Learning from Clinical Incidents: A Snapshot of Patient Safety in Western Australia

2008-2010
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Patient Safety Directorate
Department of Health
PO Box 8172
Perth Business Centre
Western Australia 6849

Telephone (08) 9222 4080
Facsimile (08) 9222 2032
Web http://www.safetyandquality.health.wa.gov.au

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Contents

Definitions v

Executive summary 1

1. Introduction 9

2. Methodology 10

3. Results 11
   3.1 General overview 11
   3.2 Top five principal incident type categories 15

4. Medication incidents 16
   4.1 Trends in medication incidents 2001-10 16
   4.2 Medication incident types 16
   4.3 Most frequently involved medication 18
   4.4 Outcome of medication incidents 19
   4.5 Medication incident causes 20
   4.6 Medication incident rates 21
   4.7 Contributory factors 21
   4.8 Discussion 23

5. Falls incidents 25
   5.1 Trends in falls incidents in 2001-10 25
   5.2 Nature and location of falls incidents 25
   5.3 Outcome of falls incidents 26
   5.4 Falls incident rates 28
   5.5 Contributory factors 29
   5.6 Discussion 30

6. Behaviour incidents 32
   6.1 Trends in behaviour incidents 2001-10 32
   6.2 Behaviour incident types 33
   6.3 Outcome of behaviour incidents 34
   6.4 Behaviour incidents in WA mental health facilities 34
6.5 Behaviour incidents in WA Emergency Departments 35
6.6 Behaviour incident rates 35
6.7 Contributory factors 36
6.8 Behaviour incidents associated with alcohol or drug intoxication 37
6.9 Discussion 38

7. “Other” incidents 40
7.1 Trends in “other” incidents in 2001-10 40
7.2 “Other” incident types 41
7.3 Outcome of “other” incidents 41
7.4 “Other” incident rates 42
7.5 Contributory factors 43
7.6 Discussion 45

8. Injury incidents 47
8.1 Trends in injury incidents in 2001-10 47
8.2 Injury incident types 48
8.3 Outcome of injury incidents 49
8.4 Injury incident rates 50
8.5 Contributory factors 51
8.6 Discussion 53

Appendix A: AIMS outcome levels 55
Appendix B: Caveats 56

9. Reference list 57

Tables

Table 1: Number and rate of clinical incidents notified per year (2001-10) 11
Table 2: Number and rate of medication incidents notified per year (2001-10) 16
Table 3: Top 10 medications involved in clinical incidents in WA 2008-09 and 2009-10 18
Table 4: Number and percentage of medication incidents by contributory factor category 2008-09 and 2009-10 22
Table 5: Number and rate of falls incidents notified per year 2001-10 25
Table 6: Number and percentage of falls incidents by type of contributory factor 2008-09 and 2009-10 29
Learning from clinical incidents:
A snapshot of patient safety in WA 2008-09 & 2009-10

Table 7: Number and rate of behaviour incidents notified per year 2001-10 32
Table 8: Number and percent of behaviour incidents by type of contributory factor 2008-09 and 2009-10 36
Table 9: Number and rate of “other” incidents notified per year 2001-10 40
Table 10: Number and percentage of “other” incidents by type of contributory factor 2008-2009 and 2009-10 44
Table 11: Number and rate of injury incidents per year (2001-10) 47
Table 12: Number and percent of injury incidents by type of contributory factor 2008-09 and 2009-10 52

Figures

Figure 1: Clinical incidents by age group between 2008-2010 12
Figure 2: Clinical incidents by Principal Incident Type (PIT) between 2008-2010 13
Figure 3: Clinical incidents by outcome level between 2008-2010 14
Figure 4: Medication incident types between 2008-2010 17
Figure 5: Medication incidents by outcome level between 2008-2010 19
Figure 6: Medication incidents by cause of incident between 2008-2010 20
Figure 7: Number and rate of medication incidents by age group 2008-2010 21
Figure 8: Falls incident by nature and location between 2008-2010 26
Figure 9: Falls incident by outcome level between 2008-2010 27
Figure 10: Number and rate of falls incidents by age group 2008-2010 28
Figure 11: Type of behaviour incidents between 2008-2010 33
Figure 12: Behaviour incidents by outcome level between 2008-2010 34
Figure 13: Number and rate of behaviour incidents by age group between 2008-2010 35
Figure 14: Number of behaviour incidents with alcohol and drug intoxication as a contributory factor 2001-10 37
Figure 15: Type of “other” incidents between 2008-2010 41
Figure 16: “Other” incidents by outcome level between 2008-10

Figure 17: Number and rate of “other” incidents by age group between 2008-2010

Figure 18: Type of injury incidents between 2008-2010

Figure 19: Injury incidents by outcome level between 2008-2010

Figure 20: Number and rate of injury incidents by age group between 2008-2010
Definitions

**Advanced Incident Management System (AIMS)** – is a database system developed by Patient Safety International for collecting and analysing information on clinical incidents. It covers voluntary reporting, investigating, analysing and monitoring of clinical incidents.

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

**Clinical incident** – an event or circumstance resulting from healthcare which could have, or did lead to unintended harm to a person, loss or damage. In the context of this report a ‘person’ includes a patient, client or visitor.

**Clinical incident management** – the process by which clinical incidents are notified, investigated, analysed and monitored for the purpose of improving patient safety and quality of healthcare.

**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 an incident.

**Harm** – includes death, disease, injury, suffering and/or disability.

**Healthcare associated infection** – potentially preventable infections associated with hospitalisation.

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

**Minor outcome** – an incident associated with minor harm to a patient not requiring treatment but perhaps extra observations or monitoring. Refers to Outcome Level 4 in AIMS.

**Moderate outcome** – an incident associated with a moderate level of harm to the patient requiring review by a doctor and minor diagnostic investigations or treatment (e.g. x-ray, blood tests, analgesia, and minor dressings). Refers to Outcome Level 5 to 6 in AIMS.

**Near miss** – is an incident that may have, but did not cause harm, either by chance or through timely intervention.

**Outcome** – end result or consequence of an incident to the patient.
Learning from clinical incidents:  
A snapshot of patient safety in WA 2008-09 & 2009-10

**Outcome level** – one of eight levels of consequence assigned to clinical incidents in AIMS, primarily denoting severity of the incident to the patient, client or visitor (see Appendix A).

**Pathophysiological factors** – factors associated with disease.

**Principal Incident Type (PIT)** – the category into which a clinical incident reported to AIMS is classified. There are a total of ten PIT categories which include:

- Behaviour
- Blood, oxygen or gas
- Documentation
- Fall
- Injury
- Medication
- Nutrition
- Safety and security
- Therapeutic devices or equipment
- Other.

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

**Safety and Quality Investment for Reform (SQuIRe)** – The Safety and Quality Investment for Reform (SQuIRe) Program was established in July 2006 to strengthen the WA Department of Health’s clinical governance and patient safety management systems, and to ensure the delivery of safe, high quality, evidence-based healthcare to patients and the WA community.

**Sentinel event** – notified rare events that lead to catastrophic patient outcomes.

**Separations** – signifies the end of an episode of care (single or multi-day) and is a common unit to measure activity.

**Severe outcome** – an incident associated with severe or catastrophic harm to a patient (permanent disability or death), refers to Outcome Level 8 in AIMS.

**Significant outcome** – an incident associated with a significant level of harm to a patient. Refers to an Outcome Level of 7 in AIMS. Examples include an incident resulting in an increased length of stay in hospital, admission to hospital, readmission to hospital, transfer to ICU, CPR/resuscitation, secure ward management, seclusion, fractured neck of femur, morbidity which continued at discharge.

**SQuIRe Clinical Practice Improvement (CPI) Program** – The SQuIRe Clinical Practice Improvement (CPI) Program supports the implementation of practices that improve patient outcomes. There are eight CPI initiatives grouped in three clusters. Cluster 1 evidence based clinical practice, Cluster 2 medication reconciliation, and Cluster 3 infection control practices.
Executive summary

This report documents the key features and trends of the top five clinical incident types notified to the Advanced Incident Management System (AIMS) in Western Australia between July 1 2008 and June 30 2010. AIMS is a voluntary clinical incident reporting system that has been in place in metropolitan and country WA public health services since October 2001 and is just one of several systems used by WA Health to capture and manage clinical incidents and adverse events.

The process of clinical incident management enables changes to be implemented at the clinical service delivery level to prevent future incidents from occurring and to improve patient safety. There are ten principal incident types (PIT), this report documents key trends in the five most frequently reported PIT’s which represent 84.5% (n=49 939) of all notified incidents for this two year time period.

Clinical incident trends 2001 to 2010

At the time of data analysis there were 220 501 incidents contained in the AIMS database. In 2008-09, the rate of clinical incidents was calculated at 19.7 incidents per 1 000 bed days with a slight decline observed in the 2009-10 period (17.5 per 1 000 bed days).

In 2008-09 there were 455 034 separations from hospital and a further 468 746 hospital separations for 2009-10. Clinical incidents were associated with 6.8% of hospital separations in 2008-09 and 5.9% of hospital separations in 2009-10.

Clinical incidents 2008-09 and 2009-10 snapshots

A total of 31 054 incidents were entered and classified in AIMS during the 2008-09 financial year compared with a total of 28 067 incidents entered and classified during the 2009-10 financial year.

Medication and falls incidents account for the most frequent incidents (45.5% 2008-09 and 45.3% 2009-10) reported to AIMS for this time period with “other”, behaviour and injury incidents accounting approximately a quarter of all reported events for both financial years.
Learning from clinical incidents:
A snapshot of patient safety in WA 2008-09 & 2009-10

Elderly patients aged 65 years or more were involved in the majority of clinical incidents reported for both years. There was no difference in gender proportions for clinical incidents observed in 2008-2009. However, in 2009-10, a slightly higher proportion were male (52.0%).

The majority (59%; n=34,984) of clinical incidents for both years were classified with an outcome level of between 3-4 referring to incidents resulting in no harm or minor harm to the patient. In 2008-09, 91 incidents (0.3%) were Level 8 incidents (referring to severe harm resulting in permanent disability or death). This figure decreased to 44 (0.15%) incidents in 2009-10.

Medication incidents

- Medication incidents account for the highest proportion of (23.4% 2008-09 and 23.2% 2009-10) incidents reported to AIMS for this time period.
- Between 1 July 2008 and 30 June 2009 there were 7,257 medication incidents notified to AIMS, with a 10% (n=749, n=6,508) decrease observed in 2009-10.
- Medication omissions (n=2,493) and medication overdoses (n=1,254) were the most frequently observed types of medication errors in 2008-09. While in 2009-10 medication omissions (n=1,785) were also the most frequently reported medication error followed by medication errors involving other medications (n=1,197).
- Anticoagulants, opioids and analgesia were the most frequently ranked medications in 2008-09. While in 2009-10 it was opioids, analgesia and insulin incidents.
- Fewer than one percent of incidents in 2008-09 (0.85%) and 2009-10 (0.7%) were associated with significant or severe harm (level 7 and 8 incidents). No deaths resulting from a medication incident were reported in 2008-09, with one case observed in 2009-2010.
- The largest proportion of medication incidents for both years occurred as a result of either failing to follow policy/procedure, failure to read or misreading.
- The number of reported medication incidents was shown to increase with age. However, the highest rate of medication incidents occurred in the 10-14 year
Learning from clinical incidents:  
A snapshot of patient safety in WA 2008-09 & 2009-10

Age group with 8.3 and 8.2 incidents per 1 000 bed days observed respectively between 2008-09 and 2009-10.

- Strategies that have been implemented to decrease the number of medication incidents include:
  a) Medication reconciliation which is the formal process of obtaining and verifying a complete and accurate list of each patient's current medicines, matching the medicines the patient should be prescribed to those they are actually prescribed.
  b) Medication liaison which ensures frequent and accurate communication between all clinicians involved in the patients care, including the patient/carer.
  c) Regular chart reviews.
  d) Staff education on the recognition of error-prone situations, potential complications, contraindications and drug interactions.
  e) Improved discharge processes such as communication with general practitioners and other health care professionals.
  f) Quality improvement initiatives promoting medication safety.

Falls

- Falls were the second most frequently reported clinical incident in 2008-09 with 6 884 events and in 2009-10 with 6 207 events. In 2008-09, there were 4.4 falls reported per 1 000 bed days compared with 3.9 falls per 1 000 bed days in 2009-10.
- Two percent (n=148 and n=103 for 2008-09 and 2009-10 respectively) of all falls incidents were associated with significant (Level 7 outcome) to severe harm (Level 8 outcome). These types of incidents include for example, incidents resulting in a dislocation or fractured neck of femur, leading to an increased length of stay in hospital, permanent disability or death. One patient death resulting from a fall was reported for both 2008-09 and 2009-2010.
- In 2008-09 2.1% (n=144) of falls resulted in a dislocation or fracture with a similar finding observed in 2009-10 (1.6%; n=97).
- The majority of falls reported in both years were sustained by patients aged 65 years or more (2008-09 n=4 982; 72.4%; 2009-10 n=4 544; 73.2%).
The rate of falls was highest in patients aged 85 years or more (8.0 and 7.9 per 1 000 bed days calculated for 2008-09 and 2009-10 respectively).

Using a multiple response format, the two most frequently reported contributory factors associated with falls were attributed to patient co-morbidity and physical impairment factors in both 2008-09 and 2009-10.

Strategies that have been implemented to decrease the number of patients falling include:

a) Active participation of health services in the SQuIRe Falls Clinical Practice Improvement (CPI) initiative and the Falls Prevention Network.

b) Continued implementation of a state wide falls risk management tools and development of individual care plans.

Behaviour

Between 1 July 2008 and 30 June 2009 there were 4,933 behaviour incidents notified into AIMS, with slightly less incidents notified in 2009-10 (n=4,880).

Physical/verbal abuse, aggression, assault or absconding accounted for over 72% of behaviour incidents reported over this two year time period.

While the majority of behaviour incidents resulted in no harm to the patient, in 2008-09, 19 behaviour incidents were associated death, with the majority of these due to self inflicted harm with a further 11 incidents reported in 2009-10.

For 2008-09 and 2009-10 respectively, between 39% (n=1,915) and 42.5% (n=2,073) of behaviour incidents occurred in a mental health facility. A further 18.8% (n=927) and 17.8% (n=871) of behaviour incidents occurred in an emergency department.

In 2008-09 the number and rate of behaviour incidents peaked in the 15-19 year age group with a rate of 8.0 behaviour incidents per 1,000 bed days observed. Following closely behind were those aged 20-24 years with a rate of 6.5 behaviour incidents per 1,000 bed days reported for this age group.

In 2009-10 the number and rate of behaviour incidents peaked in the 15-19 year age group (8.0 incidents per 1,000 bed days). Following closely behind were those aged 20-24 years with a rate of 6.9 incidents per 1,000 bed days reported for this age group.
In both 2008-09 and 2009-10 the same main factors were identified as contributory to behaviour incidents, these included mental health factors, pathophysiological factors, dementia and confusion/disorientation.

The number of behaviour incidents associated with alcohol or drug intoxication has increased each year since AIMS notification commenced. In 2001-02, alcohol or drug intoxication was identified as a contributory factor in 90 cases of reported behaviour incidents, with this number increasing exponentially to 565 cases in 2009-10.

Strategies that have been implemented aiming to decrease the number of behaviour incidents include:

a) Comprehensive education courses to assist staff in the management of behavioural issues such as alcohol/drug issues in hospitalised patients, dementia and managing mental heath in the acute care setting.

b) Establishment of zero tolerance programs and enhanced communication programs such as verbal judo.

c) Provision of emergency response teams to assist in managing armed or unarmed incidents.

d) Implementation of seclusion and restraint strategies such as seclusion/restraint incident reporting systems, regular data reports, introduction of patient safety plans and post seclusion interviews.

Establishment of sensory modulation ("quiet/chill out") rooms and the introduction of executive review of seclusion incidents.

e) Introduction of a "nurse observations policy" which requires daily medical and nurse director review of patients requiring extensive supervision (i.e. one-to-one observation).

f) Introduction of “Token Economy” behavioural strategies for patients with challenging behaviour requiring constant seclusion.

g) Introduction of Clinical Risk Assessment Management (CRAM) and safety plans to effectively manage patient risks.

h) Modifying the physical environmental to increase staff safety.
Learning from clinical incidents:  
A snapshot of patient safety in WA 2008-09 & 2009-10

i) Integrated medical records with the electronic patient care plans (on PSOLIS) to facilitate ease of access to critical information in all parts of the Service, e.g. ED, wards and Early Discharge.

j) Utilisation of Journey Boards in ward offices, used at handover and review, to identify patient’s clinical risk level which is identified from their CRAM assessment.

k) Introduction of programs to provide support for staff and patients to quit smoking.

Incidents classified as “other”

- Incidents that could not be classified into one of the other nine PITs were categorised as “other” (see section seven for a full list of incidents categorised as “other”).
- Between 2001-02 and 2006/07, “other” incidents have slowly increased in frequency and since then rates have remained relatively stable.
- For this “other” category, no, wrong or delayed procedure, treatment or assessment accounted for 61.3% (n=2 508) in 2008-09 and 62.9% (n=2 453) in 2009-10.
- The majority (53.6% in 2008-09 and 56% in 2009-10) of incidents caused no or minimal harm (Level 3 and 4). Level 7 incidents remained stable for both years, accounting for 7% of incidents while a decrease in Level 8 incidents was observed between 2008-09 (1.4%; n=57) and 2009-10 (0.5%; n=20). Forty eight incidents resulted in death in 2008-09, which decreased to 20 deaths for incidents categorised as “other” in 2009-10.
- The incidence rate for “other” incidents was observed to decrease with age. In 2008-09 the rate of incidents in this category was highest in the 25-29 year age group (3.6 incidents per 1 000 bed days) and declining to a rate of 1.5 for those aged 85 years or more. A similar trend was also observed in 2009-10.
- The three most common contributory factors for incidents classified as “other” were communication problems, failure to follow policy or procedure or pathophysiological factors.
- Strategies that have been implemented to decrease the number of “other” incidents include:
a) Upgrading of the clinical information system to allow electronic information to be available. Specifically, the dissemination and access of electronic clinical information enables clinicians to make more informed decisions by being able to access discharge summaries, procedural and consult reports in a more expedient manner.

b) The introduction of the Four Hour Rule Program, which aims to improve the patient experience and quality of care provided to the patient by reducing delays in the emergency department (ED), improving coordination and streamlining processes for admission and discharge across the hospital. The goal is not just to reduce waiting times in the ED, but to improve the quality of care patients can expect and improve the way hospitals function.

Injury

- Overall injury incidents represented 9% of all notifications to the system for this two year time period.
- Between 1 July 2008 and 30 June 2009 there were 2,823 injury incidents notified to AIMS and a further 2,503 incidents reported in 2009-10.
- The rate of injury incidents has remained relatively stable (1.5 and 1.8 incidents per 1,000 bed days in 2008-09 and 2009-10 respectively) since 2002-03.
- Less than 2% (n=94) of injury incidents for both years resulted in an outcome Level of 7 while 4 incidents in this same time period were given an outcome Level of 8 with one incident resulting in permanent disability and three incidents resulting in death.
- The number and rate of injury incidents increased with age over both time periods with the highest injury rate occurring in those aged 85 years or older (3.7 injuries per 1,000 bed days in 2008-09 and 3.1 injury incidents per 1,000 bed days in 2009-10).
- In 2008-09, 799 (29.1%) injury incidents were pressure ulcers with 2.1% (n=17) of these classed as stage 4 pressure ulcers. While in 2009-10, 736 (30.4%) were pressure ulcers with 3.4% (n=25) of these classed as stage 4.
Learning from clinical incidents:  
A snapshot of patient safety in WA 2008-09 & 2009-10

- The two most frequently reported contributory factors associated with injury incidents were attributed to pathophysiological factors or physical impairment factors in both 2008-09 and 2009-10.

- Strategies that have been implemented to decrease the number of injury incidents include:

  a) The training and education of staff to reinforce knowledge of pressure ulcer formation and how to avoid such incidents.

  b) The roll out of the WoundsWest program, which aims to improve wound management and patient outcomes throughout WA.

Conclusion

WA Health continues to make substantial improvements in preventing and reducing clinical incidents across the state. This report further identifies areas within clinical incident management that may benefit from greater focus/targeting of quality improvement activities, these include:

- Identifying contributory factors associated with medication incidents in children aged 0-14 years, in order to develop targeted prevention strategies.

- Developing falls strategies specifically targeting those aged 85 years or more, who were identified as having the highest fall rates.

- Undertaking further analysis to identify the contributory factors associated with alcohol and drug intoxication, to enable appropriate strategies to be developed.
Learning from clinical incidents:  
A snapshot of patient safety in WA 2008-09 & 2009-10

1. Introduction

This report provides a summary analysis of clinical incidents which have been identified, reported and addressed by staff working throughout WA Health during the period of 1 July 2008 to 30 June 2010. Specifically, this report documents key trends in the five most frequently reported principal incident types (PIT), which represent 84.5% (n=49 939) of all notified incidents for this two year time period.

AIMS is a clinical incident reporting system that has been in place throughout WA Health services since October 2001. At the time of writing, all public hospitals/health services and one private hospital in Western Australia use the AIMS version 2.4 software system. Clinical incident management which utilises AIMS, is a voluntary reporting system whereby staff, patients, clients, carers or visitors who witness a clinical incident are encouraged to report the incident. Once notification of an incident occurs it is then investigated, analysed, classified and recommendations identified which are then implemented and evaluated. It is only through this constant monitoring that patient safety issues can be identified and addressed, with lessons learned shared across the health care system.

AIMS is one of several reporting systems used by WA Health to capture clinical incidents and facilitates the notification, investigation, analysis and monitoring of the clinical incidents that occur in both public inpatient and outpatient healthcare settings.

Communication remains a key component to improving safety and quality in healthcare. This report seeks to inform the WA community of incidents that have occurred within our health system and the measures that are being taken to prevent their recurrence.
2. Methodology

A retrospective cohort design was used to construct a longitudinal clinical incident dataset for the period July 2008 to June 2010.

This analytical epidemiological study was undertaken to:

- Identify the characteristics and trends of clinical incidents that occurred in public hospitals/health services throughout Western Australia by a cohort of patients from July 2008 to June 2010.
- Describe the epidemiology of clinical incidents that occurred in public hospitals/health services throughout WA.
- Determine annual standardised incidence and prevalence estimates for clinical incidences occurring in WA public hospitals.

Data is collated into ten Principal Incident Types (PITs):

1. Behaviour
2. Blood, oxygen, gas
3. Documentation
4. Falls
5. Injury
6. Medication
7. Nutrition
8. Other
9. Safety and security
10. Therapeutic devices or equipment.

As stated, AIMS is a voluntary reporting system and as such cannot be viewed as a comprehensive clinical incident database for WA Health. However, the clinical incident data captured does provide a wealth of information that can be used to identify areas of priority for patient safety management within the WA Health system.
3. Results

3.1 General overview

Between 2001 and June 2010, 220 501 clinical incidents were captured in the AIMS database. In 2008-09, 31 054 incidents were reported with a slight decline observed in the 2009-10 period (n=28 067). In comparison, for the same time period there were 455 034 separations from hospital in 2008-09 and a further 468 746 hospital separations in 2009-10.

Clinical incidents were associated with 6.8% (n=31 054) of hospital separations in 2008-09 and 5.9% (n= 28 067) of hospital separations in 2009-10. In 2008-09, the rate of clinical incidents was calculated at 19.7 incidents per 1 000 bed days with a slight decline observed in the 2009-10 period (17.5 per 1 000 bed days). Table 1 shows incident rates per 1 000 bed days for the period 2001-2010.

<table>
<thead>
<tr>
<th>Year</th>
<th>Number of clinical incidents</th>
<th>Number of bed days</th>
<th>Rate/1 000 bed days</th>
</tr>
</thead>
<tbody>
<tr>
<td>2001-02</td>
<td>10 855</td>
<td>1 393 388</td>
<td>7.8</td>
</tr>
<tr>
<td>2002-03</td>
<td>22 692</td>
<td>1 477 925</td>
<td>15.4</td>
</tr>
<tr>
<td>2003-04</td>
<td>23 209</td>
<td>1 446 603</td>
<td>16.0</td>
</tr>
<tr>
<td>2004-05</td>
<td>24 363</td>
<td>1 513 179</td>
<td>16.1</td>
</tr>
<tr>
<td>2005-06</td>
<td>26 456</td>
<td>1 491 433</td>
<td>17.7</td>
</tr>
<tr>
<td>2006-07</td>
<td>26 461</td>
<td>1 494 006</td>
<td>17.7</td>
</tr>
<tr>
<td>2007-08</td>
<td>27 344</td>
<td>1 548 462</td>
<td>17.7</td>
</tr>
<tr>
<td>2008-09</td>
<td>31 054</td>
<td>1 579 859</td>
<td>19.7</td>
</tr>
<tr>
<td>2009-10</td>
<td>28 067</td>
<td>1 601 745</td>
<td>17.5</td>
</tr>
</tbody>
</table>

There was no major difference in gender proportions for clinical incidents observed in 2008-2009. However, of the clinical incidents reported in 2009-10, a slightly higher proportion were male (52.0% n=13 588, excludes missing data).

For 2008/09 and 2009/10, nurses continue to be the main reporters of clinical incidents (77%; n=23 797 and 78%; n= 21 900 respectively).

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*Implementation of AIMS commenced in October 2001, therefore data for 2001-02 is not for a full year.*
Patients ages ranged from 0 years to 105 years with a mean age of 56 years (standard deviation 26 years) calculated for both time periods. Elderly patients aged 65 years or more were involved in the majority of clinical incidents reported for both years (see Figure 1).

**Figure 1 Clinical incidents by age group between 2008-2010**

The frequency of incidents categorised by Principal Incident Type (PIT) is shown in Figure 2. Medication and falls incidents continue to be the most frequently reported for both time periods, followed by behaviour incidents, those captured in the “other” incidents PIT category and injury incidents.

The “other” PIT category includes:

- Medical emergency
- Poor discharge planning
- No or wrong or delayed diagnosis
- Hospital acquired infection
- Wrong patient, body part or side
- No, wrong or delayed procedure, treatment or assessment
- No or delayed admission, inappropriate bed or ward
- Other (e.g. lost/incorrectly/transported or stored specimens, surgical complications).
Once a clinical incident is notified to AIMS, it is investigated by the health service where the incident occurred (see the Clinical Incident Management Policy). On completion of the investigation, incidents are then classified according to the severity of the outcome to the patient on a scale of 1-8 (see Appendix A).

Outcome level/s of:
- 1-2 are defined as a ‘near miss’ resulting in no harm to the patient.
- 3-4 refer to events resulting in no harm or minor harm, respectively.
- 5-6 refer to moderate harm occurring.
- 7 is defined as significant harm having occurred (e.g. resulting in increased length of stay, admission or readmission to hospital, seclusion, transfer to ICU, resuscitation, fractured neck of femur or transfer to another hospital).
- 8 refers to severe harm resulting in permanent disability or death.
Learning from clinical incidents: A snapshot of patient safety in WA 2008-09 & 2009-10

Figure 3 shows that the majority of clinical incidents for both years were classified with an outcome Level of 3 or 4. For incidents which resulted in significant harm, there were 1,363 Level 7 incidents (4.3%) reported in 2008-09 and 1,442 Level 7 incidents (5.1%) reported in 2009-10. In 2008-09 0.3% (n=91) of all incidents were Level 8 incidents which decreased by half in 2009-10 (n=44; 0.15%).

Figure 3 Clinical incidents by outcome level between 2008-2010*

Of the 2,940 Level 7 and 8 incidents reported between 2008-10, behaviour incidents were the most frequently reported clinical incident for both years (50%; n=1,454) followed by clinical incidents classed in the “other” category (n=135).

The three most frequently reported types of Level 7 behaviour incidents for both years included physical abuse, aggression or assault (n=1,224), verbal abuse or aggression (n=118) and inappropriate behaviour (n=112). These three types of behaviour incidents accounted for 52% of all Level 7 incidents. The most frequently reported Level 8 behaviour incidents in both years, was suicidal behaviour or suicide, accounting for 29% (n=40) of incidents.

*Missing data n=6 in 2008-09 and n=42 in 2009-10.
Results indicate that patient safety within WA Health continues to improve, with decreases in clinical incidents observed between 2008-09 and 2009-10. Specifically, the overall rate of clinical incidents per 1 000 bed days declined from 19.7 incidents in 2008-09 to 17.5 incidents per 1 000 bed days in 2009-10. Furthermore, the frequency of clinical incidents resulting in permanent disability or death was also observed to decrease during this two year period, with 91 incidents reported in 2008-09 and 44 incidents reported in 2009-10.

### 3.2 Top five principal incident type categories

The following section will concentrate on the five most frequently reported PIT categories which represent 84.5% (n=49 939) of all clinical incidents reported during this two year period. The PIT categories reported in this section include:

1. Medication incidents
2. Falls incidents
3. Behaviour incidents
4. “Other” incidents
5. Injury incidents.
Learning from clinical incidents:  
A snapshot of patient safety in WA 2008-09 & 2009-10

4. Medication incidents

Between 1 July 2008 and 30 June 2009 there were 7 257 medication incidents notified to AIMS, with a 10% (n=749) decrease in medication incidents (n=6 508) observed in 2009-10.

4.1 Trends in medication incidents 2001-10

Medication incidents have consistently been one of the top two most frequently notified types of incident since 2001. Between 2001-02 and 2005-06 there was an upward trend in the number and rate of reported incidents (see Table 2) with the rate ranging from 1.7 to 4.2 incidents per 1 000 bed days. Since 2006-07 the rate of medication incidents has fluctuated, peaking at 4.6 medication incidents per 1 000 bed days in 2008-09.

Table 2 Number and rate of medication incidents notified per year (2001-10) ²

<table>
<thead>
<tr>
<th></th>
<th>Number of Medication Incidents</th>
<th>Number of Bed Days</th>
<th>Rate/1 000 Bed Days</th>
</tr>
</thead>
<tbody>
<tr>
<td>2001-02</td>
<td>2 325</td>
<td>1 393 388</td>
<td>1.7</td>
</tr>
<tr>
<td>2002-03</td>
<td>5 209</td>
<td>1 477 925</td>
<td>3.5</td>
</tr>
<tr>
<td>2003-04</td>
<td>5 566</td>
<td>1 446 603</td>
<td>3.8</td>
</tr>
<tr>
<td>2004-05</td>
<td>6 038</td>
<td>1 513 179</td>
<td>4.0</td>
</tr>
<tr>
<td>2005-06</td>
<td>6 335</td>
<td>1 491 433</td>
<td>4.2</td>
</tr>
<tr>
<td>2006-07</td>
<td>5 570</td>
<td>1 494 006</td>
<td>3.7</td>
</tr>
<tr>
<td>2007-08</td>
<td>6 416</td>
<td>1 548 462</td>
<td>4.1</td>
</tr>
<tr>
<td>2008-09</td>
<td>7 257</td>
<td>1 579 859</td>
<td>4.6</td>
</tr>
<tr>
<td>2009-10</td>
<td>6 508</td>
<td>1 601 745</td>
<td>4.0</td>
</tr>
</tbody>
</table>

4.2 Medication incident types

Medication omissions (n=2 493) and medication overdoses (n=1 254) were the most frequently observed types of medication errors in 2008-09. In 2009-10 medication omissions were also the most frequently reported medication error followed by medication errors involving other medications (n=1 197; see Figure 4).

² Implementation of AIMS commenced in October 2001, therefore data for 2001-02 is not for a full year.
Learning from clinical incidents: A snapshot of patient safety in WA 2008-09 & 2009-10

Figure 4 Medication incident types between 2008-2010

* Other incidents include: self inflicted overdose, therapeutic use problems, medical theft/loss, wrong frequency/rate/patient/medication/additive/fluid/time or route.
4.3 Most frequently involved medication

Medications involved in clinical incidents were ranked according to the frequency of reporting. Table 3 shows that in 2008-09 anticoagulants, opioids and analgesia were the most frequently ranked medications, with analgesia, opioids and insulin incidents ranked the most frequently in 2009-10 (see Table 3). This group of medications accounted for 32.0% (n=2 319) of all medication incidents in 2008-09 and 25.7% (n=1 674) in 2009-10.

Table 3 Top 10 medications involved in clinical incidents in WA 2008-09 and 2009-10

<table>
<thead>
<tr>
<th>Rank</th>
<th>Medication</th>
<th>No. of incidents</th>
<th>Medication class</th>
<th>Rank</th>
<th>Medication</th>
<th>No. of incidents</th>
<th>Medication class</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Enoxaparin sodium</td>
<td>494</td>
<td>Anticoagulant</td>
<td>1</td>
<td>Paracetamol</td>
<td>312</td>
<td>Analgesic</td>
</tr>
<tr>
<td>2</td>
<td>Oxycodone</td>
<td>355</td>
<td>Opioid Analgesic</td>
<td>2</td>
<td>Oxycodone</td>
<td>254</td>
<td>Opioid Analgesic</td>
</tr>
<tr>
<td>3</td>
<td>Paracetamol</td>
<td>311</td>
<td>Analgesic</td>
<td>3</td>
<td>Insulin</td>
<td>238</td>
<td>Insulin Preparation</td>
</tr>
<tr>
<td>4</td>
<td>Insulin</td>
<td>304</td>
<td>Insulin Preparation</td>
<td>4</td>
<td>Enoxaparin sodium</td>
<td>176</td>
<td>Anticoagulant</td>
</tr>
<tr>
<td>5</td>
<td>Heparin</td>
<td>227</td>
<td>Anticoagulant</td>
<td>5</td>
<td>Morphine</td>
<td>159</td>
<td>Opioid Analgesic</td>
</tr>
<tr>
<td>6</td>
<td>Morphine</td>
<td>166</td>
<td>Opioid Analgesic</td>
<td>6</td>
<td>Heparin</td>
<td>132</td>
<td>Anticoagulant</td>
</tr>
<tr>
<td>7</td>
<td>Warfarin Sodium</td>
<td>144</td>
<td>Anticoagulant</td>
<td>7</td>
<td>Warfarin Sodium</td>
<td>113</td>
<td>Anticoagulant</td>
</tr>
<tr>
<td>8</td>
<td>Fentanyl</td>
<td>114</td>
<td>Opioid Analgesic</td>
<td>8</td>
<td>Fentanyl</td>
<td>104</td>
<td>Opioid Analgesic</td>
</tr>
<tr>
<td>9</td>
<td>Gentamicin</td>
<td>105</td>
<td>Antibiotic</td>
<td>9</td>
<td>Diazepam</td>
<td>93</td>
<td>Benzodiazepine</td>
</tr>
<tr>
<td>10</td>
<td>Amoxycillin</td>
<td>99</td>
<td>Antibiotic</td>
<td>9</td>
<td>Gentamicin</td>
<td>93</td>
<td>Antibiotic</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>2 319</td>
<td></td>
<td>Total</td>
<td></td>
<td>1 674</td>
<td></td>
</tr>
</tbody>
</table>
4.4 Outcome of medication incidents

Over 52% of all reported medication incidents (52.5% 2008-09 and 55% 2009-10) were classified as Level 3 incidents which resulted in no harm to the patient (see Figure 5). Less than one percent of incidents in 2008-09 (0.85%, n=62) and 2009-10 (0.7%, n=46) were associated with significant or severe harm (Level 7 and 8 incidents). No deaths resulting from a medication incident were reported in 2008-09 but one death was reported in 2009-10.

Figure 5 Medication incidents by outcome level between 2008-2010*

*Missing data n=12
4.5 Medication incident causes

Figure 6 shows that in 2008-09, 28% (n=2 029) of medication incidents were caused by failing to follow policy/procedure with this increasing to 33.4% (n=2 173) in 2009-10. Failure to read or misreading caused 30.3% (n=2 200) incidents in 2008-09 and 25.7% (n=1 670) in 2009-10.

Figure 6 Medication incidents by cause of incident between 2008-2010*
4.6 Medication incident rates

The highest rate of medication incidents occurred in the 10-14 year age group with 8.3 incidents per 1,000 bed days observed in 2008-09 and 8.2 incidents per 1,000 bed days observed in 2009-10 (see Figure 7). The frequency of medication incidents was shown to increase in the older age groups. In 2008-09, the actual rate of medication incidents was also found to be high in those aged 50-54 years with a rate of 8.0 incidents per 1,000 bed days but this rate decreased considerably in 2009-10 (4.0 incidents per 1,000 bed days).

Figure 7 Number and rate of medication incidents by age group 2008-2010

4.7 Contributory factors

Using a multiple response format, factors that contributed to medication errors were collated. Of the 7,257 medication errors reported in 2008-09, 12,756 contributory factors were identified (see Table 4). In 2009-10 there were 6,508 medication errors with 12,081 contributory factors reported. The three most common contributory factors for both years were:

- failure to follow policy or procedure
- misread or didn’t read documentation
- inadequate knowledge/inexperience.
Learning from clinical incidents:  
A snapshot of patient safety in WA 2008-09 & 2009-10

<table>
<thead>
<tr>
<th>Contributory factor</th>
<th>2008-09 (n)</th>
<th>% Contributory factors for medication incidents</th>
<th>2009-10 (n)</th>
<th>% Contributory factors for medication incidents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Failure to follow policy or procedure</td>
<td>3 590</td>
<td>28.1%</td>
<td>3 749</td>
<td>31.0%</td>
</tr>
<tr>
<td>Misread or did not read documentation</td>
<td>3 354</td>
<td>26.3%</td>
<td>2 787</td>
<td>23.1%</td>
</tr>
<tr>
<td>Inadequate knowledge or inexperience</td>
<td>1 359</td>
<td>10.7%</td>
<td>1 201</td>
<td>9.9%</td>
</tr>
<tr>
<td>Communication problem</td>
<td>1 330</td>
<td>10.4%</td>
<td>1 005</td>
<td>8.3%</td>
</tr>
<tr>
<td>Poor teamwork or supervision</td>
<td>864</td>
<td>6.8%</td>
<td>925</td>
<td>7.6%</td>
</tr>
<tr>
<td>Distraction or inattention</td>
<td>558</td>
<td>4.4%</td>
<td>714</td>
<td>5.9%</td>
</tr>
<tr>
<td>Pathophysiological factors</td>
<td>379</td>
<td>3.0%</td>
<td>337</td>
<td>2.8%</td>
</tr>
<tr>
<td>Fatigue or stress or unwell</td>
<td>327</td>
<td>2.6%</td>
<td>42</td>
<td>0.4%</td>
</tr>
<tr>
<td>Multiple staff or poor continuity</td>
<td>319</td>
<td>2.5%</td>
<td>316</td>
<td>2.6%</td>
</tr>
<tr>
<td>Other</td>
<td>277</td>
<td>2.2%</td>
<td>370</td>
<td>3.0%</td>
</tr>
<tr>
<td>Failure to follow advice or instructions</td>
<td>166</td>
<td>1.3%</td>
<td>219</td>
<td>1.8%</td>
</tr>
<tr>
<td>Insufficient or inadequate staff</td>
<td>162</td>
<td>1.3%</td>
<td>343</td>
<td>2.8%</td>
</tr>
<tr>
<td>Pressure to proceed</td>
<td>31</td>
<td>0.2%</td>
<td>20</td>
<td>0.2%</td>
</tr>
<tr>
<td>Staff did not attend when required</td>
<td>21</td>
<td>0.7%</td>
<td>34</td>
<td>0.3%</td>
</tr>
<tr>
<td>Medication not reviewed</td>
<td>16</td>
<td>0.1%</td>
<td>17</td>
<td>0.1%</td>
</tr>
<tr>
<td>PRN medications not used</td>
<td>3</td>
<td>0.0%</td>
<td>2</td>
<td>0.0%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>12 756</strong></td>
<td><strong>100.0%</strong></td>
<td><strong>12 081</strong></td>
<td><strong>100.0%</strong></td>
</tr>
</tbody>
</table>

An incident can be associated with more than one contributory factor.
4.8 Discussion

During 2008-2010, 13,765 medication incidents were reported. In 2008-09 medication omissions (n=2,493) and medication overdoses (n=1,254) were the most frequently reported incidents while in 2009-10 medication omissions (n=1,785) and incidents involving other medications (n=1,197) were the most frequently reported events.

Improvements in medication safety which include the medication reconciliation program appears to be having a positive effect with a 10% (n=749) decrease in medication errors reported between 2008-09 and 2009-2010. However, more targeted strategies are needed to address medication incidents involving anticoagulants, opioids, analgesics, insulin, antibiotics and benzodiazepines, which accounted for 32% (n=2,319) and 25.7% (n=1,674) of all medication incidents in 2008-09 and 2009-10 respectively.

Medication incident rates have steadily increased since 2001, culminating in a rate of 4 incidents per 1,000 bed days observed in 2010. Further break down by age group revealed that the highest rate of medication incidents were reported in children aged 10-14 years (8.3 incidents per 1,000 bed days) for both 2008-09 and 2009-10 (8.0 incidents per 1,000 bed days). This finding is concerning given that children aged 0-14 years accounted for only 10% (n=44,645) of total hospital separations during 2008-2010. Further investigation at a local level of the issues contributing to this high rate of medication incidents is warranted.

The prescribing and administering of medications is often a complex process requiring considerable attentiveness and the ability to calculate concentrations and dilutions. The majority of medication incidents reported by staff include as their causes, a failure to properly read or the misreading of a prescription, the failure to follow medication related policies and procedures or inadequate knowledge and communication problems. Strategies addressing the barriers that prevent prescription/policies being read correctly need to be progressed.

---

\(^d\) Medication reconciliation is the formal process of obtaining and verifying a complete and accurate list of each patient's current medicines, matching the medicines the patient should be prescribed to those they are actually prescribed.
Strategies that have been implemented to decrease the number of medication incidents include:

- Medication reconciliation which is the formal process of obtaining and verifying a complete and accurate list of each patient's current medicines, matching the medicines the patient should be prescribed to those they are actually prescribed.
- Medication liaison which ensures frequent and accurate communication between all clinicians involved in the patient's care, including the patient/carer.
- Regular chart reviews.
- Staff education on the recognition of error-prone situations, potential complications, contraindications and drug interactions.
- Improved discharge processes such as communication with general practitioners and other health care specialists.
- Quality improvement initiatives promoting medication safety.
5. Falls incidents

From July 1 2008 to 30 June 2009 there were 6 884 falls notified to AIMS, representing one quarter (22.2%) of all incidents for the period. Compared to 2008-09, there were 9.8% (n=677) fewer falls incidents notified to AIMS in 2009-10.

5.1 Trends in falls incidents in 2001-10

Since the inception of the AIMS database in 2001, falls incidents have consistently been one of the most notified incidents reported per year. There has been a continuing downward trend in both the number and rate of falls reported to AIMS since 2005-06 (see Table 5) from 5.0 to 3.9 falls per 1 000 bed days in 2009-10.

Table 5 Number and rate of falls incidents notified per year 2001-10

<table>
<thead>
<tr>
<th>Year</th>
<th>Number of falls incidents</th>
<th>Number of bed days</th>
<th>Rate/1 000 bed days</th>
</tr>
</thead>
<tbody>
<tr>
<td>2001-02</td>
<td>4 419</td>
<td>1 393 388</td>
<td>3.2</td>
</tr>
<tr>
<td>2002-03</td>
<td>7 856</td>
<td>1 477 925</td>
<td>5.3</td>
</tr>
<tr>
<td>2003-04</td>
<td>7 685</td>
<td>1 446 603</td>
<td>5.3</td>
</tr>
<tr>
<td>2004-05</td>
<td>7 377</td>
<td>1 513 179</td>
<td>4.9</td>
</tr>
<tr>
<td>2005-06</td>
<td>7 428</td>
<td>1 491 433</td>
<td>5.0</td>
</tr>
<tr>
<td>2006-07</td>
<td>6 409</td>
<td>1 494 006</td>
<td>4.3</td>
</tr>
<tr>
<td>2007-08</td>
<td>6 823</td>
<td>1 548 462</td>
<td>4.4</td>
</tr>
<tr>
<td>2008-09</td>
<td>6 884</td>
<td>1 579 859</td>
<td>4.4</td>
</tr>
<tr>
<td>2009-10</td>
<td>6 207</td>
<td>1 601 745</td>
<td>3.9</td>
</tr>
</tbody>
</table>

5.2 Nature and location of falls incidents

Twenty six percent (n=1 803) of all falls reported in 2008-09 and just over one quarter of falls reported in 2009-10 (27.4%; n=1 702) were associated with a fall on the same level, for example while walking or standing (see Figure 8).

---

* Implementation of AIMS commenced in October 2001, therefore data for 2001-02 is not for a full year.
5.3 Outcome of falls incidents

The majority of falls (51%, n=3 514 in 2008-09 and 51%, n=3 138 in 2009-10) were associated with minor harm (Level 4, see Figure 9).

Two percent (n=148 and n=103 for respective years) of all falls incidents for both time periods were associated with significant (Level 7 outcome) to severe harm (Level 8 outcome). These types of incidents include for example, incidents resulting in a fractured or dislocated neck of femur, transfer to the intensive care unit, an increased length of stay in hospital, permanent disability or death.
Of the 6,884 fall incidents in 2008-09, 2.1% (n=144) resulted in a dislocation or fracture. A similar finding was also observed in 2009-10 with 1.6% (n=97) of falls resulting in a dislocation or fracture. Of the 10 incidents that were classified with an outcome Level of 8, two palliative patients who sustained a fractured neck of femur, subsequently passed away.
5.4 Falls incident rates

The majority of falls reported in both years were sustained by patients aged 65 years or more (2008-09 n=4,982; 72.4%; 2009-10 n=4,544; 73.2%). Figure 10 highlights the number and rate of incidents by age group. While falls incidents rates fluctuated for those in the younger age groups, a steady increasing trend was observed for those aged 35 years to 54 years, whilst a slight decrease in falls incident rates was observed for those patients aged 55 to 59 years in 2008-09. However, for patients aged 65 years and over the falls rate increased dramatically with a range of 4.7 to 8.0 per 1,000 bed days calculated for 2008-09 and a similar rate of between 4.3 and 7.9 per 1,000 bed days for 2009-10.

**Figure 10 Number and rate of falls incidents by age group 2008-2010**
5.5 Contributory factors

Using a multiple response format, the two most frequently reported contributory factors associated with falls were attributed to patient co-morbidity and physical impairment factors in both years. Table 6 indicates the contributory factors and their proportions for falls.

Table 6 Number and percent of falls incidents by type of contributory factor 2008-09 and 2009-10

<table>
<thead>
<tr>
<th>Contributory factor</th>
<th>2008-09</th>
<th></th>
<th>2009-10</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(n)</td>
<td>% Contributory factors for falls incidents</td>
<td>(n)</td>
<td>% Contributory factors for falls incidents</td>
</tr>
<tr>
<td>Patient co-Morbidities</td>
<td>3 991</td>
<td>26.9</td>
<td>3 222</td>
<td>24.8</td>
</tr>
<tr>
<td>Physical impairments</td>
<td>2 771</td>
<td>18.7</td>
<td>2 526</td>
<td>19.5</td>
</tr>
<tr>
<td>Failure to follow advice or instructions</td>
<td>2 129</td>
<td>14.4</td>
<td>1 958</td>
<td>15.1</td>
</tr>
<tr>
<td>Confusion or disorientation</td>
<td>1 589</td>
<td>10.7</td>
<td>1 535</td>
<td>11.8</td>
</tr>
<tr>
<td>Dementia</td>
<td>1 074</td>
<td>7.2</td>
<td>973</td>
<td>7.5</td>
</tr>
<tr>
<td>Unsteady</td>
<td>626</td>
<td>4.2</td>
<td>533</td>
<td>4.1</td>
</tr>
<tr>
<td>Wrong or no footwear</td>
<td>536</td>
<td>3.6</td>
<td>370</td>
<td>2.9</td>
</tr>
<tr>
<td>CVA or Transient Ischaemic Accident</td>
<td>455</td>
<td>3.1</td>
<td>324</td>
<td>2.5</td>
</tr>
<tr>
<td>Very ill, frail, debilitated or general deterioration</td>
<td>437</td>
<td>2.9</td>
<td>328</td>
<td>2.5</td>
</tr>
<tr>
<td>Affected by medication</td>
<td>364</td>
<td>2.5</td>
<td>437</td>
<td>3.4</td>
</tr>
<tr>
<td>Environmental hazards</td>
<td>340</td>
<td>2.3</td>
<td>220</td>
<td>1.7</td>
</tr>
<tr>
<td>Language or speech barriers</td>
<td>198</td>
<td>1.4</td>
<td>196</td>
<td>1.5</td>
</tr>
<tr>
<td>Mental health related</td>
<td>175</td>
<td>1.2</td>
<td>198</td>
<td>1.5</td>
</tr>
<tr>
<td>Inadequate staffing</td>
<td>144</td>
<td>1.0</td>
<td>155</td>
<td>1.2</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>14 829</strong></td>
<td><strong>100.0%</strong></td>
<td><strong>12 975</strong></td>
<td><strong>100.0%</strong></td>
</tr>
</tbody>
</table>

An incident can be associated with more than one contributory factor.
5.6 Discussion

Nationally, falls incidents continue to be a significant issue facing hospitals/health services with reports of falls incidents as high as 38% of all incidents reported in acute care settings.¹ Falls incidents have consistently been one of the most notified incidents reported per year with 13 091 incidents reported for the 2008-2010 period. Since 2005-06 falls incidents have decreased from 5.0 to 3.9 falls per 1 000 bed days in 2009-10. This downward trajectory is encouraging and is supported by the Falls Prevention program which has been implemented throughout WA Health.

While the majority (59%, n=7 770) of falls for both 2008-09 and 2009-10 resulted in no or minor harm to the patient, this outcome is more due to providence than best practice. Forty one percent (n= 5 321) of falls during this two year time period did however result in moderate to significant harm to the patient. This finding differs greatly from a 2010 national UK report which found that 96.4% (n=200 897) of falls in acute care hospitals were associated with no or minor harm.²

Findings revealed that in 2008-10, 251 falls resulted in the patient sustaining a dislocated hip or fractured neck of femur; the ramifications of which resulted in patients requiring extra procedures and/or surgical treatment. Thus compounding their primary diagnostic treatment, increasing their length of stay in hospital and potentially causing permanent disability or even death.

Intrinsic factors associated with falls incidents are numerous and examples include age, gender, co-morbidities, impaired mobility/balance/gait, medications and disease processes.¹³ Between 2008-10, the majority of falls were experienced by elderly patients, with co-morbidities and physical impairments identified as the two most frequently reported contributory factors associated with falls incidents. Environmental extrinsic factors also contributed to falls incidents with hazards such as high beds, cluttered rooms, beds and equipment on wheels, call bell not placed nearby or slippery/wet floors all impacting on patient’s movements.⁴⁵ 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.
Given that the term ‘elderly’ encompasses a range of 40 years, the disparity between the general health status of a 65 year old compared to that of an 85 year old could be immense, therefore greater distinction needs to be given to the sub groups within the broader term of elderly. More detailed and meaningful data is obtainable when the elderly population is divided into three distinct categories: 65-74 years, 75-84 years or 85 years plus. This distinction is important as increasing numbers of elderly people, accompanied by increases in life expectancy, have important implications for health care delivery, particularly when considering that the oldest age group (85 yrs +) continues to grow at a rapid rate.

This age categorisation of elderly people is useful when reviewing falls rates, which are shown to increase dramatically for patients aged 65 years and over. A range of 4.7 to 8.0 per 1 000 bed days were calculated for 2008-09 and a similar rate of between 4.3 and 7.9 per 1 000 bed days for 2009-10 for this age group. On closer inspection for those patients aged 85 years or more, the rate of falls was the highest with 8.0 per 1 000 bed days calculated for 2008-09 and 7.9 per 1 000 bed days for 2009-10. Future falls prevention strategies targeting this subgroup of patients aged 85 years or more are warranted.

Strategies to decrease the number of patients falling include:
- Active participation of health services in the SQuIRe Falls Clinical Practice Improvement (CPI) initiative and the Falls Prevention Network.
- Continued implementation of state wide falls risk management tools and individual care plans.
6. Behaviour incidents

Behaviour incidents refer to any event involving behavioural issues such as verbal and or physical abuse or aggression, non-compliance, absconding, self harm and suicide.

Between 1 July 2008 and 30 June 2009 there were 4,933 behaviour incidents notified into AIMS, representing approximately one seventh (15.9%) of all notifications. There were slightly less behaviour incidents notified in 2009-10 (n=4,880).

6.1 Trends in behaviour incidents 2001-10

Between 2001-02 and 2009-10, behaviour incidents have consistently ranked as the third or fourth most notified incident type. There has been a slight upward trend in the number of behaviour incidents since 2001-02 (see Table 7). The rate of behaviour incidents from 2001-02 to 2009-10 ranged from 0.8 to 3.0 incidents per 1,000 bed days.

Table 7 Number and rate of behaviour incidents notified per year 2001-10

<table>
<thead>
<tr>
<th></th>
<th>Number of behaviour incidents</th>
<th>Number of bed days</th>
<th>Rate/1 000 bed days</th>
</tr>
</thead>
<tbody>
<tr>
<td>2001-02</td>
<td>1,173</td>
<td>1,393,388</td>
<td>0.8</td>
</tr>
<tr>
<td>2002-03</td>
<td>2,438</td>
<td>1,477,925</td>
<td>1.6</td>
</tr>
<tr>
<td>2003-04</td>
<td>2,591</td>
<td>1,446,603</td>
<td>1.8</td>
</tr>
<tr>
<td>2004-05</td>
<td>2,638</td>
<td>1,513,179</td>
<td>1.7</td>
</tr>
<tr>
<td>2005-06</td>
<td>2,834</td>
<td>1,491,433</td>
<td>1.9</td>
</tr>
<tr>
<td>2006-07</td>
<td>2,884</td>
<td>1,494,006</td>
<td>1.9</td>
</tr>
<tr>
<td>2007-08</td>
<td>3,844</td>
<td>1,548,462</td>
<td>2.5</td>
</tr>
<tr>
<td>2008-09</td>
<td>4,933</td>
<td>1,579,859</td>
<td>3.1</td>
</tr>
<tr>
<td>2009-10</td>
<td>4,880</td>
<td>1,601,745</td>
<td>3.0</td>
</tr>
</tbody>
</table>

Implementation of AIMS was commenced in October 2001, therefore data for 2001-02 is not for a full year.
6.2 Behaviour incident types

Behaviour incidents can be classified into ten subcategories. The number of incidents notified during 2008-09 and 2009-10 for each subcategory is displayed in Figure 11.

The following three categories represented over 72% of all behaviour incidents reported for both years:

- Physical abuse, aggression or assault (44.8%, n=2210 in 2008-09 and 45.5%, n=2222 in 2009-10)
- Absconding (16.6%, n=820 in 2008-09 and 15.8%, n=773 in 2009-10).
- Verbal abuse or aggression (12.4%, n=613 in 2008-09 and 10.9%, n=534 in 2009-10).

**Figure 11 Type of behaviour incidents between 2008-2010**

<table>
<thead>
<tr>
<th>Behaviour Incident Type</th>
<th>2008-09</th>
<th>2009-10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Absconding</td>
<td>820</td>
<td>773</td>
</tr>
<tr>
<td>Inappropriate behaviour</td>
<td>328</td>
<td>347</td>
</tr>
<tr>
<td>Inappropriate sexual behaviour</td>
<td>53</td>
<td>60</td>
</tr>
<tr>
<td>Intended self harm</td>
<td>336</td>
<td>278</td>
</tr>
<tr>
<td>Non-compliance</td>
<td>379</td>
<td>492</td>
</tr>
<tr>
<td>Other Behaviour</td>
<td>22</td>
<td>22</td>
</tr>
<tr>
<td>Physical abuse, aggression</td>
<td>2210</td>
<td>2222</td>
</tr>
<tr>
<td>Self discharge</td>
<td>49</td>
<td>46</td>
</tr>
<tr>
<td>Suicidal behaviour or attempted</td>
<td>123</td>
<td>106</td>
</tr>
<tr>
<td>Verbal abuse or aggression</td>
<td>613</td>
<td>534</td>
</tr>
</tbody>
</table>
6.3 Outcome of behaviour incidents

The majority of behaviour incidents for both years were associated with no harm (Level 3) to moderate harm (Level 6; see Figure 12). In addition, 15.3% (n=754) in 2008-09 and 19% (n=924) in 2009-10 of behaviour incidents were associated with significant harm (Level 7 e.g. Transfer/admission to another hospital, closed ward management, seclusion). In 2008-09, 19 behaviour incidents were associated death, with the majority of these due to self inflicted harm with a further 11 incidents reported in 2009-10.

Figure 12 Behaviour incidents by outcome level between 2008-2010*

*Missing data 2008-09 n=4; missing data 2009-10 n=8

6.4 Behaviour incidents in WA mental health facilities

In 2008-09 there were 4 933 behaviour incidents of which 39% (n=1 915) occurred in a mental health facility. By 2009-10 this occurrence had risen to 42.5% (n=2 073) of all behaviour incidents reported.
6.5 Behaviour incidents in WA Emergency Departments

Emergency Departments (EDs) also notified a significant proportion of behaviour incidents to AIMS in 2008-09 and 2009-10. Overall, EDs notified 927 (18.8%) behaviour incidents in 2008-09 and 871 behaviour incidents (17.8%) in 2009-10.

6.6 Behaviour incident rates

In 2008-09 the number and rate of behaviour incidents peaked in the 15-19 year age group with a rate of 8.0 behaviour incidents per 1 000 bed days observed (see Figure 13). Following closely behind were those aged 20-24 years with a rate of 6.5 behaviour incidents per 1 000 bed days reported for this age group.

Similar results were also observed in 2009-10 with rate of behaviour incidents peaking in the 15-19 year age group (8.0 behaviour incidents per 1 000 bed days) followed closely by those aged 20-24 year (6.9 behaviour incidents per 1 000 bed days; see Figure 13).

Figure 13 Number and rate of behaviour incidents by age group between 2008-2010
Using a multiple response format, analysis revealed that in both 2008-09 and 2009-10 60.2% (n=251) and 67.1% (n=273) respectively of behaviour incidents for those in the 15-24 year age group reported mental health as the main contributory factor. Similar results was also observed in the 20-24 year age group for both time periods (2008-09 59.1%; n=338; 2009-10 66.7%; n=408).

### 6.7 Contributory factors

In both 2008-09 and 2009-10 the same top eight factors were identified as contributory to behaviour incidents with mental health factors, pathophysiological factors, dementia and confusion/disorientation continuing to dominate (see Table 8).

#### Table 8 Number and percent of behaviour incidents by type of contributory factor 2008-09 and 2009-10

<table>
<thead>
<tr>
<th>Contributory factor</th>
<th>2008-09</th>
<th>2009-10</th>
</tr>
</thead>
<tbody>
<tr>
<td>(n)</td>
<td>% Contributory factors for behaviour incidents</td>
<td>(n)</td>
</tr>
<tr>
<td>Mental health related</td>
<td>2 614</td>
<td>37.4</td>
</tr>
<tr>
<td>Pathophysiological factors</td>
<td>996</td>
<td>14.2</td>
</tr>
<tr>
<td>Dementia</td>
<td>733</td>
<td>10.5</td>
</tr>
<tr>
<td>Confusion or disorientation</td>
<td>680</td>
<td>9.7</td>
</tr>
<tr>
<td>Failure to follow advice or instructions</td>
<td>568</td>
<td>8.1</td>
</tr>
<tr>
<td>Alcohol or drug intoxication</td>
<td>501</td>
<td>7.2</td>
</tr>
<tr>
<td>Communication Problem</td>
<td>186</td>
<td>2.7</td>
</tr>
<tr>
<td>Inadequate staffing</td>
<td>107</td>
<td>1.5</td>
</tr>
<tr>
<td>Language or speech barriers</td>
<td>91</td>
<td>1.3</td>
</tr>
<tr>
<td>Physical impairments</td>
<td>75</td>
<td>1.1</td>
</tr>
<tr>
<td>Other issues*</td>
<td>447</td>
<td>6.3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>6 998</strong></td>
<td><strong>100.0%</strong></td>
</tr>
</tbody>
</table>

* An incident can be associated with more than one contributory factor.
* Other issues comprise of all other contributory factors grouped together.
6.8 Behaviour incidents associated with alcohol or drug intoxication

Alcohol or drug intoxication accounted for 10.2% (n=501) of behaviour incidents in 2008-09 and 11.6% (n= 565) of behaviour incidents in 2009-10.

Figure 14 shows an increasing trend in the number of reported behaviour incidents associated with alcohol or drug intoxication each year since AIMS notification commenced. In 2001-02, alcohol or drug intoxication was identified as a contributory factor in 90 cases of reported behaviour incidents with this number increasing exponentially to 565 cases in 2009-10.

Figure 14 Number of behaviour incidents with alcohol or drug intoxication as a contributory factor 2001-10
### Discussion

Since 2001 the rate of behaviour incidents within WA Health has been shown to consistently increase from 0.8 incidents per 1 000 bed days in 2001 to 3.0 incidents per 1 000 bed days in 2010. Physical/verbal abuse, aggression, assault or absconding accounted for over 72% of behaviour incidents reported between 2008-2010, with these findings also reflected in the literature.\(^6,7\)

Youth and younger adults were the cohort of patients with the highest rate of behaviour incidents reported in both 2008-09 and 2009-10. Specifically, 8.0 behaviour incidents per 1 000 bed days were observed in both years amongst those aged between 15-19 years. While younger adults aged 20-24 years reported 6.5 behaviour incidents per 1 000 bed days in 2008-09, with this rate increasing slightly in 2009-10 (6.9 incidents per 1 000 bed days reported). Further analysis revealed that the main contributory factor to behaviour incidents in the 15-24 year age group was attributed to mental health issues.

Overall, mental health factors, pathophysiological factors, dementia and confusion/disorientation were identified in both 2008-09 and 2009-10 as the most frequently mentioned contributory factors, with these findings concurring with the literature. Alcohol and drug intoxication was also identified as further compounding the frequency of behaviour incidents across all age groups, accounting for between 10.2% (n=501) and 11.6% (n=565) of all behaviour incidents in 2008-10.

Strategies that have been implemented to decrease the number of behaviour incidents include:

- Comprehensive education courses to assist staff in the management of behavioural issues such as alcohol and drug issues in hospitalised patients, dementia and managing mental heath in the acute care setting.
- Establishment of zero tolerance programs and enhanced communication programs such as verbal judo.
- Provision of emergency response teams to assist in managing armed or unarmed incidents.
- Implementation of seclusion and restraint strategies such as seclusion/restraint incident reporting systems, regular data reports, introduction of patient safety plans and post seclusion interviews. Establishment of sensory modulation.
Learning from clinical incidents:
A snapshot of patient safety in WA 2008-09 & 2009-10

("quiet/chill out") rooms and the introduction of executive review of seclusion incidents.

- Introduction of a "nurse observations policy" which requires daily medical and nurse director review of patients requiring extensive supervision (i.e. one-to-one observation). This policy assists in identifying, monitoring and responding to patients with extensive behaviour issues including absconding.
- Introduction of “token economy” behavioural strategies for patients with challenging behaviour requiring constant seclusion.
- Introduction of Clinical Risk Assessment Management (CRAM) and safety plans to effectively manage patient risks.
- Modifying the physical environment to increase staff safety.
- Integrated medical records with the electronic patient care plans (on PSOLIS) to facilitate ease of access to critical information in all parts of the Service, e.g. ED, wards, and Early Discharge.
- Utilisation of Journey Boards in ward offices, used at handover and review, to identify patient’s clinical risk level which is identified from their CRAM assessment.
- Introduction of programs to provide support for staff and patients to quit smoking.
7. “Other” incidents

A significant number of clinical incidents do not fit within the defined nine Principal Incident Types (PITs) and are therefore categorised as “other” incidents in the AIMS database. This “other” category contains the following subcategories:

- no, wrong or delayed procedure, treatment or assessment
- no or delayed admission, inappropriate bed or ward
- medical emergency
- poor discharge planning
- hospital acquired infection
- wrong patient or body part/side
- other (contains incidents such as specimens lost, or incorrectly transported or stored, communication issues between departments or handover between staff, complications arising from surgery).

Between 1 July 2008 and 30 June 2009 there were 4 089 “other” incidents notified to AIMS and 3 898 “other” incidents reported in 2009-10.

7.1 Trends in “other” incidents 2001-10

Between 2001-02 and 2006/07, “other” incidents have slowly increased in frequency and rating but since 2006/07 ratings have fluctuated slightly (see Table 9).

Table 9 Number and rate of “other” incidents notified per year 2001-10

<table>
<thead>
<tr>
<th></th>
<th>Number of “other” incidents</th>
<th>Number of bed days</th>
<th>Rate/1 000 bed days</th>
</tr>
</thead>
<tbody>
<tr>
<td>2001-02</td>
<td>809</td>
<td>1 393 388</td>
<td>0.58</td>
</tr>
<tr>
<td>2002-03</td>
<td>2 072</td>
<td>1 477 925</td>
<td>1.40</td>
</tr>
<tr>
<td>2003-04</td>
<td>2 368</td>
<td>1 446 603</td>
<td>1.64</td>
</tr>
<tr>
<td>2004-05</td>
<td>2 641</td>
<td>1 513 179</td>
<td>1.75</td>
</tr>
<tr>
<td>2005-06</td>
<td>3 244</td>
<td>1 491 433</td>
<td>2.18</td>
</tr>
<tr>
<td>2006-07</td>
<td>3 761</td>
<td>1 494 006</td>
<td>2.52</td>
</tr>
<tr>
<td>2007-08</td>
<td>3 499</td>
<td>1 548 462</td>
<td>2.26</td>
</tr>
<tr>
<td>2008-09</td>
<td>4 089</td>
<td>1 579 859</td>
<td>2.59</td>
</tr>
<tr>
<td>2009-10</td>
<td>3 898</td>
<td>1 601 745</td>
<td>2.43</td>
</tr>
</tbody>
</table>

Implementation of AIMS was commenced in October 2001, therefore data for 2001-02 is not for a full year.
7.2 “Other” incident types

Figure 15 shows the frequency of “other” incidents which occurred between 2008-2010. The category no, wrong or delayed procedure, treatment or assessment contained the majority of incidents accounting for 61.3% (n=2 508) in 2008-09 and 62.9% (n=2 453) in 2009-10. A decline in the number of incidents that involved a wrong patient or body part/side was observed over this two year period.

Figure 15 Type of “other” incidents between 2008-2010

<table>
<thead>
<tr>
<th>Type of Incident</th>
<th>2008/09</th>
<th>2009/10</th>
</tr>
</thead>
<tbody>
<tr>
<td>No, wrong or delayed procedure*</td>
<td>2508</td>
<td>2453</td>
</tr>
<tr>
<td>Other</td>
<td>428</td>
<td>483</td>
</tr>
<tr>
<td>No or delayed admission*</td>
<td>460</td>
<td>412</td>
</tr>
<tr>
<td>Medical emergency</td>
<td>180</td>
<td>125</td>
</tr>
<tr>
<td>Poor discharge planning</td>
<td>151</td>
<td>134</td>
</tr>
<tr>
<td>Hospital Acquired Infection</td>
<td>126</td>
<td>124</td>
</tr>
<tr>
<td>No wrong or delayed diagnosis</td>
<td>110</td>
<td>82</td>
</tr>
<tr>
<td>Wrong patient or body*</td>
<td>97</td>
<td>71</td>
</tr>
</tbody>
</table>

* Refers to no, wrong or delayed procedure, treatment or assessment
* Refers to no or delayed admission, inappropriate bed or ward
* Refers to wrong patient or body part/side.

7.3 Outcome of “other” incidents

The outcome level was assessed for “other” incidents, with the majority (53.6%, n=2 192 in 2008-09 and 56%, n=2 182 in 2009-10) of incidents causing no or minimal harm (Level 3 and 4; see Figure 16). Level 7 incidents remained stable for both years, accounting for 7% of incidents while a decrease in Level 8 incidents was observed between 2008-09 (1.4%; n=57) and 2009-10 (0.5%; n=20). Forty eight incidents had an outcome of death in 2008-09 with a further 20 incidents were reported in 2009-10.
Learning from clinical incidents:
A snapshot of patient safety in WA 2008-09 & 2009-10

Figure 16 “Other” incidents by outcome level between 2008-2010*

*Missing data 2008-09 n=30; missing data 2009-10 n=20

7.4 “Other” incidents rates

The rate of “other” incidents over the two year period was observed to decline with age (see figure 17).

In 2008-09 the number and rate of “other” incidents was shown to peak in the 25-29 year age group with a rate of 3.6 incidents per 1 000 bed days observed (see figure 17).

While in 2009-10 the rate of “other” incidents peaked in the 15-19 year age group with a rate of 3.4 incidents per 1 000 bed days observed.
Figure 17 Number and rate of “other” incidents by age group between 2008-2010

7.5 Contributory factors

The three most common contributory factors for incidents classified as “other” were:

- Communication problems (25.8%, n=1 684 in 2008-09 and 25.3%, n=1 533 in 2009-10)
- Failure to follow policy or procedure (16.7%, n=1 088 in 2008-09 and 19.0%, n=1 148 in 2009-10)
- Pathophysiological factors (13.9%, n=906 in 2008-09 and 12.5%, n=759 in 2009-10).
Learning from clinical incidents:
A snapshot of patient safety in WA 2008-09 & 2009-10

Table 10 details all contributory factors for “other” incidents in 2008-09 and 2009-10 respectively.

### Table 10 Number and percent of “other” incidents by type of contributory factor 2008-09 and 2009-10

<table>
<thead>
<tr>
<th>Contributory factors</th>
<th>2008-09</th>
<th>2009-10</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number of “other” incidents</td>
<td>Proportion of all “other” incidents</td>
</tr>
<tr>
<td>Communication problem</td>
<td>1 684</td>
<td>25.8</td>
</tr>
<tr>
<td>Failure to follow policy or procedure</td>
<td>1 088</td>
<td>16.7</td>
</tr>
<tr>
<td>Pathophysiology factors</td>
<td>906</td>
<td>13.9</td>
</tr>
<tr>
<td>Inadequate knowledge or inexpenience</td>
<td>892</td>
<td>13.7</td>
</tr>
<tr>
<td>Insufficient or inadequate staff</td>
<td>310</td>
<td>4.8</td>
</tr>
<tr>
<td>Poor teamwork or supervision</td>
<td>262</td>
<td>4.0</td>
</tr>
<tr>
<td>Failure to follow advice or instructions</td>
<td>244</td>
<td>3.7</td>
</tr>
<tr>
<td>Staff did not attend when required</td>
<td>183</td>
<td>2.8</td>
</tr>
<tr>
<td>Multiple staff or poor continuity</td>
<td>167</td>
<td>2.6</td>
</tr>
<tr>
<td>Mental Health related</td>
<td>95</td>
<td>1.5</td>
</tr>
<tr>
<td>Other issues</td>
<td>691</td>
<td>10.5</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>6 522</strong></td>
<td><strong>100.0%</strong></td>
</tr>
</tbody>
</table>

---

An incident can be associated with more than one contributory factor.


7.6 Discussion

The “other” incident category was shown to be the fourth most frequently reported PIT category in 2008-10, with no, wrong or delayed procedure, treatment or assessment accounting for 61.3% (n=2 508) in 2008-09 and 62.9% (n=2 453) in 2009-10 of all incidents reported in this category. The frequency of incidents involving wrong patient or body part/side was observed to decrease over this two year period. This result is promising and further improvements are envisaged with the introduction of the WA Health Surgical Safety Checklist following endorsement by the Australian Health Ministers in 2009.  

Over 50% (n= 2 643) of incidents in both years resulted in no or minimal harm to the patient, with 7% (n=582) of incidents in both years resulting in significant harm (Level 7). A further 1.4% (n=57) of incidents in 2008-09 and 0.5% (n=20) in 2009-10 resulted in severe harm to patients. While it is encouraging to see a reduction in the number of Level 8 incidents occurring during this two year period, greater focus is still needed to prevent/reduce incidents that result in significant harm to patients.

Unlike medication and falls incidents where higher rates of incidents were shown to increase with age, the incidence rate for “other” incidents was actually observed to decrease with age. Specifically, in 2008-09 the rate of incidents in this category was highest in the 25-29 year age group (3.6 incidents per 1 000 bed days) which decreased to 1.5 incidents per 1 000 bed days for those aged 85 years or more. A similar trend was also observed in 2009-10.

Communication problems continue to feature strongly as a major contributory factor for incidents in this category. As mentioned previously, the introduction of surgical safety checklists and the implementation of communication tools such as SBAR, ISOBAR, SHARED etc to assist in clinical handover will further enhance communication.

Strategies that have been implemented to decrease the number of “other” incidents include:

- Upgrading of the clinical information system to allow electronic information to be available. Specifically, the dissemination and access of electronic clinical information
enables clinicians to make more informed decisions by being able to access discharge summaries, procedural and consult reports in a more expedient manner.

- Benefits from the introduction of the Four Hour Rule Program which aims to improve the patient experience and quality of care provided to the patient by reducing delays in the emergency department (ED), improving coordination and streamlining processes for admission and discharge across the hospital. The goal is not just to reduce waiting times in the ED, but to improve the way our hospitals function and the quality of care our patients can expect.
8. Injury incidents

The term ‘injury’ in the AIMS process includes any form of clinical incident that physically harms a patient. Injuries associated with healthcare may include for example wounds, burns and pressure ulcers.

Between 1 July 2008 and 30 June 2009 there were 2,823 injury incidents notified to AIMS and a further 2,503 incidents reported in 2009-10. There were 320 fewer injury incidents notified in 2009-10 (a decrease of 11.3%). Overall injury incidents represented 9% of all notifications to the system for the two year time period.

8.1 Trends in injury incidents in 2001-10

The rate of injury incidents has fluctuated slightly between 1.5 and 1.8 incidents per 1,000 bed days since 2002-10 (see Table 11).

Table 11 Number and rate of injury incidents per year (2001-10) \(^k\)

<table>
<thead>
<tr>
<th>Year</th>
<th>Number of injury Incidents</th>
<th>Number of bed days</th>
<th>Rate/1,000 bed days</th>
</tr>
</thead>
<tbody>
<tr>
<td>2001-02</td>
<td>936</td>
<td>1,393,388</td>
<td>0.7</td>
</tr>
<tr>
<td>2002-03</td>
<td>2,194</td>
<td>1,477,925</td>
<td>1.5</td>
</tr>
<tr>
<td>2003-04</td>
<td>2,405</td>
<td>1,446,603</td>
<td>1.7</td>
</tr>
<tr>
<td>2004-05</td>
<td>2,514</td>
<td>1,513,179</td>
<td>1.7</td>
</tr>
<tr>
<td>2005-06</td>
<td>2,336</td>
<td>1,491,433</td>
<td>1.6</td>
</tr>
<tr>
<td>2006-07</td>
<td>2,295</td>
<td>1,494,006</td>
<td>1.5</td>
</tr>
<tr>
<td>2007-08</td>
<td>2,492</td>
<td>1,548,462</td>
<td>1.6</td>
</tr>
<tr>
<td>2008-09</td>
<td>2,823</td>
<td>1,579,859</td>
<td>1.8</td>
</tr>
<tr>
<td>2009-10</td>
<td>2,503</td>
<td>1,601,745</td>
<td>1.6</td>
</tr>
</tbody>
</table>

\(^k\) Implementation of AIMS was commenced in October 2001, therefore data from 2001-02 is not for a full year.
8.2 Injury incident types

Injury incidents can be classified into seven subcategories and include:

- pressure ulcers
- other injuries which refers to skin tears, abrasions, bruising, swelling from knocks, or assaults from other patients
- unintended injury which refers to haematoma formation following IV cannulation, abrasions, tears, bruising from medical equipment such as towel clips, blood pressure cuffs, and unintended trauma/perforations during surgical procedures
- result of impact or collision refers to bruises, lacerations from knocking or colliding with wheelchairs, beds or bedrails
- needle stick or medical sharps injury
- burns
- injuries of unknown origin.

Of these subcategories, pressure ulcers have been the most frequently notified type of injury incident for both time periods (see Figure 18).

**Figure 18 Type of injury incidents between 2008-2010**
Pressure ulcers are injuries which result from prolonged pressure resulting in tissue damage of underlying tissue. Pressure ulcers in adults occur most commonly on the lower leg or pelvic girdle but can develop anywhere on the body.\textsuperscript{9}

There are four stages of pressure ulcer development ranging from persistent redness - stage 1 to full thickness skin loss with extensive involvement of tissue damage to muscle, bone or supporting structures stage 4.\textsuperscript{10}

In 2008-09, 29.1\% (n=799) of injury incidents were pressure ulcers with 2.1\% (n=17) of these classed as stage 4 pressure ulcers. While in 2009-10, 30.4\% (n=736) were pressure ulcers with 3.4\% (n=25) of these classed as stage 4 pressure ulcers.

Following pressure ulcers, the next most commonly notified subcategories of injury incidents were:

- Other injury (21\%, n=578 in 2008/09 and 20.2\%, n=489 in 2009-10).
- Unintended injury during procedure or treatment (20.3\%; n=558 in 2008/09 and 18.3\%, n=443 in 2009-10).
- Impact or collision injuries (17.5\%, n=481 in 2008/09 and 19.6\%, n=474 in 2009-10).

These top four injury subcategories have not changed since 2001-02.

8.3 Outcome of injury incidents

The majority of injury incidents for both years (65\%, n=1 832 and 66.5\%, n=1 644 respectively) were associated with a moderate level of harm (Level 5) to the patient (see Figure 19). Less than 2\% of injury incidents for both years (n=52 and n=42 respectively) resulted in an outcome Level of 7, while 4 incidents in this same time period were given an outcome Level of 8 which resulted in permanent disability or death. Two patients died as a result of their injury in 2008-09 and one patient in 2009-10.
Learning from clinical incidents:  
A snapshot of patient safety in WA 2008-09 & 2009-10

**Figure 19 Injury incidents by outcome level between 2008-2010**

![Bar chart showing injury incidents by outcome level between 2008-2010.](chart)

<table>
<thead>
<tr>
<th>Level</th>
<th>2008-09</th>
<th>2009-10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level 1</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Level 2</td>
<td>5</td>
<td>3</td>
</tr>
<tr>
<td>Level 3</td>
<td>76</td>
<td>57</td>
</tr>
<tr>
<td>Level 4</td>
<td>674</td>
<td>600</td>
</tr>
<tr>
<td>Level 5</td>
<td>1832</td>
<td>1644</td>
</tr>
<tr>
<td>Level 6</td>
<td>181</td>
<td>155</td>
</tr>
<tr>
<td>Level 7</td>
<td>52</td>
<td>42</td>
</tr>
<tr>
<td>Level 8</td>
<td>2</td>
<td>2</td>
</tr>
</tbody>
</table>

**8.4 Injury incident rates**

The number and rate of Injury incidents increased with age over both time periods, with the highest injury rates observed for those aged 85 years or older (3.7 injuries per 1,000 bed days in 2008-09 and 3.1 injury incidents per 1,000 bed days 2009-10).
8.5 Contributory factors

Using a multiple response format, the three most frequently reported contributory factors associated with injury incidents were attributed to pathophysiological factors, patient co-morbidities and physical impairment factors in both 2008-09 and 2009-10. Table 12 indicates the contributory factors for injury incidents and the proportion of injury incidents with that contributory factor.
Learning from clinical incidents:  
A snapshot of patient safety in WA 2008-09 & 2009-10

Table 12 Number and percent of injury incidents by type of contributory factor 2008-09 and 2009-10

<table>
<thead>
<tr>
<th>Contributory factor</th>
<th>2008-09</th>
<th></th>
<th>2009-10</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(n)</td>
<td>% Contributory factors for injury incidents</td>
<td>(n)</td>
<td>% Contributory factors for injury incidents</td>
</tr>
<tr>
<td>Pathophysiological factors</td>
<td>1 387</td>
<td>38.5</td>
<td>Patient co-morbidities</td>
<td>1 248</td>
</tr>
<tr>
<td>Physical impairments</td>
<td>656</td>
<td>18.2</td>
<td>Physical impairments</td>
<td>639</td>
</tr>
<tr>
<td>Dementia</td>
<td>231</td>
<td>6.4</td>
<td>Dementia</td>
<td>182</td>
</tr>
<tr>
<td>Very ill, frail, debilitated or general deterioration</td>
<td>213</td>
<td>5.9</td>
<td>Very ill, frail, debilitated or general deterioration</td>
<td>115</td>
</tr>
<tr>
<td>Confusion or disorientation</td>
<td>162</td>
<td>4.5</td>
<td>Confusion or disorientation</td>
<td>183</td>
</tr>
<tr>
<td>Failure to follow advice or instructions</td>
<td>146</td>
<td>4.1</td>
<td>Failure to follow advice or instructions</td>
<td>132</td>
</tr>
<tr>
<td>Mental health related</td>
<td>141</td>
<td>3.9</td>
<td>Mental health related</td>
<td>87</td>
</tr>
<tr>
<td>Inadequate knowledge or inexperience</td>
<td>94</td>
<td>2.6</td>
<td>Inadequate knowledge or inexperience</td>
<td>68</td>
</tr>
<tr>
<td>Failure to follow policy or procedure</td>
<td>85</td>
<td>2.4</td>
<td>Failure to follow policy or procedure</td>
<td>89</td>
</tr>
<tr>
<td>Communication problem</td>
<td>79</td>
<td>2.2</td>
<td>Communication problem</td>
<td>68</td>
</tr>
<tr>
<td>Affected by medication</td>
<td>75</td>
<td>2.1</td>
<td>Affected by medication</td>
<td>107</td>
</tr>
<tr>
<td>Other</td>
<td>330</td>
<td>8.2</td>
<td>Other</td>
<td>386</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>3 599</strong></td>
<td><strong>100.0%</strong></td>
<td><strong>Total</strong></td>
<td><strong>3 304</strong></td>
</tr>
</tbody>
</table>

1 An incident can be associated with more than one contributory factor.
8.6 Discussion

Of the 5326 injury incidents notified during this two year time period, pressure ulcers and other injuries such as skin tears, abrasions, bruising accounted for 49% of injury incidents. Furthermore, an 11.3% decrease in injuries was observed between 2008-09 and 2009-10. This decrease in part may be attributed to the SQuIRE Clinical Improvement Pressure Ulcer Programs and the WoundsWest Wound Management Prevention Programs which are state wide programs utilising evidence based practice to reduce the incidents of these injuries.

While an overall decrease in injury incidents was observed, injury rates continue to be highest in the elderly patient population, with those aged 85 years or more observed to be more likely than younger patients to be involved in an injury incident. These findings are understandable given that elderly patients predominantly are admitted to hospital with multiple co-morbidities combined with physical impairment and ageing processes, which places them at greater risk of developing pressure ulcers and skin tear injuries. However, there is still considerable scope to minimise or prevent many of these injuries from occurring. Specifically, multifactorial strategies such as regular skin integrity assessments, use of appropriate pressure relieving equipment, regular repositioning for immobilised patients, de-cluttering of wards, assistance with mobilising, are just some of the injury prevention measures available.

Over 65% of injuries sustained during this two year time period resulted in moderate harm which required the patient to receive for example, minor treatment, diagnostic investigations or use additional resources. Moderate injuries also have the potential to severely impact on the recovery trajectory of the patient both from a clinical and costing/resource perspective, with these outcomes further compounded when the injuries are sustained by elderly patients. Therefore, continued focus on effective programs to reduce or prevent injuries is clearly warranted.

The primary principle underlying clinical incident management is to prevent incidents from occurring by learning from the errors identified. Results from this cohort have identified pathophysiological factors, patient co-morbidities and physical impairment factors as the main contributory factors to injury incidents. Therefore, any injury
prevention strategy must be both comprehensive and multidisciplinary in order to address these issues.

Strategies that have been implemented to decrease the number of injury incidents include:

- The training and education of staff to reinforce knowledge of pressure ulcer formation and how to avoid such incidents.
- Embedding of the SQuIRES Clinical Improvement Pressure Ulcer Programs and WoundsWest programs which aim to improve wound prevention and management throughout WA.

**Conclusion**

WA Health continues to make substantial improvements in preventing and reducing clinical incidents across the state. This report further identifies areas within clinical incident management that may benefit from greater focus/targeting of quality improvement activities, these include:

- Identifying contributory factors associated with medication incidents in children aged 0-14 years, in order to develop targeted prevention strategies.
- Developing falls strategies specifically targeting those aged 85 years or more, who were identified as having the highest fall rates.
- Undertaking further analysis to identify the contributory factors associated with alcohol and drug intoxication, to enable appropriate strategies to be developed.
Appendix A: AIMS outcome levels

<table>
<thead>
<tr>
<th>Outcome Level</th>
<th>Description/Example</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Potential Incident</strong></td>
<td></td>
</tr>
<tr>
<td>Level 1</td>
<td>Dangerous state/potential for harm e.g. understaffed ICU, torn floor covering.</td>
</tr>
<tr>
<td>Level 2</td>
<td>Intercepted prior to causing harm e.g. wrong medication drawn up but not given, medication allergy identified so medication not given, bed rails not in place.</td>
</tr>
<tr>
<td><strong>Actual Incident</strong></td>
<td></td>
</tr>
<tr>
<td>Level 3</td>
<td>No harm occurred. No change in condition or treatment e.g. harmless medication given to wrong patient.</td>
</tr>
<tr>
<td>Level 4</td>
<td>Minor harm occurred not requiring treatment. Reviewed by doctor, extra observations or monitoring, minor harm.</td>
</tr>
<tr>
<td>Level 5</td>
<td>Moderate harm occurred. Minor diagnostic investigations (e.g. blood test, x-ray, urinalysis), minor treatment (e.g. dressings, cold pack, analgesia), security or emergency services attendance, allied health review.</td>
</tr>
<tr>
<td>Level 6</td>
<td>Moderate harm occurred. Diagnostic investigations (e.g. MRI, CT, surgical intervention), cancellation or postponement of treatment, transfer to another area not requiring increased length of stay, treatment with another medication.</td>
</tr>
<tr>
<td>Level 7</td>
<td>Significant harm occurred. Increased length of stay, hospital admission, readmission, transfer to ICU, CPR/resuscitation, secure ward management, seclusion, fractured neck of femur, morbidity which continued at discharge.</td>
</tr>
<tr>
<td>Level 8</td>
<td>Severe harm occurred. Permanent disability or death.</td>
</tr>
</tbody>
</table>
Appendix B: Caveats

The following are noted limitations of incident data collected in the AIMS database:

1. The Quality in Australian Health Care Study estimated that approximately 10% of patients admitted to acute care hospitals experience some form of iatrogenic injury. Consequently, we cannot assume that the data presented in this report is representative of all clinical incidents.

2. There are occasions when several incidents are notified for the same patient and same incident. For example, a medication omission that occurs several times to a patient before being rectified may result in several separate incidents being notified to AIMS. This can act to artificially inflate the number of incidents. However, there are a number of safety mechanisms in the AIMS process to minimise or avoid duplicate records from entering the system.

3. Percentages may not always add up to 100% due to rounding error.
9. Reference List


