers understand its role and limitations, and for the improvement of guidelines to capture subtle symptoms of complex cases such as this.

### **Mr K (November 2013)**

Mr K died in a district hospital, aged 86, as a result of acute myocardial ischaemic following recent surgical repair of a left sided inguinal hernia. He had a medical history which included atrial fibrillation, valvular heart disease and ischaemic heart disease.

Following the previous repair of a right sided inguinal hernia, Mr K experienced several episodes of chest pain and was referred to his GP for follow-up review. During his pre-assessment for his planned left side inguinal hernia repair, the GP anaesthetist and assessing nurse did not have access to any other medical record and were not informed of any prior chest pain. Mr K was therefore not referred to a cardiologist for assessment prior to undergoing surgery under general anaesthetic.

Mr K developed respiratory distress post-operatively; he did not respond to treatment and was re-intubated. Investigations indicated acute myocardial infarction. He continued to deteriorate and died early the following morning.

The coroner made a recommendation for referring doctors to ensure that detailed medical histories be provided to all relevant practitioners prior to the surgery being performed.

### **Ms N (December 2013)**

Ms N had an extensive medical history including diabetes which was difficult to manage and from which she developed multiple comorbidities.

Twelve days before her death Ms N presented to a metropolitan hospital with a blistering rash on her lower limbs. Emergency department medical staff believed that she was unwell and thought that she would benefit from specialist dermatology care, so a transfer to a tertiary hospital was arranged. Her transfer letter was not seen by the triage nurse and, due to spelling error in the name, additional information which had been telephoned through was not accessible on the patient administration system.

Ms N was placed in the only available cubicle, a minor theatre room, which was out of view from staff. Ms N was briefly assessed by nursing staff on arrival, and was subsequently found unresponsive and without a pulse approximately 27 minutes later. She was resuscitated and transferred to the ICU where, over the ensuing days, it became apparent that she had sustained hypoxic brain injury and was not going to recover. Life support was withdrawn 11 days after her admission and she died in the ICU.

The coroner found that Ms N's death was due to natural causes but did comment on the multiple logistical and communication issues of this case. The coroner made recommendations relating to the effective transfer of patients between facilities.

### **Mr P (February 2014)**

Mr P died, aged 64 years, from bronchopneumonia whilst receiving palliative care at a tertiary hospital. Mr P suffered from chronic schizophrenia for which he had required numerous admissions to hospital. Metastatic bowel cancer was diagnosed four months prior to his death; however, the deceased dismissed this diagnosis as he believed his symptoms were caused by his medications and the devil. A community mental health team continued to visit him daily to monitor his health and liaise with other services.

Mr P was involuntarily admitted ten days prior to his death for palliative care. He was acutely delusional, wheelchair-bound and was no longer able to be taken care of at home.

He subsequently developed a bowel obstruction and deteriorated rapidly. A post mortem examination confirmed metastatic cancer and also identified evidence of aspiration pneumonia. The coroner found that Mr P died of natural causes and commented that the level of care and support provided to Mr P by the mental health facility was exemplary. No recommendations were made.

### **Graylands Hospital inquests (April 2014)**

Ten deaths, relating to persons who were held in care at Graylands Hospital as involuntary patients under the *Mental Health Act 1996*, were investigated together. In all but one case (Ms W) the coroner commented that the quality of supervision, treatment and care of the deceased was reasonable and appropriate. In total, one recommendation was made (Mr TF).

### Mr C

Mr C had a history of chronic paranoid schizophrenia and had required multiple admissions to Graylands Hospital over the years, often for long periods of time. Other lifestyle and health issues complicated his care; he also had multiple admissions at SCGH for respiratory complications. While his increased risk of side-effects relating to clozapine was recognised, his psychotic symptoms had become intractable and ultimately, a decision was made to trial clozapine.

Four days after commencing clozapine, the on duty medical officer examined Mr C following the onset of a fever. The medical officer wished to transfer Mr C to SCGH for further management; however, Mr C refused to go and his vital signs were all normal. He refused to allow nurses to perform observations overnight. The next morning he had a respiratory arrest. The nurses commenced CPR and Mr C was transferred to SCGH but was unable to be resuscitated. The cause of death was due to complications of influenza infection on a background of chronic obstructive pulmonary disease (COPD). The coroner found that the manner of death was natural causes and was satisfied that the quality of all facets of the care and treatment of the deceased was reasonable and appropriate.

### Ms G

Ms G had a long mental health history dating back to her teens, with her first admission at Graylands Hospital at age 18. She required multiple admissions, in addition to regular outpatient psychiatric input, to manage her symptoms. She had been a long-term resident of Graylands Hospital by the time she died at 47 years of age. A hypoxic brain injury sustained during a suicide attempt at the age of 23 left her with significant cognitive impairment which complicated the care requirements for her mental illness.

Impulsive and disinhibitive behaviour was symptomatic of her condition and it often provoked other patients. A number of attempts were made to find more suitable and secure care arrangements; however, none were found to be suitable. Funding was eventually secured for the provision of one-on-one care of the deceased; this alleviated the assaults suffered by Ms G.

Ms G was diagnosed with hypertension, diabetes and renal impairment in 1998. Her renal functions progressively deteriorated and in 2008 a decision was made not to proceed with dialysis because she was unlikely to cooperate with the procedures. On the morning of her death, Ms G was recorded as having a chesty cough and had vomited. She was found collapsed and unresponsive later that morning. Resuscitation was attempted without success. The cause of death was bronchopneumonia. The coroner found that death was a result of natural causes and was satisfied that the treatment and care of Ms G was appropriate under the circumstances. Pathways of care for brain injured young people since the death were recognised by the coroner at the inquest.

### Mr G

Mr G was born and raised in a remote Aboriginal community according to traditional lore. He first started displaying mental health problems after he suffered a head injury at age 16. He also had a history of alcohol and other substance abuse when he was younger.

He was first admitted to Graylands Hospital at 35 years of age and was diagnosed with chronic schizophrenia, organic brain syndrome and alcohol and drug abuse. He was eventually admitted to the long-stay ward. Mr G was treated with a variety of antipsychotic medications over the years, without much success. He was commenced on clozapine a month prior to his death; this was closely monitored and revealed no side effects other than constipation.

On the day of his death, Mr G had not reported any concerns and had appeared to be his usual self. When he did not return to his room in the evening, a search was conducted and he was found slumped, unresponsive in a chair outside the ward. CPR was commenced, but was unsuccessful. He was 49 years of age.

The cause of death was unable to be ascertained by post mortem. Of note, there were no features of clozapine side-effects or toxicity. The coroner found that death resulted from natural causes and was satisfied that Mr G was provided with an acceptable level of supervision, treatment and care. While there were no recommendations, the coroner did comment on the inadequacy of facilities at Graylands Hospital, particularly the long-stay/rehabilitation unit. It was noted, however, that there was no evidence that these inadequacies had any negative effect on Mr G's treatment and care.

### **Mr H**

Mr H was diagnosed with schizophrenia at age 17. He required regular and frequent admissions to mental health facilities over the course of his life. He was treated with various medications for his psychotic symptoms; however, they became less effective over time. Mr H was admitted to Graylands Hospital as an involuntary patient at the completion of a prison sentence. His psychotic symptoms persisted over the next 11 months; he was irritable with others and attempted to abscond on multiple occasions. He was requesting to be discharged but his treating team had great difficulty in finding suitable accommodation.

The day before his death, the staff did not identify anything about his conduct or behaviour that raised their concern. Early the following morning, he was found hanging by a shower hose in the men's bathroom. CPR was commenced, and continued by ambulance officers. He was pronounced dead at SCGH; he was 53 years of age.

The cause of death was ligature compression of the neck (hanging). The coroner found that death resulted from suicide and was satisfied that Mr H received appropriate levels of supervision, treatment and care while at Graylands Hospital during his last admission. The coroner advocated for ongoing efforts to identify and, if reasonably practicable, remove potential ligature points as an ongoing improvement to the facility.

### **Mr TF**

Mr TF had a long history of mental health issues dating back to his teenage years. He required multiple admissions to Graylands Hospital over the years and was diagnosed with chronic paranoid schizophrenia. Mr TF had a number of serious health issues including diabetes, COPD and heart disease, and he was often non-compliant with his medications. Due to his mental health issues and mild intellectual impairment, his affairs were administered by the Public Trustee.

The month preceding his death, he was noted to have gained over 10kg in a two week period. He was later noted to have significant peripheral oedema and was commenced on a diuretic. Early the following month, he was found collapsed on the floor, unresponsive. Cardio-pulmonary resuscitation was commenced and he was transferred to SCGH; however, he was unable to be resuscitated. Mr TF died at SCGH at age 51; the cause of death was congestive heart failure in association with ischaemic and hypertensive heart disease. The coroner found that death was due to natural causes and was satisfied that the treatment and care of Mr TF with respect to his psychiatric and medical conditions was reasonable and appropriate. However, the coroner noted Mr TF's inability to use his own funds to improve his quality of life. The coroner recommended that case managers consult with the Public Trustee's Office with regard to implementing a process of exchange of information in order to use funds held on behalf of patients to improve patients' quality of life.

### **Mr LF**

Mr LF had a history of drug and alcohol misuse dating back to the age of 14. His mental health issues appear to have been precipitated by drug use and withdrawal. He required a number of admissions at various mental health facilities with drug related psychotic incidents. He developed violent tendencies and on several occasions assaulted people and damaged property. His provisional diagnosis was psychotic disorder, possibly secondary to substance abuse, and a personality disorder.

Due to a pending court appearance and the risk he posed to his mother, he remained an involuntary patient with gradual increases in unescorted grounds access. During one of these unescorted periods, he absconded from the hospital and was immediately declared AWOL (absent without leave). A search of the hospital grounds was conducted and the police were notified. Mr LF visited a friend's house, where he stayed the night. He was found hanging by an electrical cord in the house the following afternoon when his friend returned from work. He was 28 years old. Post mortem examination revealed that cause of death was by ligature compression of the neck. The coroner found that the manner of death was suicide and that the care and treatment Mr LF received at Graylands Hospital was reasonable and appropriate.

### **Mr P**

Mr P had a history of depression and had previously attempted suicide approximately 10 years prior to his death. Following the breakdown of his relationship, Mr P began drinking heavily and developed significant symptoms of depression. After contacting his ex-partner to say goodbye he attempted suicide by overdose and was admitted to Tom Price Hospital after presenting to the emergency department. A doctor found him to be depressed and actively suicidal. She completed the necessary forms to transfer Mr P to Perth for further assessment and treatment.

Mr P's status was changed to involuntary following a suicide attempt and he was later admitted to Graylands Hospital. Mr P was found to have hanged himself in his room using the handles of his bag prior to his psychiatrist review. He was cut down and CPR was commenced; he was unable to be resuscitated. He was 32 years of age.

Post mortem confirmed his death was by ligature compression of the neck. The coroner found that the manner of death was by suicide and that the quality of supervision, treatment and care of the deceased by staff at Graylands was reasonable in the circumstances.

### **Ms R**

Ms R had a history of mental illness with admissions commencing with a drug-induced episode at the age of 18 years. In her early twenties, she required hospitalisation and was diagnosed with bipolar affective disorder with psychotic features. She was commenced on medication and received ongoing outpatient psychiatric care. Ms R became non-compliant with her medications in the two months leading up to her death, and developed psychotic symptoms and suicidal ideation. Once admitted involuntarily to Graylands Hospital her medications were recommenced and her mental state progressively improved. She was allowed increasing amounts of leave with her family and appeared to respond well.

She spent Christmas with her family; however, left home in secret the following night. She either fell or jumped from a freeway pedestrian overpass and sustained non-survivable injuries. She died at SCGH, aged 28 years. The coroner found that death occurred as a result of multiple injuries and that the manner of death was suicide. The coroner found that the quality of treatment and care received by the deceased from the medical and nursing staff at Graylands Hospital was reasonable and appropriate.

### **Mr S**

Mr S's mental health concerns dated back to his late teens. Mr S was later diagnosed with a drug induced schizophreniform psychosis and was transferred to the forensic unit at Graylands Hospital. He returned to that unit a number of times over the next few years until his condition was eventually stabilised on clozapine. Mr S was involuntarily admitted to Graylands Hospital following another period of non-compliance with his medication. When his condition stabilised, he was transferred to the open ward. Police were notified when he absconded from the grounds and did not return in the evening.

Mr S had gone to his uncle's house where he stayed overnight. He appeared in good spirits; however, when his uncle returned to the house after work the following day, he found that Mr S had hanged himself. He was 28 years of age. Post mortem confirmed the cause of death was ligature compression of the neck and the coroner found that the manner of death was suicide. The coroner was satisfied that the quality of supervision, treatment and care of the deceased was appropriate.

### **Ms W**

Ms W, a 19-year-old Aboriginal woman, presented to a regional hospital twice following two separate suicide attempts in two days. Ms W was considered high risk but was unwilling to be voluntarily admitted locally for assessment so was transferred to Perth by the Royal Flying Doctor Service (RFDS) for assessment at Graylands Hospital.

Whilst awaiting RFDS transfer Ms W was administered very large amounts of medications including haloperidol and midazolam. She was monitored closely but did not appear to suffer any adverse effects from these medications whilst in hospital. Due to a miscommunication between the flight nurse and a hospital nurse, a syringe of haloperidol was drawn up that was five times the expected concentration. This contributed to Ms W being administered a much higher dose than intended during the flight. The error was detected by the flight nurse afterward and Ms W was monitored closely.

The excessive doses of haloperidol were not adequately communicated at handover and it was ultimately felt that, rather than admit Ms W to SCGH for monitoring, Graylands Hospital would be able to manage her adequately. The admitting doctor was not informed of the excessive doses of haloperidol and assumed the two documented doses to be errors; meant to be 2.5mg instead of 25mg. The shift coordinator found her cold and unresponsive when attempting to rouse her. Resuscitation efforts were unsuccessful. Death occurred as a result of combined drug effect and myocarditis and the coroner found that the manner of death was misadventure. Toxicology input suggested a cardiac arrhythmia secondary to the excessive haloperidol which is associated with prolonged QT syndrome. The coroner believed that the series of errors and failures resulted in a sub-standard level of treatment and care that fell well below that which is expected. Investigations undertaken by Graylands Hospital, WACHS and RFDS, identified deficiencies in care and made numerous recommendations for improvement. The coroner noted these and was satisfied that the improvements would address the issues identified as a result of this death.

### **Mrs D (May 2014)**

Mrs D was an 84-year old woman who, at the time of her death, was an involuntary inpatient in the older adult psychogeriatric unit. Mrs D had a long history of serious mental health problems dating back to her young adult years.

Mrs D was referred to a metropolitan hospital for further assessment and management of her psychiatric issues after having been admitted to a tertiary hospital following a number of falls at her nursing home. She was found cold and unresponsive in the early evening.

Cause of death was unable to be determined by post mortem. Given her age and medical history, the Coroner found that death occurred due to natural causes. No recommendations were made.

### **Ms G (May 2014)**

Ms G was a 57-year old woman who had presented to the ED of a regional hospital. She was diagnosed with acute appendicitis and prepared for urgent surgery the following day.

The surgeon noted the appendix to be gangrenous but not ruptured, and there was no peritonitis or intraoperative bleeding. Ms G initially appeared to be recovering well; however, she deteriorated after arriving in the high dependency unit, despite antibiotics, increased IV fluids and escalating vasopressor support. The significance of a severely reduced haemoglobin measurement was missed and a central line insertion had failed. She died four hours after leaving recovery.

Post mortem examination found two tears in the mesenteric tissues and a blood clot in the abdominal cavity. In view of how rapidly the deceased deteriorated and died, it is impossible to predict with certainty whether appreciation of a correct diagnosis earlier would have provided a different outcome. The Coroner found that death arose by way of misadventure. The Coroner noted that changes had been made following this death and there were no recommendations.

### **Mr D (May 2014)**

Mr D was a 57-year old man with an extensive past medical history who was admitted for cholecystectomy. The surgeon noted him as a high-risk patient due to his significant multiple comorbidities. Postoperatively he deteriorated becoming increasingly hypoxic and cardiovascularly unstable. He was transferred to a tertiary hospital ICU where he died two days following surgery. It was accepted that the intra-abdominal haemorrhage occurred shortly before death subsequent to coagulopathy resulting from multi-organ failure.

The inquest reviewed the decision process in relation to whether surgery should be performed in a local centre or in Perth and it was noted that whilst patients with anticipated difficulties are transferred to Perth, it would be impractical to transfer all patients with comorbidities and difficult to predict with certainty all patients who will deteriorate postoperatively. There were no recommendations.

### **Mr C (June 2014)**

Mr C was a 64-year old man who had been receiving psychiatric care for approximately two decades and had suffered recurrent migraines. His mental health issues appeared to have escalated following the breakdown of his marriage in 2002. He was admitted at a metropolitan hospital as an involuntary patient following a suicide attempt. Mr D called his family twice expressing thoughts of self-harm and suicidal ideation. His daughter reported these calls to staff on both occasions but it appears that the information was not recorded or passed on to his treating team. He was later transferred to an open ward and subject to 15-minute observations. His daughter reported her concerns again; however, the decision to transfer him was upheld. Overnight observations recorded him as asleep in bed. Morning staff found him in the bathroom with a plastic bag over his head; he had left rolled up towels in his bed to give the impression he was in it. Resuscitation was deemed futile by the time he was discovered.

It was ultimately considered that the decision to transfer was appropriate and that the increase in observation frequency reflected an increase in patient security. Changes in policy outlining that visual observations now require a respiratory rate to be documented were recognised. The Coroner identified that Mr C's daughter's concerns were not passed on to his treating team and that the decision to transfer to the open ward was initially made without this information. The Coroner made a recommendation about reviewing procedures relating to the management of communications with families of patients.

## Review of Death

The ROD Policy (2013) recognises the role that reviews of death play in improving the safety and quality of health care clinical incidents and the investigation of patient complaints. As per the ROD Policy, all hospital deaths must be reviewed and categorised in terms of preventability. Appendix Eight provides a diagrammatical representation of the interaction of reviews of deaths with clinical incident management processes and the Western Australian Audit of Surgical Mortality, complementing information identified from the reporting and investigation of clinical incidents.

In the 2013/14 reporting period, data provided by HS and private licensed healthcare facilities has demonstrated that for the period July 1 2013 to 31 December 2013, 92% of hospital deaths were reviewed within six months of the date of death (Table 15). Public and private hospitals are also required to indicate when notifying a SAC 1 clinical incident if notification was an outcome of a mortality review process. In the 2013/14 period nine notifications of clinical incidents originated from a mortality review process (3.4%).

Table 15: **Review of Death Indicator**

Indicator	Outcome
Percentage of deaths with a completed review within six months of the date of death (reflecting deaths that occurred between 1/7/2013 - 31/12/2013)	92.0%

Data comprises public and private hospitals. A completed review includes a death a) where no further investigation is required; b) with a completed WAASM audit; c) sentinel event notification following confirmation of a preventable death.

## Western Australian Audit of Surgical Mortality (WAASM)

The Western Australian Audit of Surgical Mortality (WAASM) is a review of surgical deaths using a peer review methodology. The WAASM is managed by the Royal Australasian College of Surgeons (RACS) and funded by the DOH. The WAASM has been operating since 2002, with data reported by calendar year.

Participation in the WAASM fulfils mortality review obligations mandated by the ROD Policy (2013). All deaths that occur in WA hospitals (including private hospitals), where the patient was under the care of a surgeon are notified to the WAASM and reviewed.

The RACS' Continuing Professional Development Manual mandates surgeons' participation in the Australian and New Zealand Audit of Surgical Mortality (ANZASM)<sup>19</sup> if a surgeon is "in operative based practice, has a surgical death and an audit of surgical mortality is available in the surgeon's hospital." Non-participation jeopardises a surgeon's registration with the Medical Board of Australia.<sup>20</sup>

Surgeons are sent a proforma to complete and are asked to identify when there has been an area for consideration,<sup>21</sup> an area of concern<sup>22</sup> or an adverse event. Once returned, the case is de-identified and sent to a peer surgeon at a different hospital for review (first-line assessment). Second-line assessment is the process whereby cases are reviewed by a second peer surgeon along with the patient's medical notes. Cases are only referred for second-line assessment if an area of concern or adverse event has been identified, or where there is the potential for lessons to be learned (refer to Appendix Nine for an overview of the audit process). In 2013, 546 deaths were notified from 17 hospitals. Seven per cent (n=40) of completed cases were referred for second-line assessment.

For the WAASM, an adverse event is defined as "an unintended injury caused by medical management, rather than by the disease process, which is sufficiently serious to lead to prolonged hospitalisation, lead to temporary or permanent impairment or disability of the patient at the time of discharge or contribute to/or cause death." The WAASM Annual Report 2014<sup>23</sup>, identified three adverse events that caused death in 2012 (two of these were considered preventable) and two adverse events that caused death in 2013<sup>24</sup> (neither of these was considered preventable; see Table 16).

Table 16: **Frequency and Percentage of Adverse Events Causing Death that were Considered Definitely Preventable (2003 to 2013)\***

2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
4	3	7	4	4	5	4	3	3	2	0
1%	2%	4%	1%	2%	1%	1%	1%	1%	1%	0%

\*Includes cases complete as at March 31, 2014. Terminal cases are excluded.

In 2013, two adverse events causing death were identified, including an inadequate pre-operative assessment (n=1) and an anastomotic leak (n=1; see Table 17).

<sup>19</sup> <http://www.surgeons.org/for-health-professionals/audits-and-surgical-research/anzasm/>

<sup>20</sup> Royal Australasian College of Surgeons (2013) WA Audit of Surgical Mortality (WAASM) Annual Report 2013.

<sup>21</sup> Area of consideration = clinician believes an area of care could have been improved.

<sup>22</sup> Area of concern = clinician believes an area of care should have been better.

<sup>23</sup> Please note that WAASM data are captured by calendar year and the 2014 report presents audit undertaken in 2013.

<sup>24</sup> Partial analysis – 2013 data includes that for which the audit process was complete at March 1, 2014.

Table 17: **Frequency of Adverse Events Causing Death for 2011 to 2013 (Including Events that were Not Considered Preventable)\***

Adverse Event	2011 <sup>†</sup>	2012	2013
Intra- or post-operative bleeding during or following open surgery		1	
Aspiration pneumonia	1		
Deep Vein Thrombosis (DVT) related events (including failure to use DVT prophylaxis)	2		
Pre-operative assessment inadequate			1
Injury caused by fall in hospital	2	1	
Perforation of colon during endoscopic operation	2		
Anastomotic leak related			1
Cardiovascular Accident (Stroke) following open surgery	1		
Missed diagnosis (medical)	1		
Delay in transfer to surgical unit		1	
<b>Total</b>	<b>9</b>	<b>3</b>	<b>2</b>

\*2013 data includes those cases that were complete at March 1, 2014.

The WAASM Annual Report 2014 noted that assessors reported four adverse events in 2013 where surgeons identified two events. The measured level of agreement between surgeon and assessor is considered 'fair' for 2013.

The most frequently reported adverse events by surgeon assessors over the audit period of 2003 to 2013 were: anastomotic leaks (n=33), complication of surgery (n=30) and infection (including septicaemia; n=14; see Table 18).

Table 18: **Most Frequently Reported Adverse Events Causing Death 2003 to 2013 (Including Events that were Not Considered Preventable)\***

Adverse Event	2003-2013
Anastomotic leak	33
Complication of surgery	30
Infection (including septicaemia)	14
Pulmonary embolus	12
Bleeding associated with operation	12
Injury caused by fall in hospital	11
Gastrointestinal perforation	10
Decisions relating to surgical treatment	10
Related to DVT or CVT	9
Delay to treatment (medical or surgical)	7
<b>Total</b>	<b>148</b>

\* Note: Only events with frequencies  $\geq 5$  have been included. Adverse events have been grouped by the PSSU based on event descriptions provided by the surgeon assessors for the WAASM.

WA Audit of Surgical Mortality Annual Reports can be accessed online at:

[www.surgeons.org/for-health-professionals/audits-and-surgical-research/anzasm/waasm/](http://www.surgeons.org/for-health-professionals/audits-and-surgical-research/anzasm/waasm/) .

The ANZASM provides central oversight for each of the jurisdictional surgical audits, including WAASM, and provides national overview of data. The PSSU encourages all health practitioners to review the cases in the case note review booklet for educational and professional development purposes. The most recent booklet can be accessed at: <http://intranet.health.wa.gov.au/osqh/reports/> (access is restricted to WA Health staff).

<sup>†</sup> One case from 2011 was reopened for assessment.

## Complaints Review

The second standard ‘Partnering with Consumers’ of the NSQHS highlights the importance of patient centred care which is responsive to consumer input as an element of high quality health care. Engaging with the consumer in the complaints process, enables health services to recognise and understand areas for improvement from a consumer’s perspective.

While complaints data is an important aspect of the quality improvement cycle, it is necessary to point out that not all complaint categories are relevant to the examination of a clinical incident. From those categories defined in the WA Complaints Management Policy, this review will only focus on complaints that have identified ‘Quality of Clinical Care’ issues. Nevertheless, these complaints should not be interpreted as an indication that a clinical incident has indeed occurred.

### Quality of Clinical Care

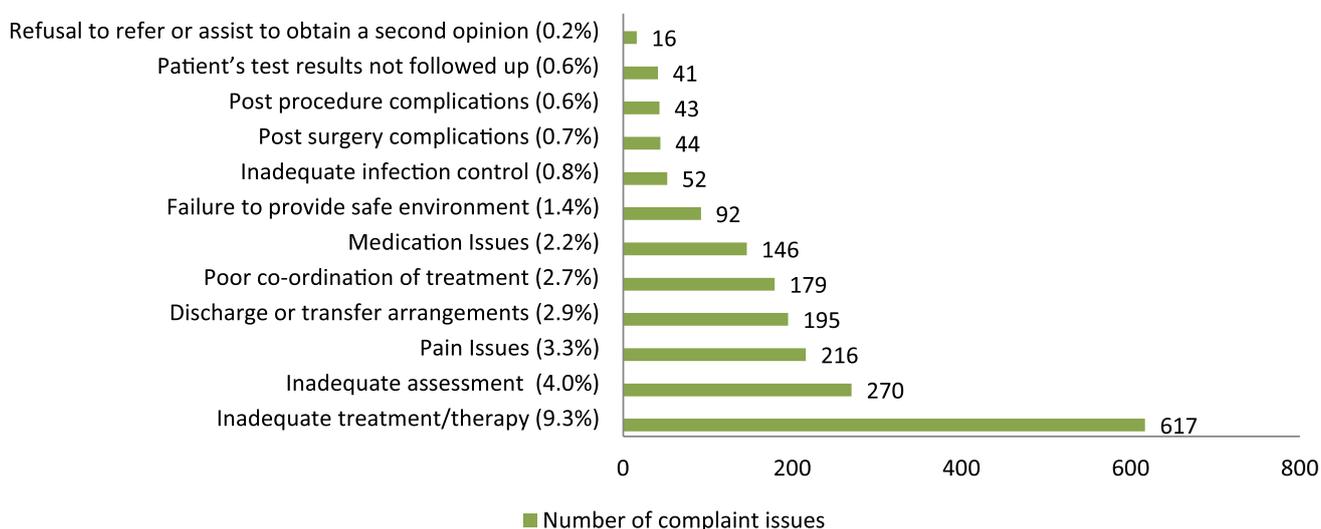
A total of 2,058 complaint issues assigned to the category ‘Quality of Clinical Care’ were reported by consumers throughout 2013/14, which constituted 28.3% of the total 7,274 complaint issues.

For the purpose of this section, the term mental health complaint is utilised for those complaints notified against health services providing specialised mental health care in community services or hospitals. All remaining complaints, not specifically lodged against mental health related health care, are considered as general health complaints.

#### General Health Complaint Issues relating to Quality of Clinical Care

Accounting for 28.7% of the total 6,655 general health complaint issues, 1,911 issues concerning quality of clinical care were reported. These issues related most frequently to: inadequate treatment or therapy (n=617; 9.3%), inadequate assessment (n=270; 4.0%) and pain issues (n=216; 3.3%; see Figure 22).

Figure 22: **General Health Complaint Issues Relating to ‘Quality of Clinical Care’ (2013/14)\***

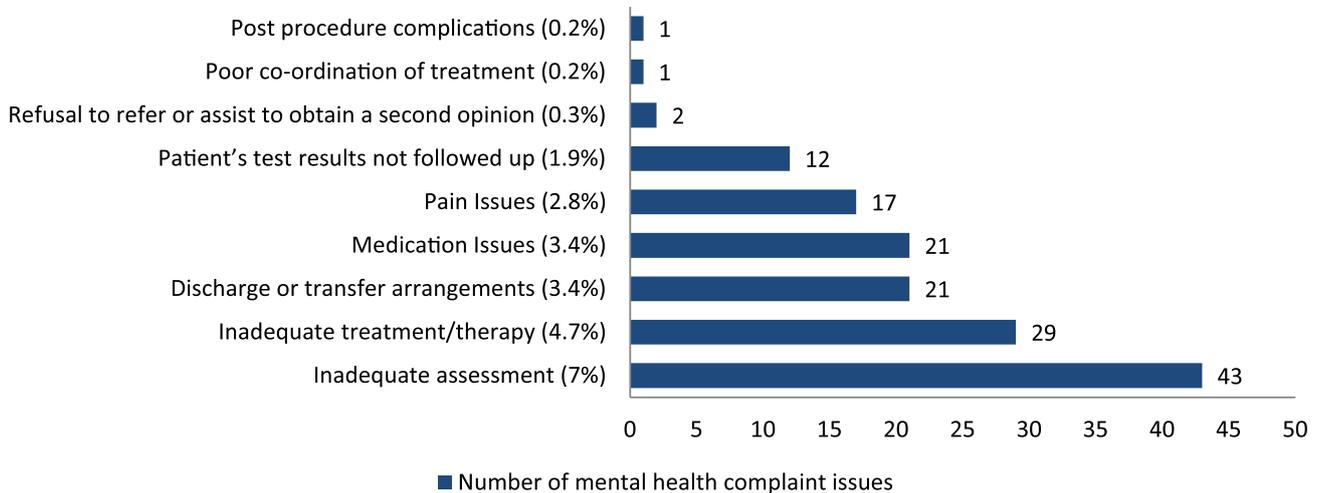


\* Percentages relate to total general health complaint issues.

### Mental Health Complaint Issues Relating to Quality of Clinical Care

In relation to mental health complaints, a total of 147 quality of clinical care issues were notified, which constituted 23.8% of the total 619 mental health complaint issues. For the 'Quality of Clinical Care' category, most frequently raised issues related to inadequate assessment (n=43; 7.0%), inadequate treatment or therapy (n=29; 4.7%), and equally discharge or transfer arrangements and medication issues (for both, n=21; 3.4%; see Figure 23).

Figure 23: **Mental Health Complaint Issues Relating to 'Quality of Clinical Care' (2013/14)\***



\* Percentages related to total mental health complaint issues.

### Key Messages for 'Quality of Clinical Care' Complaint Issues

For general health complaint issues, 'inadequate treatment and/or therapy' was the most frequently reported complaint issue. It draws attentions to consumers' experience of treatment that is inadequate, negligent, incorrect, delayed or rough; or, a perceived failure in the duty of care. For mental health complaints issues, inadequate assessment was the most frequently reported complaint issue. Recognising and responding to these quality of clinical care concerns not only increases consumer satisfaction but also improves the safety and quality of health care by preventing the occurrence of similar events that could have a potentially harmful outcome.

## Current Achievements

Addressing patient safety within a demanding and dynamic health care system requires multifactorial responses if improvements are to be made. Innovation is a key component in achieving high patient safety standards as it ensures that the very safety systems we use to deliver high quality health care are constantly challenged and thereby enhanced. When we harm our patients we must not only learn from our mistakes, we must ensure that we can prevent them from recurring and share our successes.

WA Health continues to foster a strong patient safety ethos that is demonstrated by the following achievements:

1. The provision of exceptional and safe health care as demonstrated by the very low rate reported for the more serious SAC 1 clinical incidents in 2013/2014 (seven per 10,000 separations).
2. While SAC 1 clinical incidents comprise only a small proportion of clinical incidents, across the health system, there has been a consistent increase in the number of SAC 1 clinical incidents notified in the past three years. This increase is seen as an achievement stemming from the release of the revised CIM Policy (2012). The CIM Policy (2012) revisions have assisted WA Health staff to better understand the types of clinical incidents resulting in serious harm or death that require rigorous clinical investigation and reporting at a State level. Previously, these clinical incidents tended to be captured in the CIMS database but not reported to the Sentinel Event Program.
3. On 1 February 2014, WA Health released a state-wide electronic clinical incident management system known as Datix CIMS. This online notification, investigation and management system is used both nationally and internationally to assist in the management of clinical incidents to improve health care delivery. The new Datix CIMS is further advancing the extensive work currently being achieved in the area of patient safety with an increase observed in clinical incident reporting.
4. As key stakeholders Safety and Quality staff have worked closely with the HIN Project team to assist in the procurement and preparation process for the successful release of the web based Datix CIMS.
5. Members of the Clinical Incident Management System Business Advisory Group (CIMS BAG) have been instrumental in advising and guiding the implementation of Datix CIMS. This includes the development of resources to educate and assist staff in utilising the new system to revising and refining the configuration of the Datix CIMS database.
6. To achieve this CIMS BAG convened groups addressing:
  - Datix CIMS state-wide Data Quality Audits undertaken to assess clinical incident data quality and to identify areas that require further education and or training or system enhancements.
  - Education through the development of state-wide education resources which include:
    - Notifier User Guide
    - Senior Staff User Guide
    - SAC 1 User Guide
    - Notifier Training Powerpoint
    - Manager Training Powerpoint
    - Notifier Training eLearning Module
    - Manager Training eLearning Module
    - Development of a printable clinical incident form.
7. Two state-wide CIM Focus Reports have been produced over the past 12 months. These reports were requested by WA Health staff and addressed ad hoc clinical incident issues ranging from clinical incidents involving epidural usage to clinical incidents resulting from incorrect patient identification.
8. Four CIM and Complaints Quarterly Reports have been produced in the past 12 months to provide WA Health staff with a state-wide account of clinical incident data in a more timely manner and to facilitate system learning from a whole of WA Health perspective.

9. Developed to complement the CIM and Complaints Quarterly Reports were the Clinical Incident Check Up Reports. These reports focus on specific types of clinical incidents to provide WA Health staff with a snap shot of the clinical incident and the types of clinical actions that can be implemented to address the underlying causes. In 2013/14, the following state-wide Clinical Incident Check Up Reports have been released:
  - Absconding of Patients
  - Behaviour Incidents
  - Documentation Incidents
  - Pressure Injuries
  - Medication Incidents
  - Falls Incidents.
10. The Complaints Management Policy and Toolkit were released in September 2013 following system-wide consultation and review. The revised policy provided clarity around the systematisation of the complaints management process and the reporting requirements, as well as information about the handling of complaints that allege staff misconduct and processes for dealing with unreasonable complainant conduct.
11. In August 2013 and February 2014, the State Coroner was provided with an account of WA Health's response to recommendations that have been made following coronial inquests. The "*Progress Report for Health Related Coronial Recommendations*" included updates on recommendations that required longer term implementation, and responses for recent recommendations. WA Health values the comprehensive investigation that is undertaken by the Coroner, which is an important component of an integrated patient safety surveillance framework.
12. The Patient Safety Surveillance Unit established the Coronial Review Committee with its inaugural meeting taking place in January 2014. The Committee is chaired by the Chief Medical Officer and coordinated by the CLU. The membership is comprised of executive and senior officers from across WA Health. The purpose of the Committee is to improve the governance and decision making in relation to the implementation of coronial recommendations. Since its first meeting, the Committee members have discussed 16 inquest findings, with seven health-related recommendations being implemented.<sup>25</sup>
13. The *From Death We Learn 2012* annual publication was released in December 2013. This publication reviews the coronial inquests that have taken place and provides key messages, recommendations and actions taken by WA Health to address the Coroner's concerns.

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<sup>25</sup> From Death We Learn (2012) available at:  
[www.safetyandquality.health.wa.gov.au/docs/mortality\\_review/death-we-learn-2012.pdf](http://www.safetyandquality.health.wa.gov.au/docs/mortality_review/death-we-learn-2012.pdf)

## Future Focus

Western Australians are in receipt of an excellent standard of healthcare. The dynamic nature of health care delivery demands that our health system continues to adapt in order to meet current and future challenges.

The rollout of the state-wide web based Datix CIMS to capture, monitor and analyse clinical incidents has already resulted in increased notification of clinical incidents with 12,617 clinical incidents captured in the five month period compared to 10,012 clinical incidents notified for the same period in 2013. The notification and investigation of clinical incidents result in the strengthening of safety and quality practices and enables patient safety to become firmly embedded in all aspects of health care delivery.

While it is imperative that clinical incidents are addressed immediately to prevent further harm to our patients, it is also imperative that clinical incident management data be used to better understand how human error and system failures contribute to the break down in safe health care delivery. The use of Datix CIMS to capture and manage clinical incidents will enable in-depth analysis of patient safety issues to be undertaken that will generate knowledge, facilitate health care innovations and provide robust clinical incident evidence.

Although the benefits and opportunities of having an electronic clinical incident management system are clear, WA Health staff cannot assume that the utilisation of Datix CIMS data will be the answer to fully understanding or preventing clinical incidents from occurring. Staff need to be cognisant of the quality of data they enter into the system to ensure that high data integrity is achieved that will enable rigorous clinical incident analysis to be undertaken.

WA Health is currently reinvigorating use of the VLADs tool to enhance health care delivery through the ongoing monitoring of patient data so that unexpected clinical outcome trends can be identified and investigated. Additionally, VLADs data can also identify a change or shift in clinical practice that has resulted in increased treatment quality. The use of VLADs will further complement patient safety, as these data outcomes will be analysed in conjunction with both CHADx findings and clinical incident data. The use of different data sources will provide a more comprehensive picture of patient safety issues within WA Health and will assist in highlighting those areas that either require improvement or are achieving improvements in health care delivery.

The excellent work undertaken by the Epidemiology Department of the DOH to calculate and compare complications of surgery data will also greatly assist clinicians in better understanding the types of complications sustained by our patients. This data will also provide strong evidence on how these surgical procedure outcomes compare to their state peer group hospitals. The PSSU will continue to collaborate with the Epidemiology Department to incorporate other surgical and medical complications data.

The use of administrative data is only one component driving patient safety and quality improvement with information obtained from staff. However, consumer centred focus is an equally important component to improving health care delivery, which is evidenced by the quality of care complaints captured and reported by WA Health. The information provided by consumers enables health care delivery to be appraised and, where needed, improved.

The current WA Health complaints system is antiquated and concerns regarding the quality of data captured in this database have previously prevented findings from being published. To rectify this issue WA Health is working closely with key stakeholders to procure an online complaints management system. The new system will enable standardisation of information received from patients and their families and will greatly facilitate the investigation and resolution of these issues in a more timely manner.

Finally, patient safety and quality of health care delivery within WA continues to advance and mature which is a credit to the staff and patients who take the time to question, understand and address the deficiencies identified in our health care delivery. Using the Manchester Patient Safety Framework,<sup>26</sup> WA Health can assess how the behaviour, attitudes and values of staff with regard to patient safety are reflected within our work practices. Implementing the Manchester Patient Safety Framework would allow senior health professionals to gain a better understanding of patient safety culture within their organisation. Results highlighting areas of strength and weaknesses in safe health care delivery could then be applauded or addressed by targeted quality improvement strategies.



<sup>26</sup> Marshall, M., Parker, D., Esmail, A., Kirk, S., Claridge, T. Culture and Safety. *Quality and Safety in Health Care*. (2003); 12:318.

## Appendix One: Severity Assessment Code 1 Clinical Incident Notification List

<b>Severity Assessment Code 1 Categories</b>	
<b>Clinical incidents that must be reported as SAC 1 (Category 1–8 are nationally endorsed sentinel event categories)</b>	
1	<b>Procedures involving the wrong patient or body part resulting in death or major permanent loss of function.</b>
2	<b>Suicide of an inpatient (including patients on leave).</b> Mental Health Services are required to report to the Chief Psychiatrist and to the State Coroner (for involuntary patients) episodes of unexpected death.
3	<b>Retained instruments or other material after surgery requiring re-operation or further surgical procedure.</b> Retention of a foreign object in a patient after surgery or other procedure including surgical instruments or other material such as gauze packs inadvertently left inside the patient when the surgical incision is closed - excluding objects intentionally implanted as part of a planned intervention and objects present prior to surgery that are intentionally retained.
4	<b>Intravascular gas embolism resulting in death or neurological damage.</b> Death or serious disability associated with intravascular gas embolism that occurs while the patient is being cared for in a facility - excluding deaths associated with neurosurgical procedures known to present a high risk of intravascular gas embolism.
5	<b>Haemolytic blood transfusion reaction resulting from ABO incompatibility.</b>
6	<b>Medication error resulting in death of a patient.<sup>††</sup></b> Death or serious injury associated with a medication error, including, but not limited to errors involving: <ul style="list-style-type: none"> <li>■ the wrong drug</li> <li>■ a contaminated drug</li> <li>■ the wrong dose</li> <li>■ the wrong patient</li> <li>■ the wrong time</li> <li>■ the wrong rate</li> <li>■ the wrong preparation</li> <li>■ the wrong route of administration</li> <li>■ insufficient surveillance (e.g. blood tests, clinical observation).</li> </ul>
7	<b>Maternal death or serious morbidity associated with labour or delivery.</b> Maternal death or serious disability associated with labour or delivery while the patient is being cared for in a facility or by maternity care providers, including events that occur within 42 days post-delivery.
8	<b>Infant discharged to wrong family or infant abduction.</b>
<b>Examples of SAC 1 Clinical incidents that must be reported</b>	
<b>Fetal complications associated with health care delivery.</b> <ul style="list-style-type: none"> <li>■ Unrelated to congenital abnormality in an infant having a birth weight greater than 2500 grams causing death or serious and/or ongoing perinatal morbidity.</li> <li>■ Complications not anticipated yet arose and were not managed in an appropriately/timely manner resulting in death, serious harm or ongoing morbidity.</li> <li>■ Delivery at a site other than where labour commences which requires transfer to another facility for a higher level of care resulting in death or serious and/or ongoing morbidity.</li> </ul>	

<sup>††</sup> This category excludes reasonable differences in clinical judgement and medication selection and dose.

<b>Severity Assessment Code 1 Categories</b>
<p><b>Medication error (not resulting in death).</b></p> <ul style="list-style-type: none"> <li>■ The inappropriate administration of daily oral methotrexate*</li> <li>■ The intravenous administration of epidural medication*</li> <li>■ Wrong gas being administered.*</li> </ul>
<p><b>Misdiagnosis and subsequent management refers to physical and mental health.</b></p> <ul style="list-style-type: none"> <li>■ Failure to monitor and respond to oxygen saturation.*</li> </ul>
<p><b>Delay in recognising/responding to physical clinical deterioration.</b></p>
<p><b>Complications of resuscitation.</b></p> <ul style="list-style-type: none"> <li>■ Events in which staff experienced problems in managing an emergency situation or resuscitation resulting in death, or serious and/or ongoing morbidity.</li> <li>■ Failed resuscitation where resuscitation protocols or guidelines could not be followed due to a deficiency of equipment, communication, or staffing resulting in death, or serious and/or ongoing morbidity.</li> </ul>
<p><b>Complications of anaesthetic management.</b></p> <ul style="list-style-type: none"> <li>■ Unintended intra-operative awareness.</li> <li>■ Anaesthetic events resulting in death or serious and/or ongoing morbidity.</li> </ul>
<p><b>Complications of surgery.</b></p> <ul style="list-style-type: none"> <li>■ Wrong site surgery not resulting in death or permanent loss of function.*</li> <li>■ Pulmonary embolism.</li> <li>■ Injury to major blood vessels.</li> </ul>
<p><b>Complications of an inpatient fall.</b></p>
<p><b>Hospital process issues.</b></p> <ul style="list-style-type: none"> <li>■ Events in which hospital processes such as triaging, assessment, planning or delivery of care e.g. miscommunication of test results, response to abnormal test results contributed to death, or serious and/or ongoing morbidity.</li> <li>■ Transport or transfer – events in which delays in transport or transfer contributed to death, or serious and/or ongoing morbidity.</li> <li>■ Misidentification of patients.*</li> </ul>
<p><b>Infection control breach.</b></p>
<p><b>The unexpected death of a mental health patient/consumer.</b></p>
<p><b>Absconding of any mental health patient/consumer.</b></p>
<p><b>Patient absconding with adverse outcome.</b></p>
<p><b>Wrong route administration of oral/enteral treatment.*</b></p>

This list is not exhaustive. Sites are encouraged to seek advice from within their organisation and/or the Patient Safety Surveillance Unit regarding the potential notification of clinical incidents not included in this list.

\* Never Events refer to serious, preventable patient safety incidents that should not occur if preventative measures are in place.

Refer to the Clinical Incident Management Policy (2012):

[www.safetyandquality.health.wa.gov.au/docs/aims/CIMS\\_Policy\\_2012.pdf](http://www.safetyandquality.health.wa.gov.au/docs/aims/CIMS_Policy_2012.pdf)

## Appendix Two: ICD-10 AM Causes of Complication of Surgery and Procedure Codes

ICD-10-AM code	Description
Y60.0	UCPPH during surgical operation
Y60.1	UCPPH during infusion or transfusion
Y60.3	UCPPH during injection or immunisation
Y60.6	UCPPH during aspiration, puncture and other catheterisation
Y60.8	UCPPH during other surgical and medical care
Y60.9	UCPPH during unspecified surgical and medical care
Y61.0	FOALB during surgical operation
Y61.1	FOALB during infusion or transfusion
Y61.7	FOALB during removal of catheter or packing
Y61.8	FOALB during other surgical and medical care
Y61.9	FOALB during unspecified surgical and medical care
Y62.0	Failure of sterile precautions during surgical operation
Y62.1	Failure of sterile precautions during infusion or transfusion
Y62.6	Failure of sterile precautions during aspiration, puncture and other catheterisation
Y62.8	Failure of sterile precautions during other surgical and medical care
Y62.9	Failure of sterile precautions during unspecified surgical and medical care
Y63.0	Excessive amount of blood or other fluid given during transfusion or infusion
Y63.1	Incorrect dilution of fluid used during infusion
Y63.2	Overdose of radiation given during therapy * #NOF only
Y63.3	Inadvertent exposure of patient to radiation during medical care * #NOF only
Y63.5	Inappropriate temperature in local application and packing
Y63.6	Non administration of necessary drug, medicament or biological substance
Y63.8	Failure in dosage during other surgical and medical care
Y63.9	Failure in dosage during unspecified surgical and medical care
Y64	Contaminated medical or biological substance
Y65	Other misadventures during surgical and medical care
Y66	Non-administration of surgical and medical care
Y69	Unspecified misadventure during surgical and medical care
Y83.1	Surgical operation with implant of artificial internal device
Y83.2	Surgical operation with anastomosis, bypass or graft
Y83.4	Other reconstructive surgery
Y83.5	Amputation of limb(s)
Y83.8	Other surgical procedures
Y83.9	Surgical procedure, unspecified
Y84.2	Radiological procedure and radiotherapy as the cause of abnormal reaction of the patient, or of later complication, without mention of misadventure at the time of the procedure
Y84.4	Aspiration of fluid as the cause of abnormal reaction of the patient, or of later complication, without mention of misadventure at the time of the procedure

ICD-10-AM code	Description
Y84.6	Urinary catheterisation as the cause of abnormal reaction of the patient, or of later complication, without mention of misadventure at the time of the procedure
Y84.7	Blood-sampling as the cause of abnormal reaction of the patient, or of later complication, without mention of misadventure at the time of the procedure
Y84.8	Other medical procedures as the cause of abnormal reaction of the patient, or of later complication, without mention of misadventure at the time of the procedure
Y84.9	Medical procedure, unspecified as the cause of abnormal reaction of the patient, or of later complication, without mention of misadventure at the time of the procedure
M96.6	Fracture of bone following insertion of orthopaedic implant, joint prosthesis, or bone plate
47519-00	Internal fixation of fracture of trochanteric or subcapital femur
47522-00	Hemiarthroplasty of femur
47528-01	Open reduction of fracture of femur with internal fixation
47531-00	Closed reduction of fracture of femur with internal fixation
49312-00	Excision arthroplasty of hip
49315-00	Partial arthroplasty of hip
49318-00	Total arthroplasty of hip, unilateral
49319-00	Total arthroplasty of hip, bilateral
49518-00	Total arthroplasty of knee, unilateral
49519-00	Total arthroplasty of knee, bilateral
49521-00	Total arthroplasty of knee with bone graft to femur, unilateral
49521-02	Total arthroplasty of knee with bone graft to tibia, unilateral
49524-00	Total arthroplasty of knee with bone graft to femur and tibia, unilateral
37200-03	Suprapubic prostatectomy
37200-04	Retropubic prostatectomy
37201-00	Transurethral needle ablation of prostate [TUNA]
37203-00	Transurethral resection of prostate [TURP]
37203-02	Transurethral electrical vaporisation of prostate
37203-03	Cryoablation of prostate
37203-04	Microwave thermotherapy of prostate
37207-00	Endoscopic laser ablation of prostate
37207-01	Endoscopic laser excision of prostate
37224-00	Endoscopic destruction of lesion of prostate
37224-01	Endoscopic resection of lesion of prostate
90407-00	Excision of other lesion of prostate
35653-00	Subtotal abdominal hysterectomy
35653-01	Total abdominal hysterectomy
35653-04	Total abdominal hysterectomy with removal of adnexa
35661-00	Abdominal hysterectomy with extensive retroperitoneal dissection
35667-00	Radical abdominal hysterectomy
90448-00	Subtotal laparoscopic abdominal hysterectomy
90448-01	Total laparoscopic abdominal hysterectomy

ICD-10-AM code	Description
90448-02	Total laparoscopic abdominal hysterectomy with removal of adnexa
35657-00	Vaginal hysterectomy
35667-01	Radical vaginal hysterectomy
35750-00	Laparoscopically assisted vaginal hysterectomy
35753-02	Laparoscopically assisted vaginal hysterectomy with removal of adnexa



## Appendix Three: Risk Adjusted Rate by Financial Year for Hip Replacement per 100 Separations

No.	Financial Year	Hospital <sup>△</sup>	Hospital Group	No. of Separations	No. of Complications	Adjusted Hospital Rate	Outlier <sup>†</sup>	Adjusted Peer Rate	State Rate
1	2009/10	Royal Perth Hospital Shenton Park Campus	1	159	23	13.36		13.56	12.52
2	2009/10	Royal Perth Hospital	1	19	8	22.68		13.56	12.52
3	2009/10	Fremantle Hospital	1	44	6	10.24		13.56	12.52
4	2009/10	Sir Charles Gairdner Hospital	1	95	13	10.82		13.56	12.52
5	2009/10	Kaleeya Hospital	2	88	12	13.39		11.5	12.52
6	2009/10	Albany Hospital	2	37	0	0	++	11.5	12.52
7	2009/10	Armadale/Kelmscott District Memorial Hospital	2	38	5	16.59		11.5	12.52
8	2009/10	Bunbury Hospital	2	65	10	14.9		11.5	12.52
9	2009/10	Geraldton Hospital	2	23	1	4.03	+	11.5	12.52
10	2009/10	Osborne Park Hospital	2	81	4	8.29		11.5	12.52
11	2009/10	Joondalup Health Campus	2	77	11	11.08		11.5	12.52
12	2009/10	Peel Health Campus	2	78	6	16.57		11.5	12.52
13	2010/11	Royal Perth Hospital Shenton Park Campus	1	160	22	14.21		13.56	12.52
14	2010/11	Royal Perth Hospital	1	28	5	14.58		13.56	12.52
15	2010/11	Fremantle Hospital	1	58	13	14.37		13.56	12.52
16	2010/11	Sir Charles Gairdner Hospital	1	104	14	10.99		13.56	12.52
17	2010/11	Kaleeya Hospital	2	93	10	10.63		11.5	12.52
18	2010/11	Albany Hospital	2	34	1	4.14	+	11.5	12.52
19	2010/11	Armadale/Kelmscott District Memorial Hospital	2	56	2	6.03	+	11.5	12.52
20	2010/11	Bunbury Hospital	2	86	9	13.15		11.5	12.52
21	2010/11	Geraldton Hospital	2	29	5	15.16		11.5	12.52
22	2010/11	Osborne Park Hospital	2	84	5	11.48		11.5	12.52
23	2010/11	Rockingham General Hospital	2	8	3	39.64		11.5	12.52
24	2010/11	Joondalup Health Campus	2	91	15	13.22		11.5	12.52

No.	Financial Year	Hospital <sup>△</sup>	Hospital Group	No. of Separations	No. of Complications	Adjusted Hospital Rate	Outlier <sup>†</sup>	Adjusted Peer Rate	State Rate
25	2010/11	Peel Health Campus	2	69	1	2.53	++	11.5	12.52
26	2011/12	Royal Perth Hospital Shenton Park Campus	1	157	25	13.77		13.56	12.52
27	2011/12	Royal Perth Hospital	1	34	13	17.69		13.56	12.52
28	2011/12	Fremantle Hospital	1	72	14	13.09		13.56	12.52
29	2011/12	Sir Charles Gairdner Hospital	1	115	19	12.35		13.56	12.52
30	2011/12	Kaleeya Hospital	2	86	13	16.33		11.5	12.52
31	2011/12	Albany Hospital	2	45	6	13.26		11.5	12.52
32	2011/12	Armadale/Kelmscott District Memorial Hospital	2	80	6	8.13		11.5	12.52
33	2011/12	Bunbury Hospital	2	105	16	17.18		11.5	12.52
34	2011/12	Geraldton Hospital	2	16	2	11.6		11.5	12.52
35	2011/12	Osborne Park Hospital	2	90	4	5.24	+	11.5	12.52
36	2011/12	Rockingham General Hospital	2	24	8	16.83		11.5	12.52
37	2011/12	Joondalup Health Campus	2	75	7	7.47		11.5	12.52
38	2011/12	Peel Health Campus	2	63	2	3.4	++	11.5	12.52
39	2012/13	Royal Perth Hospital Shenton Park Campus	1	185	21	12.47		13.56	12.52
40	2012/13	Royal Perth Hospital	1	37	7	14.82		13.56	12.52
41	2012/13	Fremantle Hospital	1	61	5	7.71	+	13.56	12.52
42	2012/13	Sir Charles Gairdner Hospital	1	161	24	14.11		13.56	12.52
43	2012/13	Kaleeya Hospital	2	75	8	13.52		11.5	12.52
44	2012/13	Albany Hospital	2	44	6	12.58		11.5	12.52
45	2012/13	Armadale/Kelmscott District Memorial Hospital	2	79	9	11.19		11.5	12.52
46	2012/13	Bunbury Hospital	2	109	14	18.55	*	11.5	12.52
47	2012/13	Geraldton Hospital	2	22	2	13.27		11.5	12.52
48	2012/13	Osborne Park Hospital	2	89	5	7.73		11.5	12.52
49	2012/13	Rockingham General Hospital	2	61	10	17.56		11.5	12.52
50	2012/13	Joondalup Health Campus	2	73	10	13.98		11.5	12.52
51	2012/13	Peel Health Campus	2	84	4	7.02		11.5	12.52

**†Outlier**

++	Definitely better than peer group mean
+	Could be better than peer group mean
*	Could be worse than peer group mean
**	Definitely worse than peer group mean

**Hospital Group**

1	Teaching hospital
2	Non-teaching hospital

△ Includes public patients only at Joondalup Health Campus

## Appendix Four: Risk Adjusted Rate by Financial Year for Knee Replacement per 100 Separations

No.	Financial Year	Hospital <sup>△</sup>	Hospital Group	No. of Separations	No. of Complications	Adjusted Hospital Rate	Outlier <sup>†</sup>	Adjusted Peer Rate	State Rate
1	2009/10	Royal Perth Hospital Shenton Park Campus	1	260	35	12.19		12.01	10.67
2	2009/10	Royal Perth Hospital	1	24	4	11.83		12.01	10.67
3	2009/10	Fremantle Hospital	1	52	6	10.75		12.01	10.67
4	2009/10	Sir Charles Gairdner Hospital	1	114	18	12.44		12.01	10.67
5	2009/10	Kaleeya Hospital	2	111	13	9.99		9.55	10.67
6	2009/10	Albany Hospital	2	40	2	6.36		9.55	10.67
7	2009/10	Armadale/Kelmscott District Memorial Hospital	2	79	12	15.77		9.55	10.67
8	2009/10	Bunbury Hospital	2	115	14	14.04		9.55	10.67
9	2009/10	Geraldton Hospital	2	21	1	6.63		9.55	10.67
10	2009/10	Osborne Park Hospital	2	105	3	3.47	++	9.55	10.67
11	2009/10	Joondalup Health Campus	2	117	5	4.39	+	9.55	10.67
12	2009/10	Peel Health Campus	2	115	12	15.96	*	9.55	10.67
13	2010/11	Royal Perth Hospital Shenton Park Campus	1	220	23	9.23		12.01	10.67
14	2010/11	Royal Perth Hospital	1	20	3	6.94		12.01	10.67
15	2010/11	Fremantle Hospital	1	77	14	12.51		12.01	10.67
16	2010/11	Sir Charles Gairdner Hospital	1	121	21	13.83		12.01	10.67
17	2010/11	Kaleeya Hospital	2	109	15	11.59		9.55	10.67
18	2010/11	Albany Hospital	2	28	1	3.5	+	9.55	10.67
19	2010/11	Armadale/Kelmscott District Memorial Hospital	2	115	6	6.12		9.55	10.67
20	2010/11	Bunbury Hospital	2	132	13	13.73		9.55	10.67
21	2010/11	Geraldton Hospital	2	40	0	0	++	9.55	10.67
22	2010/11	Osborne Park Hospital	2	119	8	9.15		9.55	10.67
23	2010/11	Rockingham General Hospital	2	14	1	4.86		9.55	10.67
24	2010/11	Joondalup Health Campus	2	118	18	12.55		9.55	10.67

No.	Financial Year	Hospital <sup>△</sup>	Hospital Group	No. of Separations	No. of Complications	Adjusted Hospital Rate	Outlier <sup>†</sup>	Adjusted Peer Rate	State Rate
25	2010/11	Peel Health Campus	2	116	13	14.36		9.55	10.67
26	2011/12	Royal Perth Hospital Shenton Park Campus	1	242	42	16.57	*	12.01	10.67
27	2011/12	Royal Perth Hospital	1	28	4	8.46		12.01	10.67
28	2011/12	Fremantle Hospital	1	99	8	6.4	+	12.01	10.67
29	2011/12	Sir Charles Gairdner Hospital	1	133	26	13.75		12.01	10.67
30	2011/12	Kaleeya Hospital	2	113	7	6.55		9.55	10.67
31	2011/12	Albany Hospital	2	40	3	9.31		9.55	10.67
32	2011/12	Armadale/Kelmscott District Memorial Hospital	2	133	7	6.85		9.55	10.67
33	2011/12	Bunbury Hospital	2	137	15	11.17		9.55	10.67
34	2011/12	Geraldton Hospital	2	47	6	10.15		9.55	10.67
35	2011/12	Osborne Park Hospital	2	124	8	7.43		9.55	10.67
36	2011/12	Rockingham General Hospital	2	52	6	11.02		9.55	10.67
37	2011/12	Joondalup Health Campus	2	128	18	11.22		9.55	10.67
38	2011/12	Peel Health Campus	2	90	4	5.4	+	9.55	10.67
39	2012/13	Royal Perth Hospital Shenton Park Campus	1	282	39	13.41		12.01	10.67
40	2012/13	Royal Perth Hospital	1	32	3	7.26		12.01	10.67
41	2012/13	Fremantle Hospital	1	97	11	10.18		12.01	10.67
42	2012/13	Sir Charles Gairdner Hospital	1	150	19	11.65		12.01	10.67
43	2012/13	Kaleeya Hospital	2	104	7	7.28		9.55	10.67
44	2012/13	Albany Hospital	2	38	2	4.85		9.55	10.67
45	2012/13	Armadale/Kelmscott District Memorial Hospital	2	139	15	11.79		9.55	10.67
46	2012/13	Bunbury Hospital	2	142	17	13.09		9.55	10.67
47	2012/13	Geraldton Hospital	2	31	2	6.02		9.55	10.67
48	2012/13	Osborne Park Hospital	2	121	5	4.7	+	9.55	10.67
49	2012/13	Rockingham General Hospital	2	77	12	14.85		9.55	10.67
50	2012/13	Joondalup Health Campus	2	108	5	4.89	+	9.55	10.67
51	2012/13	Peel Health Campus	2	150	8	7.07		9.55	10.67

**†Outlier**

++	Definitely better than peer group mean
+	Could be better than peer group mean
*	Could be worse than peer group mean
**	Definitely worse than peer group mean

△ Includes public patients only at Joondalup Health Campus

**Hospital Group**

1	Teaching hospital
2	Non-teaching hospital

## Appendix Five: Risk Adjusted Rate by Financial Year for Fractured Neck of Femur per 100 Separations

No.	Financial Year	Hospital <sup>△</sup>	Hospital Group	No. of Separations	No. of Complications	Adjusted Hospital Rate	Outlier <sup>†</sup>	Adjusted Peer Rate	State Rate
1	2009/10	Royal Perth Hospital	1	353	64	19.62	*	14.76	13.76
2	2009/10	Fremantle Hospital	1	338	44	15.47		14.76	13.76
3	2009/10	Sir Charles Gairdner Hospital	1	332	38	12.88		14.76	13.76
4	2009/10	Albany Hospital	2	24	2	8.63		12.69	13.76
5	2009/10	Bunbury Hospital	2	67	9	13.77		12.69	13.76
6	2009/10	Joondalup Health Campus	2	82	8	9.68		12.69	13.76
7	2010/11	Royal Perth Hospital	1	396	60	16.43		14.76	13.76
8	2010/11	Fremantle Hospital	1	355	37	10.4	+	14.76	13.76
9	2010/11	Sir Charles Gairdner Hospital	1	334	40	13.38		14.76	13.76
10	2010/11	Albany Hospital	2	26	3	9.78		12.69	13.76
11	2010/11	Bunbury Hospital	2	89	11	13.73		12.69	13.76
12	2010/11	Joondalup Health Campus	2	88	8	10.64		12.69	13.76
13	2011/12	Royal Perth Hospital	1	368	51	13.09		14.76	13.76
14	2011/12	Fremantle Hospital	1	390	53	13.87		14.76	13.76
15	2011/12	Sir Charles Gairdner Hospital	1	337	55	15.96		14.76	13.76
16	2011/12	Albany Hospital	2	34	2	6.77		12.69	13.76
17	2011/12	Bunbury Hospital	2	77	14	20.6	*	12.69	13.76
18	2011/12	Joondalup Health Campus	2	91	8	8.59		12.69	13.76
19	2012/13	Royal Perth Hospital	1	352	55	15.96		14.76	13.76
20	2012/13	Fremantle Hospital	1	368	48	14.09		14.76	13.76
21	2012/13	Sir Charles Gairdner Hospital	1	334	45	14.92		14.76	13.76
22	2012/13	Albany Hospital	2	23	5	22.87		12.69	13.76
23	2012/13	Bunbury Hospital	2	70	6	11.58		12.69	13.76
24	2012/13	Joondalup Health Campus	2	94	12	14.91		12.69	13.76

**†Outlier**

++	Definitely better than peer group mean
+	Could be better than peer group mean
*	Could be worse than peer group mean
**	Definitely worse than peer group mean

△ Includes public patients only at Joondalup Health Campus

**Hospital Group**

1	Teaching hospital
2	Non-teaching hospital

## Appendix Six: Risk Adjusted Rate by Financial Year for Prostatectomy per 100 Separations

No.	Financial Year	Hospital <sup>△</sup>	Hospital Group	No. of Separations	No. of Complications	Adjusted Hospital Rate	Outlier <sup>†</sup>	Adjusted Peer Rate	State Rate
1	2009/10	Royal Perth Hospital	1	77	7	6.98		7.94	6.28
2	2009/10	Fremantle Hospital	1	51	6	7.04		7.94	6.28
3	2009/10	Sir Charles Gairdner Hospital	1	34	6	9.49		7.94	6.28
4	2009/10	Kaleeya Hospital	2	43	2	4.83		5.82	6.28
5	2009/10	Albany Hospital	2	12	0	0	++	5.82	6.28
6	2009/10	Armadale/Kelmscott District Memorial Hospital	2	32	1	3.67		5.82	6.28
7	2009/10	Bunbury Hospital	2	59	3	6.59		5.82	6.28
8	2009/10	Osborne Park Hospital	2	67	3	5.34		5.82	6.28
9	2009/10	Swan District Hospital	2	74	2	3.61		5.82	6.28
10	2009/10	Bentley Hospital	2	23	0	0	++	5.82	6.28
11	2009/10	Joondalup Health Campus	2	57	3	5.87		5.82	6.28
12	2009/10	Peel Health Campus	2	105	4	6.77		5.82	6.28
13	2010/11	Royal Perth Hospital	1	76	6	7.35		7.94	6.28
14	2010/11	Fremantle Hospital	1	48	4	8.07		7.94	6.28
15	2010/11	Sir Charles Gairdner Hospital	1	21	1	3.75		7.94	6.28
16	2010/11	Kaleeya Hospital	2	39	0	0	++	5.82	6.28
17	2010/11	Albany Hospital	2	22	1	5.28		5.82	6.28
18	2010/11	Armadale/Kelmscott District Memorial Hospital	2	55	0	0	++	5.82	6.28
19	2010/11	Bunbury Hospital	2	69	4	10.81		5.82	6.28
20	2010/11	Osborne Park Hospital	2	56	3	5.54		5.82	6.28
21	2010/11	Swan District Hospital	2	57	2	6.95		5.82	6.28
22	2010/11	Bentley Hospital	2	27	0	0	++	5.82	6.28
23	2010/11	Rockingham General Hospital	2	19	1	7.09		5.82	6.28
24	2010/11	Joondalup Health Campus	2	71	5	9.31		5.82	6.28

No.	Financial Year	Hospital <sup>△</sup>	Hospital Group	No. of Separations	No. of Complications	Adjusted Hospital Rate	Outlier <sup>†</sup>	Adjusted Peer Rate	State Rate
25	2010/11	Peel Health Campus	2	87	1	2.16	+	5.82	6.28
26	2011/12	Royal Perth Hospital	1	61	13	13		7.94	6.28
27	2011/12	Fremantle Hospital	1	26	1	2.61	+	7.94	6.28
28	2011/12	Sir Charles Gairdner Hospital	1	36	5	9.22		7.94	6.28
29	2011/12	Kaleeya Hospital	2	20	2	13.33		5.82	6.28
30	2011/12	Albany Hospital	2	17	0	0	++	5.82	6.28
31	2011/12	Armadale/Kelmscott District Memorial Hospital	2	57	2	3.57		5.82	6.28
32	2011/12	Bunbury Hospital	2	48	1	3.65		5.82	6.28
33	2011/12	Osborne Park Hospital	2	54	4	6.3		5.82	6.28
34	2011/12	Swan District Hospital	2	48	2	5.86		5.82	6.28
35	2011/12	Bentley Hospital	2	18	0	0	++	5.82	6.28
36	2011/12	Rockingham General Hospital	2	75	18	16.74	*	5.82	6.28
37	2011/12	Joondalup Health Campus	2	67	7	9.27		5.82	6.28
38	2011/12	Peel Health Campus	2	98	0	0	++	5.82	6.28
39	2012/13	Royal Perth Hospital	1	62	4	4.19		7.94	6.28
40	2012/13	Fremantle Hospital	1	34	4	9.17		7.94	6.28
41	2012/13	Sir Charles Gairdner Hospital	1	46	3	4.08		7.94	6.28
42	2012/13	Kaleeya Hospital	2	4	1	40.82		5.82	6.28
43	2012/13	Albany Hospital	2	27	2	7.28		5.82	6.28
44	2012/13	Armadale/Kelmscott District Memorial Hospital	2	50	0	0	++	5.82	6.28
45	2012/13	Bunbury Hospital	2	71	3	4.63		5.82	6.28
46	2012/13	Osborne Park Hospital	2	70	10	10.47		5.82	6.28
47	2012/13	Swan District Hospital	2	59	3	5.34		5.82	6.28
48	2012/13	Bentley Hospital	2	10	0	0	++	5.82	6.28
49	2012/13	Rockingham General Hospital	2	85	7	6.6		5.82	6.28
50	2012/13	Joondalup Health Campus	2	55	7	12.96		5.82	6.28
51	2012/13	Peel Health Campus	2	140	3	2.39	+	5.82	6.28

**†Outlier**

++	Definitely better than peer group mean
+	Could be better than peer group mean
*	Could be worse than peer group mean
**	Definitely worse than peer group mean

△ Includes public patients only at Joondalup Health Campus

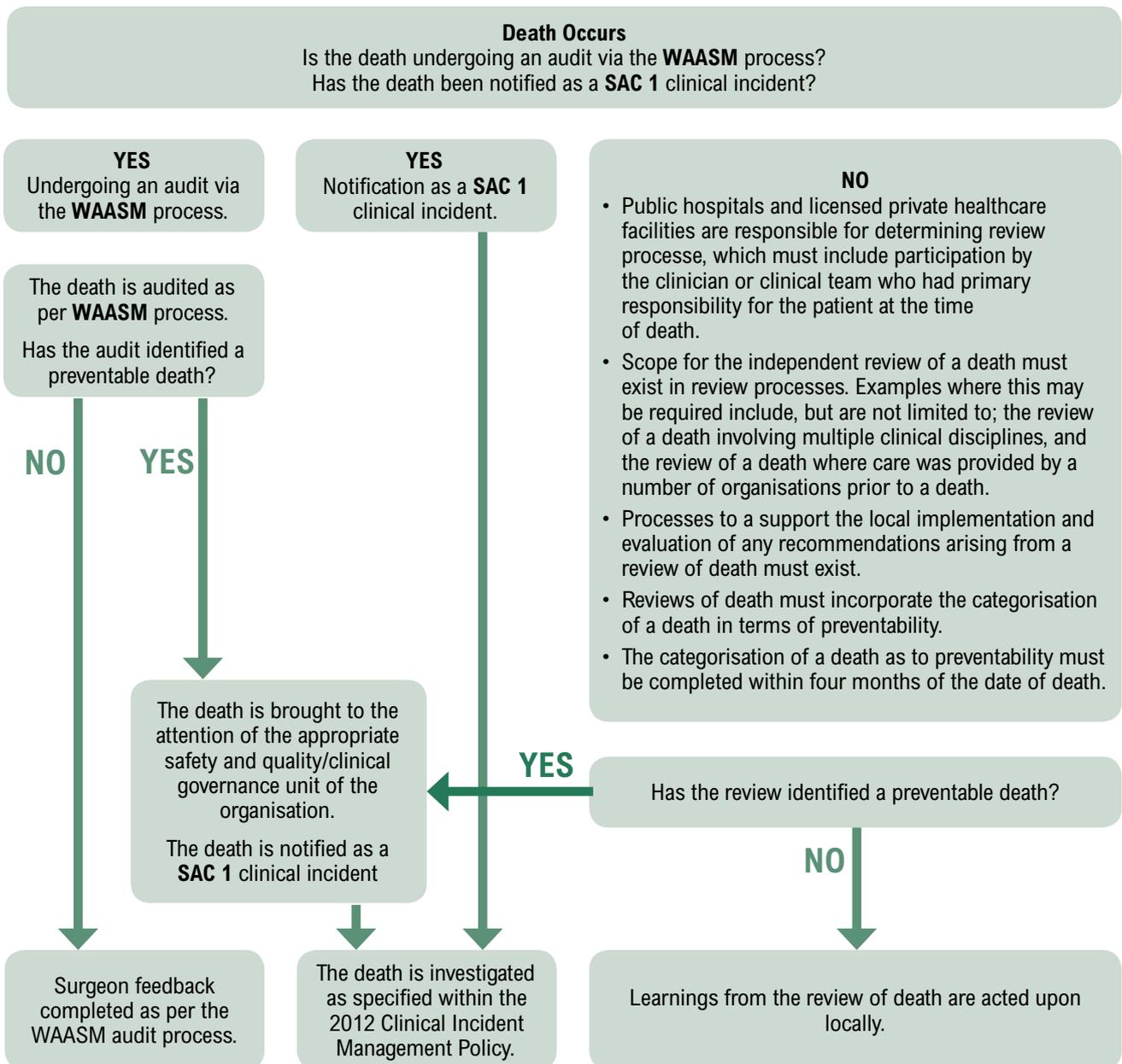
**Hospital Group**

1	Teaching hospital
2	Non-teaching hospital

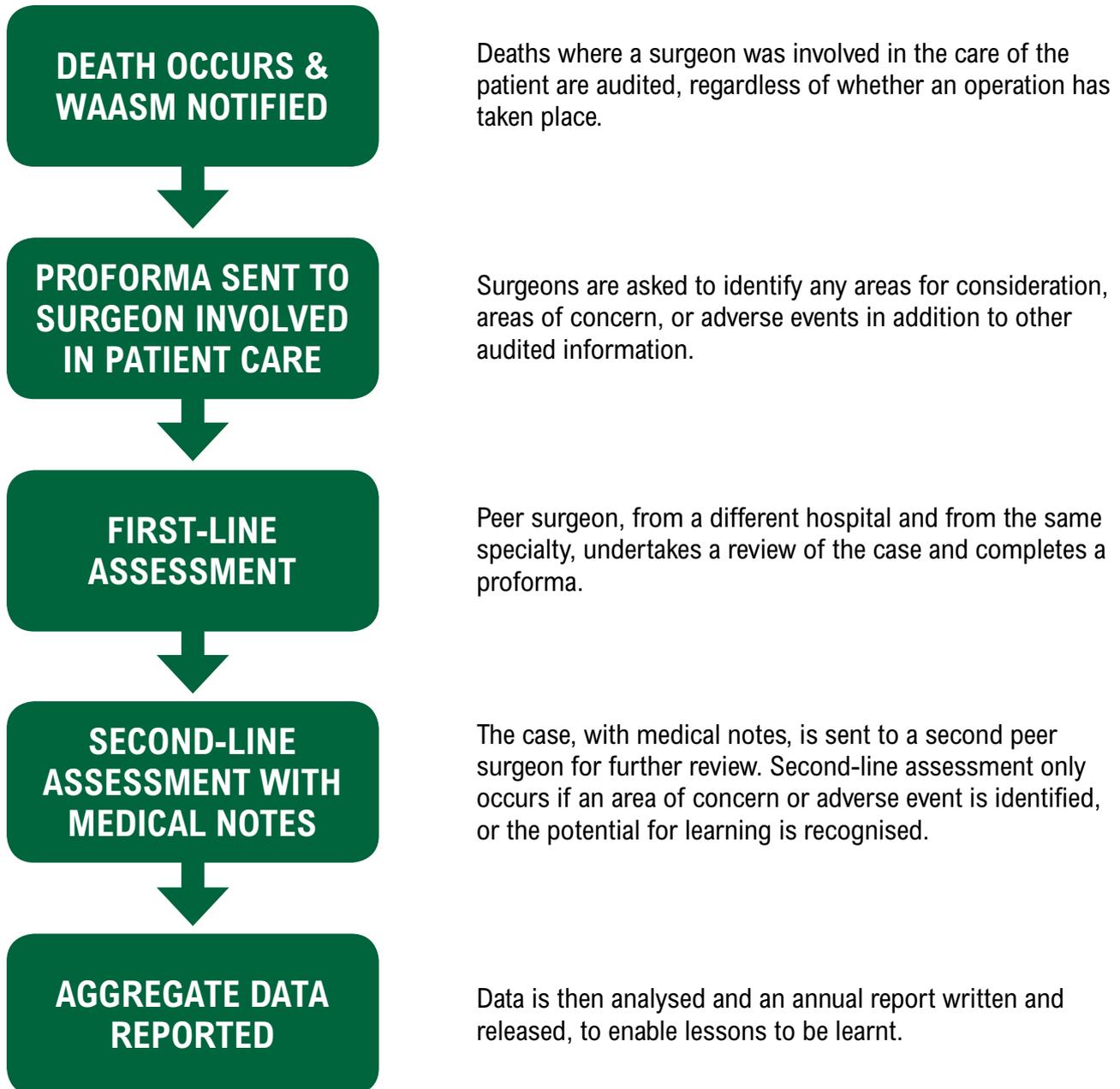
# Appendix Seven: VLAD CM Statistical Control Charts



# Appendix Eight: Flowchart Reflecting the Interaction of the Review of Death Policy with Clinical Incident Management Processes, and the Western Australian Audit of Surgical Mortality.



## Appendix Nine: Western Australian Audit of Surgical Mortality Process (WAASM)



# Data Quality Statement: For Datasets Used in This Report

Quality Dimensions	
Institutional Environment	<p>Clinical Incident data are obtained from across WA Health hospitals and health services. It is mandatory to report all SAC 1 clinical incidents which are also received from all WA licensed private hospitals and contracted non-government agencies. The PSSU undertakes all data analysis presented within this report unless otherwise stated. Hospital separation data and CHADx data are extracted from the Hospital Morbidity Data Collection and are provided by Data Integrity Management. Data Integrity sits within the Performance Resourcing and Performance Division. Complications of Care calculations were prepared by the Epidemiology Department of DOH. WAASM data are obtained from the Royal Australasian College of Surgeons. Premium Payments data were obtained from the ABF/M Program. Complaints data were obtained from the Health Services. It is mandatory for public hospitals, and private hospitals providing health care to public patients, to report complaints data in accordance with WA Health policy.</p>
Relevance	<p>The purpose of the data is to report all state-wide clinical incidents notified within the 2013-2014 period, to the:</p> <ul style="list-style-type: none"> <li>■ CIMS database which includes both AIMS data and Datix CIMS data</li> <li>■ SAC 1 database.</li> </ul> <p>SAC 1 incidents include data from WA Health hospitals and community health services plus data from licensed private hospitals and contracted non-government services. Please note that the numerator for the SAC 1 clinical incident rate includes all the above-mentioned sites while the denominator only includes separation data from WA Health hospitals' inpatient activity. The introduction of the new web based CIMS will improve rates analysis by providing more robust categorisation of the care setting. All 'Quality of Care' data were captured by WA Health hospitals and health services, and reported to PSSU who then captured the data in a state-wide complaints spreadsheet. Complaints are an integral component of CIM as it informs patient centred care.</p>
Timeliness	<p>The reference period for this data is 1 July 2013 to 30 June 2014. Due to data coding delays there is a two month lag time with regard to some Datix CIMS data such as confirmed SAC data. As such data frequencies may change over time and this would prohibit comparisons with previous reports.</p>
Accuracy	<p>Data are entered into the CIMS/AIMS database on a routine basis by safety and quality staff at each facility. Datix CIMS data are entered in real time by the notifier. SAC 1 data are entered into to the SAC 1 database on a routine basis by PSSU staff. All data entered into the abovementioned databases undergo data validation processes both at a local and state-wide level. This is to ensure the data are clean and free from duplicates. Missing data are identified and rounding errors of + or – 1 are deemed acceptable.</p> <p>WAASM data has been reported in accordance with that first reported to PSSU; variations due to migration of data to the Bi-National Audit System (BAS) for deaths with multiple adverse events causing death have been discounted where data accuracy has not been impacted.</p>
Coherence	<p>The CIMS data collection methodology has changed with the 1 February 2014 release of the online Datix CIMS. The CIMS data are dynamic and data lag times for some Datix CIMS variables exist which can prohibit the comparison of data at different time periods.</p>

### Quality Dimensions

Accessibility	The data are only accessible to WA Health employees who have been granted permission to access the CIMS and/or SAC 1 databases. The PSSU does allow access to de-identified CIMS data by external parties whose research proposal has been approved by PSSU and who have obtained DoH ethics approval. All requests for HMDC data require extraction and approval from Data Integrity Management.
Interpretability	Any queries with regard to data found in this report can be directed to the Patient Safety Surveillance Unit, DoH.



# Glossary

**Angiosets** – A modified syringe set used for the delivery of CO<sub>2</sub> gas in angiography.

**Anastomotic** – to unite by means of anastomosis or connection between two formally separate structures.<sup>27</sup>

**Aortic stenosis** – Pathologic narrowing of the aortic valve orifice.<sup>27</sup>

**Atrial Fibrillation** – the condition of being fibrilated in which the normal rhythmical contractions of the cardiac atria are replaced by rapid irregular twitchings of the muscular wall; the ventricles respond irregularly to the dysrhythmic bombardment from the atria.<sup>27</sup>

**Bed days** – the number of days a patient stays in hospital between admission and discharge. An aggregate measure of HS utilisation.

**Bronchopneumonia** – Acute inflammation of the walls of the smaller bronchial tubes, with varying amounts of pulmonary consolidation due to spread of the inflammation into peribronchiolar alveoli and the alveolar ducts; may become confluent or may be haemorrhagic.<sup>27</sup>

**Cholecystectomy** – Surgical removal of the gallbladder.<sup>27</sup>

**Clinical incident** – an event or circumstance resulting from health care which could have, or did lead to unintended and/or unnecessary harm to a person. Clinical incidents include:

- **Near miss** which is an incident that may have, but did not cause harm, either by chance or through timely intervention.
- **Adverse event** which is an injury/harm caused by medical management or complication thereof, instead of the underlying disease. It results in an increase in the level of care and/or prolonged hospitalisation and/or disability at the time of discharge. Medical management refers to management under health care services.
- **Sentinel event** which refers to unexpected occurrences involving death or serious physical or psychological injury, or risk thereof.<sup>28</sup>

**Clinical Incident Management (CIM)** – the process of effectively managing clinical incidents with a view to minimising preventable harm.<sup>29</sup>

**Clinical Incident Management System (CIMS)** – a database system developed for collecting and analysing information on clinical incidents. It covers voluntary reporting, investigating, analysing and monitoring of clinical incidents.

**Co-morbidities** – the presence of one or more disorders (or diseases) in addition to a primary disorder or disease.

**Contributory factor** – a factor that contributes to the occurrence of a clinical incident.

**Coagulation** – clotting; the process of changing from a liquid to a solid, especially of blood.<sup>29</sup>

**Coagulopathy** – a disease affecting the coagulability of the blood.<sup>29</sup>

**COPD** – abbreviation for chronic obstructive pulmonary disease.<sup>29</sup>

**Cyanosis** – a dark bluish or purplish discoloration of the skin and mucous membrane due to deficient oxygenation of the blood, evident when reduced haemoglobin in the blood exceeds 5 g/100 ml.<sup>29</sup>

**Embolism** – a plug that occludes a vessel. Could be composed of a thrombus, vegetation, mass of bacteria or some other foreign body.<sup>29</sup>

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<sup>27</sup> Stedman's Medical Dictionary. 27 ed. Baltimore: Lippincott Williams & Wilkins; 2000.

<sup>28</sup> Organisation WH. Conceptual Framework for the International Classification for Patient Safety Technical Report. Version 1.1, January 2009.

<sup>29</sup> Health Q. Clinical Incident Management Implementation Standards (CIMIS). In: Reform and Development Division QG, editor. 2008.

**Gangrene** – necrosis due to obstruction, loss, or diminution of blood supply; it may be localised to a small area or involve an entire extremity or organ (such as the bowel), and may be wet or dry.<sup>29</sup>

**Gangrenous** – relating to or affected with gangrene.<sup>29</sup>

**Herd Immunity** – the proportion of immune individuals in a community.<sup>29</sup>

**Hernia** – protrusion of a part or structure through the tissues normally containing it.<sup>29</sup>

**Hypertension** – high blood pressure; transitory or sustained elevation of systemic arterial blood pressure to a level likely to induce cardiovascular damage or other adverse consequences.<sup>29</sup>

**Hypoglycaemic** – refers to low blood glucose levels.<sup>29</sup>

**Hypotension** – subnormal arterial blood pressure.<sup>29</sup>

**Hypoxia** – refers to below normal levels of oxygen in inspired gases, arterial blood or tissues.<sup>29</sup>

**Increased length of stay** – a situation whereby a patient has to stay longer in hospital than would normally be expected.

**Injury** – in the context of CIM includes burns, injury due to an impact or collision, pressure injuries, injury of unknown origin, unintended injury during a procedure or treatment, or other injuries not classifiable in the previous categories.

**Intraocular** – within the eyeball.<sup>29</sup>

**Ischaemia** – local anaemia due to a mechanical obstruction of the blood supply.<sup>29</sup>

**Ligature** – refers to a thread, wire or similar that is tied around a blood vessel to constrict the flow of blood.<sup>29</sup>

**Mental Health Network** – Provides the structure for people to come together to improve mental health outcomes.

**Mesenteric** – relating to the mesentery.<sup>29</sup>

**Mesentery** – a double layer of peritoneum attached to the abdominal wall and enclosing in its fold a portion or all of one of the abdominal viscera, conveying to it its vessels nerves.<sup>31</sup>

**Myocarditis** – inflammation of the muscular walls of the heart.<sup>30</sup>

**Necrosis** – pathologic death of one or more cells, or of a portion of tissue or organ, resulting from irreversible damage.<sup>29</sup>

**Never Events** – are serious events that are recognised as being preventable through the implementation of patient safety system processes.<sup>30</sup>

**Organic Brain Syndrome** – decreased mental function due to a medical disease other than a psychiatric illness.<sup>29</sup>

**Peritoneum** – the serious sac, consisting of mesothelium and a thin layer of irregular connective tissue, that lines the abdominal cavity and covers most of the viscera contained therein; it forms two sacs; the peritoneal (or greater) sac and the omental bursa (or lesser sac) connected by the epiploic foramen.<sup>29</sup>

**Peritonitis** – inflammation of the peritoneum.<sup>29</sup>

**Pneumococcal meningitis** – meningitis is inflammation of the thin tissue that surrounds the brain and spinal cord, called the meninges. Pneumococci are a type of streptococcus bacteria.<sup>29</sup>

<sup>30</sup> US National Library of Medicine: National Institute for Health; [cited 2014 October 3]. Available from: [www.nlm.nih.gov/medlineplus/ency/article/001401.htm](http://www.nlm.nih.gov/medlineplus/ency/article/001401.htm).

**Pulmonary oedema** – an accumulation of an excessive amount of watery fluid in cells or intercellular tissues of lungs usually resulting from mitral stenosis or left ventricular failure.<sup>29</sup>

**Root Cause Analysis (RCA)** – a systematic investigative technique aimed at identifying root causes/ contributory factors of problems, events or clinical incidents.

**Septicaemia** – systemic disease caused by the spread of micro-organisms and their toxins within the blood.<sup>29</sup>

**Severity Assessment Code (SAC)** – the assessment of consequences associated with a clinical incident. The SAC rating (1, 2 or 3) is used to determine the appropriate level of analysis, action and escalation.

- SAC 1 includes all clinical incidents/near misses where serious harm or death is/could be specifically caused by health care rather than the patient's underlying condition or illness. In WA, SAC 1 also includes the eight nationally endorsed sentinel event categories.
- SAC 2 includes all clinical incidents/near misses where moderate harm is/could be specifically caused by health care rather than the patient's underlying condition or illness.
- SAC 3 includes all clinical incidents/near misses where minimal or no harm is/could be specifically caused by health care rather than the patient's underlying condition or illness.<sup>31</sup>

**Sentinel event** – unexpected occurrences involving death or serious physical or psychological injury/ harm or risk thereof. There are eight nationally endorsed sentinel event categories, endorsed by Australian Health Ministers in 2004 (see Appendix 1 for a list of the eight sentinel events).

**Separation** – The process by which an episode of care for an admitted patient ceases. Separation is synonymous with discharge.

**Trabeculectomy** – a filtering operation for glaucoma by creation of a fistula between the anterior chamber of the eye and the subconjunctival space, through a subscleral excision of a portion of the trabecular meshwork.<sup>29</sup>

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<sup>31</sup> Queensland Health. Clinical Incident Management Implementation Standard (CIMIS). Reform and Development Division, Editor: Queensland Government; 2008.





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