Emergency Medicine Events Register (EMER) – FINAL REPORT

March 2017

Anita Deakin

Tim Schultz

Bill Runciman

Australian Patient Safety Foundation
Adelaide South Australia

Contents

List of Figures

List of Tables

Acronyms

ACEM	Australasian College for Emergency Medicine
APSF	Australian Patient Safety Foundation
ED	Emergency Department
EM	Emergency Medicine
EMA	Emergency Medicine Australasia (journal)
EMER	Emergency Medicine Events Register
PNC	Principal Natural Category
SAHMRI	South Australian Health and Medical Institute

Executive Summary

The Emergency Medicine Events Register (EMER) is an on-line, anonymous incident reporting tool for Emergency Medicine (EM) in Australia and New Zealand. EMER is specifically targeted at EM doctors, and was established in December 2012 by the Australasian College for Emergency Medicine (ACEM) with support from the Australian Patient Safety Foundation (APSF). The EMER website (www.emer.org.au) hosts the anonymous, web-based reporting tool, and supporting documentation and information.

EMER commenced in late 2012. A one year pilot study was undertaken followed by a gradual implementation of EMER across Australia and New Zealand from January 2014. The aim of the project since 2014 has been to enable the continued provision of a specialty incident reporting tool (EMER) to all ACEM members, through the development of the database and website, wide progressive recruiting of site champions, 'burst reporting' (targeting specific incident types), classification of incidents and, importantly, feedback to the profession.

The classification of the incidents was conducted under the guidance of an independent patient safety classifier from the APSF with 20 years of experience in incident management; this is a unique skill set that involves a clinician with the ability to deconstruct each incident to identify the salient factors whilst also maintaining consistency and accuracy across the entire EMER database for data analysis. The APSF also provided administrative support in coordinating the monthly EMER meetings, the recording and disseminating of meeting minutes, editing the site champion newsletter, providing case study publications for the EMA (Emergency Medicine Australasia) journal, acting as "first contact" for any EMER queries and providing updates on EMER reporting patterns and website use.

This report summarises the key developments within the EMER project during the period from 2012-2016 offering comparisons, where applicable, to the 2016 calendar year (1st January to 31st December, 2016). During this time, EMER continued to be funded by ACEM. The contractual deliverables for January - December 2016 included:

1. Maintenance of a fully functioning website including ongoing technical support
2. Feedback to the profession
3. Continued promotion of EMER reporting (clinician and consumer)
4. Classification of entered incidents
5. Publications and presentations
6. Project management

The key outcomes and impacts for EMER implementation in 2016 were:

- "Torsion of the testis" case study contributing to the Australasian Triage Scale being updated to now include testicular pain as a category 2 condition (Appendix 3. Case Study.
- Presentation "*Voices from the grave: Deaths in the emergency medicine events register*" ACEM Annual Scientific Meeting in the Patient Safety Session

- Presentation on Airway Management error in EMER at the QLD Autumn Symposium
- Poster presentation at Social Media and Critical Care Conference (SMACC) Dublin
- Publications and presentations comprising 11 outputs for national and international conferences and national journals – including publication of the "Analysis of the first 150 incidents" in the EMA and winning the 2015 ACEM ASM e-poster award. Another four papers are in draft /awaiting submission.
- Launching ED Consumer reporting. Launched during the Patient Safety Experience week in April, 2016.
- Analysis of the incident characteristics of all 324 incidents in the database
- Demonstrated international interest in EMER – international visitors accounted for 50% of the website traffic
- Interest in EMER from a wide variety of EM leaders, researchers and practitioners from all over Australia and New Zealand.
- Expanded EMER steering group member numbers to 16 participants
- Recruitment of 23 additional site champions
- 99 incidents reported into EMER (clinician)
- 26 incidents reported into EMER (Consumer)
- Greater use of EMER website (2008 users; 2597 sessions)
- Requests for EMER data and expression of interest in future collaborations
- Updated website, software platform and content.

In addition to the 2016 achievements, since its inception in late 2012, EMER has resulted in:

- 22 outputs for national and international conferences and national journals; five further papers are in draft/awaiting publication.
- Publication of three patient safety alerts
- An increase in steering group numbers from nine to sixteen participants
- 48 Site Champions
- An additional 20 healthcare sites to total 51 sites (31 sites initially recruited for the pilot study)

EMER has encountered various challenges since its inception and has continued to look at potential ways of overcoming these barriers to incident reporting. These challenges have been discussed in detail in this report and include:

- Uptake of EMER – refer to sections "Introduction", "Consumer Reporting" and Table 8
- Promotion and Communication –refer to sections "4.2 EMER promotion" and "4.2.6.1 Recruitment of site champions"
- Impact and Outcomes – refer to sections "Executive Summary", "Publications and Presentations" and "Conclusion"
- Benefits to the profession – refer to section "Benefits to the Profession"
- Challenges faced - refer to section "Challenges to reporting"

- Sustainability – refer to section “Future plans (“wish list”) and sustainability”

Although the key outcomes and impacts indicate a successful EMER implementation the continued low rate of reporting and slow uptake of ED doctors reporting into EMER remains a challenge (see section 7). This is demonstrated through low reporting numbers overall, the limited success of capturing specific data through “targeted reporting”, the inability to increase Site Champion uptake in the Northern Territory and the limited uptake of reporting in several Australian States and Territories (i.e. NT, ACT, Tasmania) and New Zealand. To continue to increase the uptake of EMER these issues will need to be addressed by ACEM and EMER key stakeholders (see section 8). Increasing interest in data sharing has been expressed by various specialty groups and researchers leading to the development for a formal data release and confidentiality form (discussed on page 12 of this report).

Identification and characterisation of low frequency events can be facilitated by systematically collecting information after each event, and then aggregating, classifying and analysing it before coming up with preventive and corrective strategies. ACEM is to be commended on initiating a system to do this, however, it will require continued funding and effort to do this into the future.

1. Introduction

This report provides an overview of the EMER project from January 1st – December 31st 2016. It also provides data on the activities of www.emer.org.au from its inception in 2012.

EMER started in 2012 as a pilot project focussing on specialty based incident reporting (in EDs). The pilot study was completed in late 2013 with 80 incidents entered. Although the system allowed for easy online reporting of quality incidents into a speciality specific reporting system, uptake of reporting was slower than expected. In 2014, implementation across Australia and New Zealand was funded by ACEM, and continues to date, with the aim of:

- providing EMER to all ED clinicians,
- continued promotion of EMER reporting,
- increase ED specific incident reporting amongst clinicians,
- capture topic specific (targeted) incidents about particular patient safety issues (i.e. airway management, violence etc.),
- classification of reported incidents, and
- provide feedback to the profession (i.e. publications and presentations).

In addition to these aims, the EMER steering group also identified and addressed several other opportunities to improve EMER reporting. These included:

- continued review and updating of the incident report form
- ongoing review and updating of the EMER website www.emer.org.au
- promotion through social media (e.g. Facebook, Twitter, SAHMRI advertising boards)
- implementation of consumer reporting (mid 2016)

2. EMER Governance

Governance for the EMER project has been provided by a steering group comprising ED doctors, the Australasian College for Emergency Medicine (ACEM), the Australian Patient Safety Foundation (APSF) and consumer representatives. During this reporting period an additional four members were recruited. The steering group currently consists of 16 members from six Australian States and Territories and from New Zealand (Table 1).

Table 1 EMER project steering group members, as at Dec 2016

Name	Organisation
Dr Carmel Crock (Chair)	Royal Victorian Eye and Ear Hospital & ACEM, Vic
Dr Kim Hansen (Deputy Chair)	Prince Charles Hospital & ACEM, Qld
Dr Tim Schultz	APSF, SA
Ms Anita Deakin	APSF, SA
Prof Bill Runciman	APSF, SA
Dr Andrew Gosbell	ACEM
Ms Stephanie Bull	ACEM
Dr Matthew Shepherd	Tamworth Hospital, NSW
Assoc. Prof Melinda Truesdale	Royal Women's Hospital, Vic
Dr Tim Baker	Portland District Hospital, Vic
Dr Marten Howes	Bunbury Hospital, WA
Dr Brendon Smith	Calvary Hospital, ACT
Ms Stephanie Newell	Consumer Advocate, SA
Dr Darren Khodaverdi	Dunedin Hospital, NZ
Dr Ahn Tran	Werribee Mercy Hospital, Vic
Dr Murray Delport	Waitemata Hospital, NZ

The EMER steering group met on a monthly basis via teleconference (Table 2). Meeting minutes were taken by APSF staff and disseminated for each subsequent meeting. Monthly reports about EMER website usage, trends in incidents, analysis plans and future directions for the project were discussed. Other agenda items were: site champion recruitment, project promotion (website, presentations), contractual issues, timeframes, and sustainability.

Table 2 Summary of EMER steering group meeting attendance

Telco #	Meeting date	Number of attendees	Number of apologies
1	13/1/2016	7	2
2	17/2/2016	4	4
3	23/3/2016	7	2
4	4/5/2016	9	4
5	1/6/2016	6	8
6	6/7/2016	3	8
7	24/8/2016	10	4
8	14/9/2016	9	5
9	27/9/2016	11	5
10	17/11/2016	8	8

3. Consumer Reporting

The EMER steering group convened a small working group comprising Dr C Crock, Ms S Newell and Ms A Deakin to develop a consumer reporting capability for EMER. The consumer reporting working group aimed to develop a reporting tool that was capable of capturing events in ED reported by consumers, both good (compliments) and bad (incidents).

A short, simple to use, online report form was compiled to collect the relevant details. Once finalised by the EMER steering group it was put into production by Alltraders Pty Ltd and pilot testing of the form was initiated. Promotion of the pilot phase was performed using social media and "word-of-mouth'. During the 2 week pilot phase consumers on submitting a report, were directed to a 3 part feedback survey comprising 14 questions and asked to rate their responses using a Likert scale (a 5 point scale with 1 being "strongly agree" and 5 "strongly disagree"). Six surveys were completed and the results are presented below (Table 3, Table 4, Table 5). The survey feedback results were reviewed and changes were made to the form. The survey identified that the report form was user friendly and mostly relevant in the questions asked. Question three identified that two survey participants suggested more free text fields were required. These were incorporated into the final form.

Consumer reporting to EMER was officially launched by Dr C Crock and Ms A Deakin during the Patient Experience Week "Organisational Approaches to Implementing Patient Experience" lunchbox session in April 2016. The title of the presentation was "Learning from our errors". An interview was also conducted with Dr C Crock and Ms A Deakin [1].

This patient experience week was attended by various stakeholders, ranging from consumers to patient safety experts, both national and international. "Live" promotion of consumer reporting to all ED consumers was undertaken utilising various mechanisms including flyer distribution, site champion newsletter, social media and "word-of-mouth".

Considerable interest was expressed by the patient experience week participants. Due to consumer reporting not being included in the initial contract it was commenced utilising minimal funds and resources, with future plans to expand its scope. A "call centre" style reporting method and "face to face" site visits were discussed to increase promotion and reporting, and was considered a viable means of increasing consumer reporting in the future.

EMER consumer reporting comprised ten questions to extract the details of the incident or compliment. Of these, four questions were mandatory. These were:

- Who did the experience happen to?
- Tell us what happened?
- What is the result of your experience?
- In what country did your experience occur?

Since the commencement of consumer reporting 26 incidents have been submitted. The results are presented in section 5.2.2 (page 25).

Table 3 Responses to the question "Please rate your level of agreement with the following statements about you and using EMER (Emergency Medicine Events Register)"

	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree	N/A	Total
1) I am confident at using computers	66.67% 4	33.33% 2	0.00% 0	0.00% 0	0.00% 0	0.00% 0	6
2) The EMER website was easy to navigate	50.00% 3	50.00% 3	0.00% 0	0.00% 0	0.00% 0	0.00% 0	6
3) Finding the consumer "Report an incident" button was easy	66.67% 4	33.33% 2	0.00% 0	0.00% 0	0.00% 0	0.00% 0	6
4) I would use EMER again to report an incident	50.00% 3	50.00% 3	0.00% 0	0.00% 0	0.00% 0	0.00% 0	6
5) If someone I know experienced an incident in an Emergency Department I would refer them to EMER (www.emer.org.au)	50.00% 3	50.00% 3	0.00% 0	0.00% 0	0.00% 0	0.00% 0	6
6) By reporting an incident into EMER I feel I have contributed to making Emergency Departments safer	50.00% 3	50.00% 3	0.00% 0	0.00% 0	0.00% 0	0.00% 0	6

Table 4 Responses to the question "Please rate your level of agreement with the following statements about using the 'report an incident' function in EMER (Emergency Medicine Events Register)"

	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree	Total
1) The 'report an incident' function used simple language	50.00% 3	50.00% 3	0.00% 0	0.00% 0	0.00% 0	6
2) The instructions provided to report an incident were easy to understand	50.00% 3	50.00% 3	0.00% 0	0.00% 0	0.00% 0	6
3) Each question was unique (ie I didn't feel I was repeating myself)	33.33% 2	50.00% 3	0.00% 0	16.67% 1	0.00% 0	6
4) All the questions were relevant	33.33% 2	50.00% 3	16.67% 1	0.00% 0	0.00% 0	6
5) The questions guided me to provide all relevant details of the incident	16.67% 1	83.33% 5	0.00% 0	0.00% 0	0.00% 0	6
6) I understood what information was needed to answer each question	33.33% 2	66.67% 4	0.00% 0	0.00% 0	0.00% 0	6
7) Submitting the incident was easy	66.67% 4	33.33% 2	0.00% 0	0.00% 0	0.00% 0	6

Table 5 Three responses to the question "Do you have anything further you wish to add? For example, is there anything you think we may have missed, or whether any changes to the website are needed?"

#	Responses	Date
1	It might be useful to allow text to be entered in some circumstances. For example the approximate time of the incident is very precise whereas I presume an incident could develop over a period? There are also some questions where "other" is an option (e.g. the country in which the incident occurred) - where "other" is selected, a text box could be provided for the user to enter the answer.	2/8/2016 10:21 AM
2	Yes...I may have missed this information on the site, but it might be nice for consumers to know how their survey data will be used to improve ED processes.	2/8/2016 9:58 AM
3	It may be useful to have an "Any other comments" section which does not need to be completed but gives the opportunity for comment if someone feels they want to say something but none of the structured questions are the relevant place.	2/6/2016 5:41 PM

4. Project deliverables

Outputs will be presented separately for each of the six project deliverables.

1. Maintenance of a fully functioning website
2. Continued promotion of EMER
3. Classification of entered incidents
4. Feedback to the profession (including publications and presentations)
5. Provision of support to reporters and other users of the database
6. Project management

4.1 Maintenance of a fully functioning website

IT support was provided by Alltraders who were chiefly responsible for quarterly site upgrades to the Joomla platform hosting the webpage, trouble shooting of problems that arose in storage, and any modifications to the webpage that were unable to be managed internally.

The APSF was responsible for minor changes to the website and day-to-day maintenance. This included publication and presentation page updates and removal of any spam reports or those entered during demonstrations to users etc. There was an increase in spam reports mid-way through the year but this significantly decreased with Alltraders updating the spam capture software.

4.2 EMER promotion

Seven promotional tasks were identified by the steering group as key activities for the period from July – December 2016. These included:

1. Site champion newsletters
2. Promotion of reporting
3. Development of patient safety alerts
4. Meeting with ED Directors and Site Champions to promote EMER
5. Commencing development of EMER content suitable for presentation at the Australasian Diagnostic Error Conference
6. Implementation of other tasks as recommended by the EMER steering group.
   - 6.1 Ongoing recruitment of site champions
   - 6.2 Provision of stakeholder support
   - 6.3 Development of a confidentiality/data release form.

4.2.1 Developing content and editing of site champion newsletters

The APSF was responsible for the management and editing of the Site Champion newsletters which were distributed quarterly to all site champions and steering group members. In addition, the newsletter was distributed to any individual who requested information on EMER (Appendix 5. Site Champion Newsletter.

Site champion newsletter links:
January 2016
March 2016
June 2016
September 2016

4.2.2 Promotion of reporting

Promotion of reporting into EMER continued via the steering group and through the site champion newsletters, presentations, publications, healthcare site visits, internal staff meetings and through ACEM social media and newsletter channels. Throughout the project, Dr C Crock and Dr K Hansen continued to maintain on-going contact with the site champions to provide advice and support about implementing EMER into their ED's.

Targeted reporting (also known as "burst" reporting) continued in 2016. During 2016 topics were removed and replaced with new themes thought to be of significance for the current healthcare interests. The added items included the National emergency Access Target (NEAT) and Violence in EDs. The following types of incidents were targeted, and the numbers collected were: airway management (n=18; 14%), conflict between teams (n=8; 6%), diagnostic error (n=63; 50%), interhospital transfer (n=9; 7%), medical procedures (n=22; 18%) and violence (n=1; 1%). These targeted incidents (n=125) accounted for 36% of the 348 incidents reported (Table 6).

Table 6 Targeted ("Burst") reporting topics

Burst Reporting Topics	Number 2012-2016	Number 2016 only
Diagnostic Error (e.g. missed/delayed fracture diagnosis, dislocations, infections, myocardial infarcts, cancer, stroke, embolism, appendicitis)	63	n/a
Medical Procedure (e.g. lumbar puncture, sedation, fracture reduction, advanced line insertion)	22	n/a
Airway Management (e.g. intubation, laryngoscopy, equipment failure, human error, system failure)	18	6
Interhospital transfer	9	9
Conflict between teams	8	8
NEAT (National Emergency Access Target)	4	n/a
Violence in EDs	1	1
Grand Total	**125**	**24**

4.2.3 Development of patient safety alerts

Safety alerts (http://www.emer.org.au/resources/patient-safety-alert.html), written as brief summaries of key points from case studies, were a new initiative for EMER in 2016. Three safety alerts were developed during 2016 and have been promoted through social media (Twitter feed @EmergMedER), the EMER website and Site Champion newsletters. The patient safety alerts published in 2016 were on the topics of testicular torsion, aortic dissection and airway management (Figure 1).

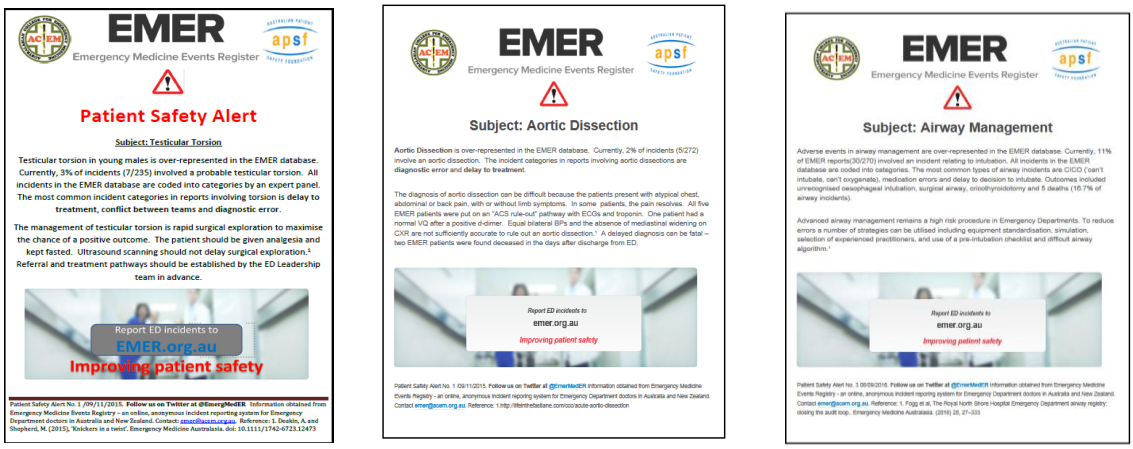

Figure 1 Patient Safety Alerts

4.2.4 Meeting with ED Directors and Site Champions to promote EMER

Dr K Hansen met with the ED Directors and Site Champions at Logan ED and presented to their consultant and registrar team. Throughout the year she has also spoken to numerous Site Champions and directors at the IHI Accelerated Patient Safety Course, Autumn Symposium, Social Media and Critical Care Conference (SMACC) and ASM ACEM (including Northern Hospital, Box Hill Hospital, St Vincent's Melbourne, Launceston Hospital, Nambour Hospital, Redlands Hospital).

4.2.5 Australasian Diagnostic Error in Medicine Conference preparation

The 1st Australasian Diagnostic Error in Medicine Conference will be held in Melbourne from the 24-25th May, 2017. Dr C Crock, as the convenor of the conference and Chair of the EMER steering group, has offered EMER members the opportunity to present at this inaugural event. This work will be carried out by EMER steering group members in 2017, based on data collected by EMER.

4.2.6 Other tasks

4.2.6.1 Recruitment of site champions

Site champion recruitment remained a focus in 2016. In total, 48 site champions, representing 53 hospitals, were recruited across Australia and New Zealand as of December 2016. A Site Champion "starter pack" was provided to all new recruits to assist them in promotion. The "pack" provided the Site Champions with EMER

presentations in MS PowerPoint format, flyers, posters, a frequently asked questions information sheet and a link to the "how to use EMER" video. Information on claiming CPD points through their EMER contribution was also provided. Any additional information or updates on learnings were disseminated via a quarterly Site Champion newsletter and email.

In 2015 the EMER steering group initiated a Site Champion teleconference as a means of enabling Site Champions to share learnings in a group setting. However, minimal participation (only 3 Site Champions attended) showed this method of Site Champion support to be non-viable.

Site champion recruitment has remained at a constant count throughout the year with a minor notable increase in interest after EMER presentations, albeit individual healthcare sites or at national conferences.

Five (5) new site champions were recruited during the last 12 months. The highest representation of EMER sites is in Queensland (17 sites), followed by Victoria (10 sites), New South Wales (9 sites), Western Australia (7 sites each), New Zealand (3 sites) South Australia (3 sites), Australian Capital Territory (2 sites) and Tasmania (1 site). The Northern Territory has no site champion (Table 7).

Table 7 Location of 39 hospitals with EMER Site Champions

State	Number of sites	%
Qld	17	32.1
Vic	11	20.8
NSW	9	17.0
WA	7	13.2
NZ	3	5.7
SA	3	5.7
ACT	2	3.8
Tas	1	1.9
NT	0	0
SUM	**53**	**100.0**

4.2.6.2 Provision of stakeholder support

Support has been immediately supplied upon request. Data analysis was provided to steering group members (for presentations and papers) and to ACEM by the APSF, as requested. External stakeholders' queries have been responded to by APSF staff in the first instance and/or referred to a relevant person for further management.

4.2.6.3 Development of data release/confidentiality form

With an increasing number of requests for EMER data from various stakeholders (associated with EDs as well as from other related specialties) and researchers it was identified that a formalised processes for data release needed to be initiated. A data release/confidentiality form was developed and is currently in draft form awaiting final approval from the steering group and ACEM.

5. Classification of EMER incidents

5.1 General data report

This report summarises the reporting patterns of data entered into www.emer.org.au from the 1st January to 31st December, 2016 with some comparisons made across the entire database (2012-2016). In 2016, 99 incidents were reported into the EMER database, making a total of 348 incidents since the database started in Dec 2012 (Figure 2, Table 8).

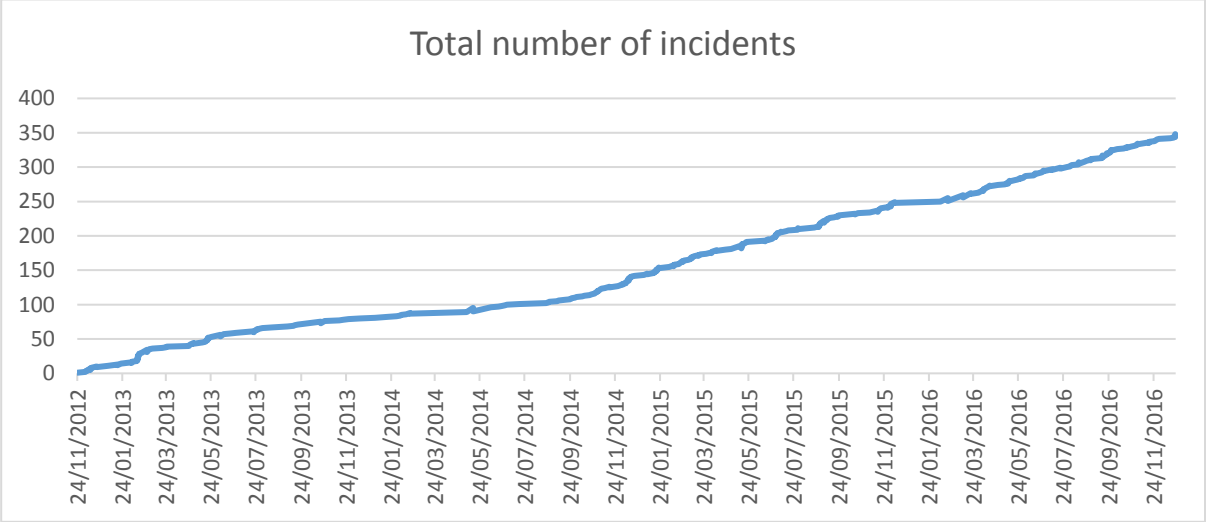

Figure 2 Numbers of incidents reported since EMER commenced in Dec 2012.

Table 8 Summary of numbers of incidents reported into EMER and reporting rate (number of incidents/month).

Year	# incidents reported	# months	# incidents/ month
2012	10	2	6
2013	70	12	6
2014	62	12	5
2015	107	12	9
2016	99	12	8
Grand Total	348	43	8

5.2 Incident reporting pattern

Figure 3 includes a summary of the website analytics indicating that during the project there were:

- 8,053 sessions (2,597 sessions in 2016). A "session" is the period of time a user is actively engaged with the website.
- 16,262 pageviews (5,094 pageviews in 2016). "Pageview" is the total number of pages viewed including repeated views at a page. Each visit averaged 2.02 page visits per session (1.96 page views per session for 2016)
- Bounce rate of 66% (62% for 2016). "Bounce rate" is defined as the percentage of single page visits (ie visits in which the person left the website from the entrance page without interacting with the page)
- Average session duration was 2.01 minutes (1.51 minutes in 2016)
- New users accounted for 76% of traffic (76% in 2016).

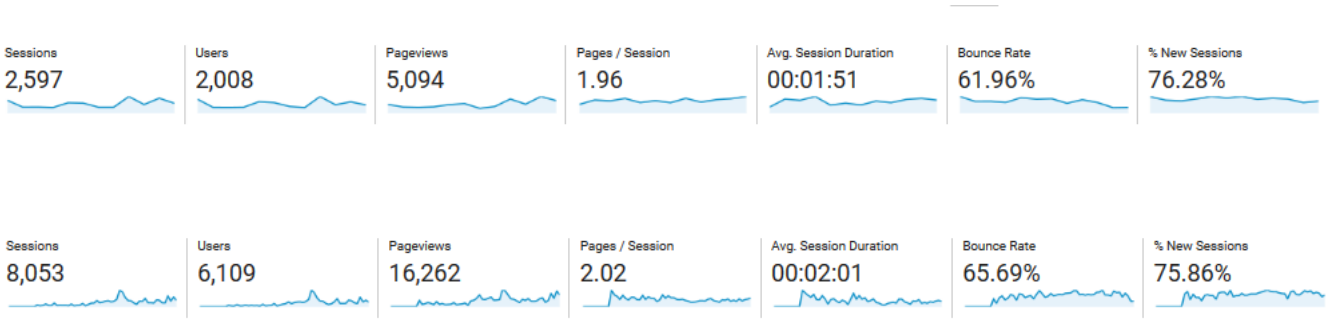

Figure 3 Summary of EMER website analytics_2016 vs 2012-2016

During the 2012-2016 period there were 5,290 visits to a single page, 2,142 visits to 2 pages, 2,070 visits to 3 pages, 980 to 4 pages and 830 visits to 5 pages. In comparison, the figures for 2016 show 1,609 visits to a single page, 822 visits to 2 pages, 942 visits to 3 pages, 312 visits to 4 pages and 280 visits to 5 pages. The full breakdown of page visits per session is provided in Figure 4.

Sessions	Pageviews
2,597 % of Total: 100.00% (2,597)	5,094 % of Total: 100.00% (5,094)

Page Depth	Sessions	Pageviews
1	1,609	1,609
2	411	822
3	314	942
4	78	312
5	56	280
6	43	258
7	25	175
8	21	168
9	12	108
10	4	40
11	5	55
12	3	36
13	3	39
14	3	42
15	2	30
16	3	48
20+	5	130

(a)

Sessions	Pageviews
8,053 % of Total: 100.00% (8,053)	16,262 % of Total: 100.00% (16,262)

Page Depth	Sessions	Pageviews
<1	99	0
1	5,290	5,290
2	1,071	2,142
3	690	2,070
4	245	980
5	166	830
6	121	726
7	94	658
8	71	568
9	43	387
10	32	320
11	23	253
12	16	192
13	11	143
14	17	238
15	9	135
16	16	256
17	7	119
18	3	54
19	1	19
20+	28	882

(b)

Figure 4 Summary of pageviews per session 2016 (a) vs 2012-2016 (b)

Table 9 identifies that the vast majority of users have accessed the EMER website using a desktop computer (6,544, 81%). A mobile phone was used in 1,122 instances (14%) and a tablet was used in 387 instances (5%).

Table 9 Summary of EMER users by device 2012-2016

Device Category	Acquisition
	Sessions ↓
	8,053 % of Total: 100.00% (8,053)
1. desktop	6,544 (81.26%)
2. mobile	1,122 (13.93%)
3. tablet	387 (4.81%)

The country of origin of visitors to EMER is presented in Table 10. Australia accounted for 4,006 of the visits (50%), the United States 820 visits (10%), Brazil for 449 visits (6%) and United Kingdom for 279 visits (3%). India, Russia and New Zealand accounted for between 246 - 270 visits (3 – 3.3%).

Table 10 Summary of EMER user statistics by country 2012-2016

Country	Acquisition		
	Sessions ↓	% New Sessions	New Users
	8,053 % of Total: 100.00% (8,053)	75.92% Avg for View: 75.86% (0.08%)	6,114 % of Total: 100.08% (6,109)
1. Australia	4,006 (49.75%)	62.93%	2,521 (41.23%)
2. United States	820 (10.18%)	96.46%	791 (12.94%)
3. Brazil	449 (5.58%)	99.33%	446 (7.29%)
4. (not set)	344 (4.27%)	99.71%	343 (5.61%)
5. United Kingdom	279 (3.46%)	96.42%	269 (4.40%)
6. India	270 (3.35%)	87.04%	235 (3.84%)
7. Russia	248 (3.08%)	8.87%	22 (0.36%)
8. New Zealand	246 (3.05%)	80.08%	197 (3.22%)
9. Italy	125 (1.55%)	100.00%	125 (2.04%)
10. China	84 (1.04%)	96.43%	81 (1.32%)

Table 11 presents the EMER visits by Australian State. The States that accessed the EMER website the most were: Victoria, Queensland, South Australia, and Western Australia.

Table 11 Summary of EMER visits by Australian State 2012-2016

Region	Acquisition		
	Sessions ↓	% New Sessions	New Users
	4,006 % of Total: 49.75% (8,053)	62.93% Avg for View: 75.86% (-17.04%)	2,521 % of Total: 41.27% (6,109)
1. Victoria	**1,247** (31.13%)	58.94%	735 (29.16%)
2. Queensland	**880** (21.97%)	67.73%	596 (23.64%)
3. South Australia	**722** (18.02%)	45.15%	326 (12.93%)
4. New South Wales	**607** (15.15%)	78.75%	478 (18.96%)
5. Western Australia	**294** (7.34%)	74.83%	220 (8.73%)
6. Australian Capital Territory	**146** (3.64%)	47.26%	69 (2.74%)
7. Tasmania	**64** (1.60%)	89.06%	57 (2.26%)
8. Northern Territory	**44** (1.10%)	86.36%	38 (1.51%)
9. (not set)	**2** (0.05%)	100.00%	2 (0.08%)

5.2.1 Clinician Reporting

In all, 348 incidents were reported into EMER since reporting commenced (December, 2012) and 99 incidents were submitted during 2016 (a decrease in reporting rate from 107 incidents reported in 2015). All the incidents submitted between 2012-2016, excluding 6 (NZ=5; Other=1), were reported from Australia. Publically funded organisations were involved in 333 reports (96%). Patients were involved in 334 of all reported incidents, and females were involved in 45% of incidents (n=344). The most common designation for reporting was the ED physician (91%) followed by ED registrars (4%) (Table 12). The “burst reporting” (aka targeted reporting) field identified that diagnostic error (18%) was the most commonly reported incident type of the eight burst reporting themes allocated since database inception. Medical procedure errors accounted for 6% of burst reporting incidents (Table 13).

Table 12 Incident demographics

Variable	Response	2012-2016 N	2012-2016 %	2016 only N	2016 only %
Country	Australia	343	98.6	97	98.0
	New Zealand	5	1.4	2	2.0
	Other	1	0.3	0	0
Funding	Public	333	95.7	94	95.0
	Private	16	4.6	5	5.0
Date	Approx - Month Surrounding	62	17.8	19	19.2
	Approx - Week Surrounding	28	8.0	7	7.1
	Exact date	259	74.4	73	73.7
Weekday	Weekday	72	81	85	85.9
	Weekend	53	19	14	14.1
	Holiday	1	0.3	0	0
Person at risk	Patient	335	96.2	98	99.0
	Staff	10	2.9	1	1.0
	Visitor	2	0.6	0	0
Gender	Female	154	44.2	41	41.4
	Male	189	54.3	56	56.6
	Other	1	0.3	0	0
Designation of reporter	ED Physician	318	91.3	92	93.0
	ED Registrar	15	4.3	4	4.0
	Nurse	6	1.7	1	1.0
	Resident Medical Officer	3	0.9	0	0
	Career Medical Officer	3	0.9	0	0
	Patient	1	0.3	0	0
	Intern	1	0.3	1	1.0
	Allied Health	1	0.3	1	1.0
	Other	1	0.3	0	0
“3Cs”	Yes	27	7.8	4	4.0
	No	315	90.5	92	93.0
Handover problem	Yes	90	25.9	33	33.3
	No	215	61.8	64	64.5
Grand Total		**348**	**100**	**99**	**100**

The most common age group for people involved in an incident was between 65-69 years of age and then 50-54 years (Figure 5).

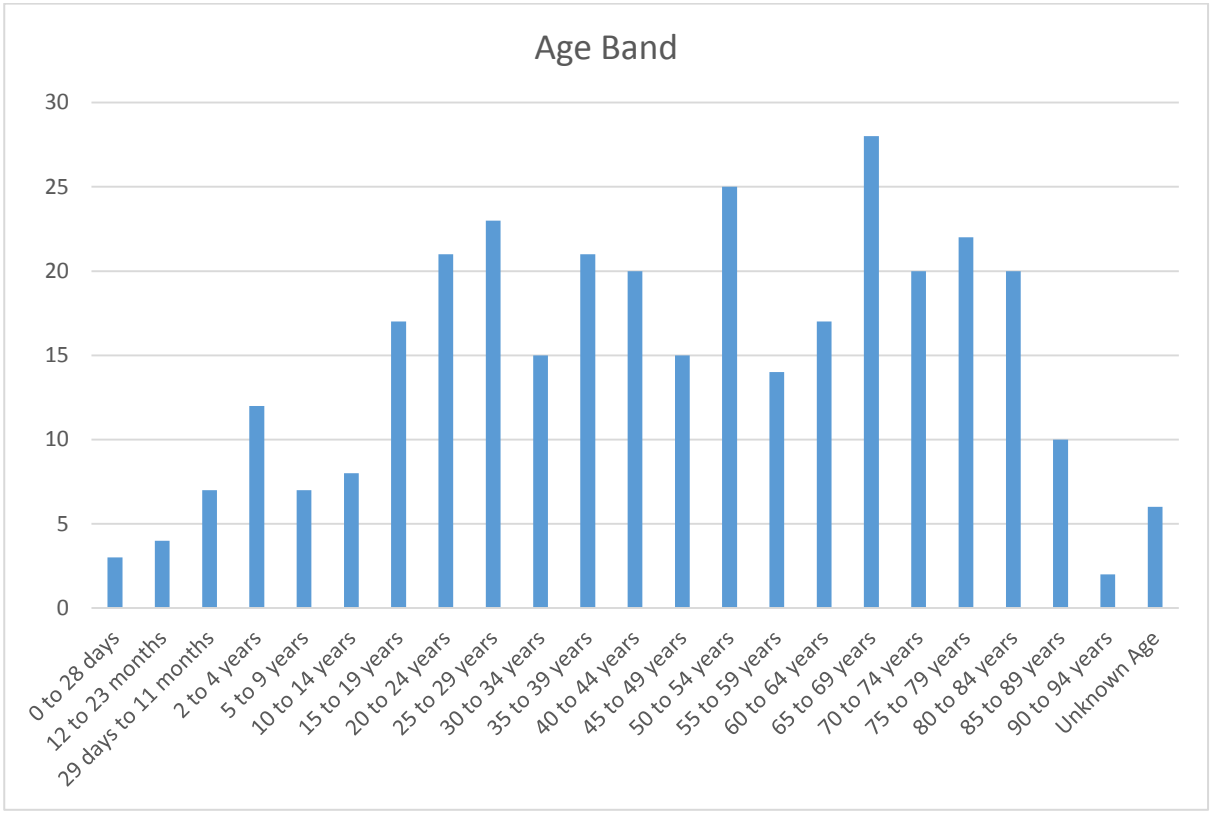

Figure 5 Distribution of age band 2012-2016

There were two peaks in the distribution of incidents from “00:00 to 00:59hrs” and “10:00 to 10:59hrs” (Figure 6), and a further smaller peak at “14:00 to 14.59hrs”.

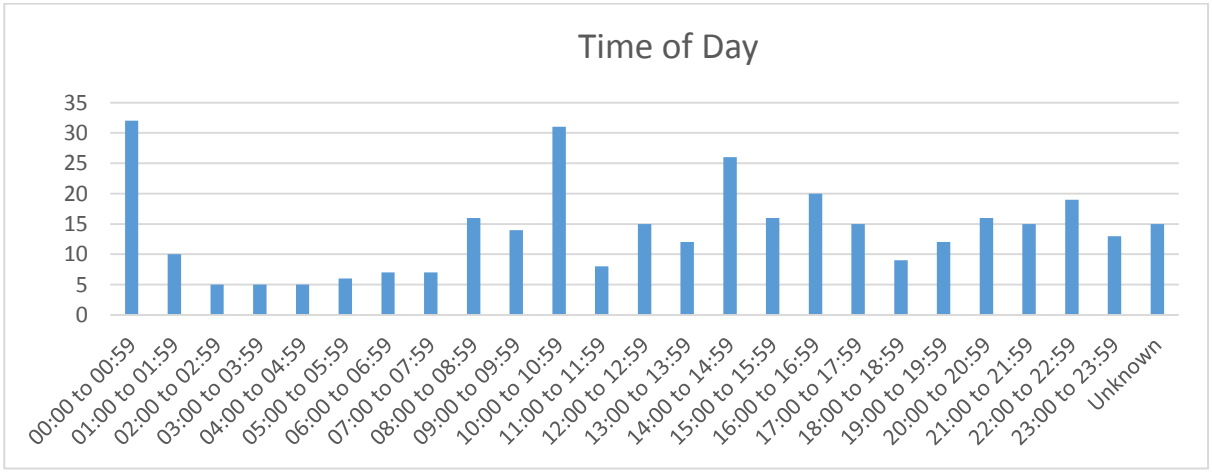

Figure 6 Distribution of time band 2012-2016

The “incident involved” field is a mandatory field containing incident types deemed likely to occur in the ED. This field has been updated during the course of EMER to provide more options Initially six events were identified for data capture (marked with [A]) with a further four

additional options (marked with [B]) for improved data collection. “None of the above” was most frequently reported at 34% (23% for 2016). Otherwise, “Diagnostic error” has consistently accounted for the majority of incidents reported (33% for 2012-2016; 41% for 2016 only). It’s important to note that this field relies on the reporter identifying the incident type, and therefore may not be a completely accurate representation of incident types. Difficulties in allocating more than one incident type needs to be considered as a result of form design and the requirement to hold the mouse button down and click to multi-select options which some users may find cumbersome (Table 13).

Table 13 Count of responses to “Did this incident involve…”*

Row Labels	n 2012-2016	% 2012-2016	n 2016 only	% 2016 only
Diagnostic error[B]	118	33	45	41
Procedural error[B]	44	12	11	10
Representation within 7 days[A]	31	9	13	12
Access block[B]	19	5	6	5
Follow-up of test results[B]	18	5	8	7
Patient absconded[A]	3	1	1	1
Recall of patient[A]	3	1	1	1
"Did not wait"[A]	1	0	0	0
"Left against clinical advice"[A]	1	0	0	0
None of the above[A]	122	34	26	24
Grand Total	**360**	**100**	**111**	**100**

* - an incident may involve two or more of these incident categories

[A] – event added in original dataset

[B] – event added in March 2013

As a result, three steering group members (Dr C Crock, Dr K Hansen and Ms A Deakin) further analysed the first 324 reported incidents in detail, allocating principal natural categories (PNC). “Diagnostic error” remained the most common incident type at 20.2% followed by “Investigation/Pathology/Imaging” incidents at 11.8% (Table 14). Further details on PNC results are provided in section 5.2.3 Principal Natural Category classification results (page 25).

Table 14 Count of incident type by PNC*

PNC	n	%
Diagnostic	135	20
Investigation/Pathology/Imaging	79	12
Representation	65	10
Procedure	64	10
Medication	47	7
Failure to recognise severity	35	5
Communication between teams	33	5
Treatment	32	5
Transport/Transfer	26	4
Equipment	17	3
Handover	17	3
Triage	16	2
Overcrowding/Access block	16	2
Documentation	15	2
Professionalism	12	2
Staffing	11	2
Injury/Violence	10	2
Patient identification	10	2
Prolonged LOS	10	2
Self-discharge	7	1
Fall	5	1
Referral	4	1
Conflict between teams	2	0
Grand Total	**668**	**100**

* - an incident may involve two or more of these incident categories

Of the reported incidents, category 3 triage was allocated for 39% (n= 135; n=99 or 40%) followed by category 2 (24%; n=99 or 25%), closely followed by category 4 (20%; n=99 or 22%) Figure 7.

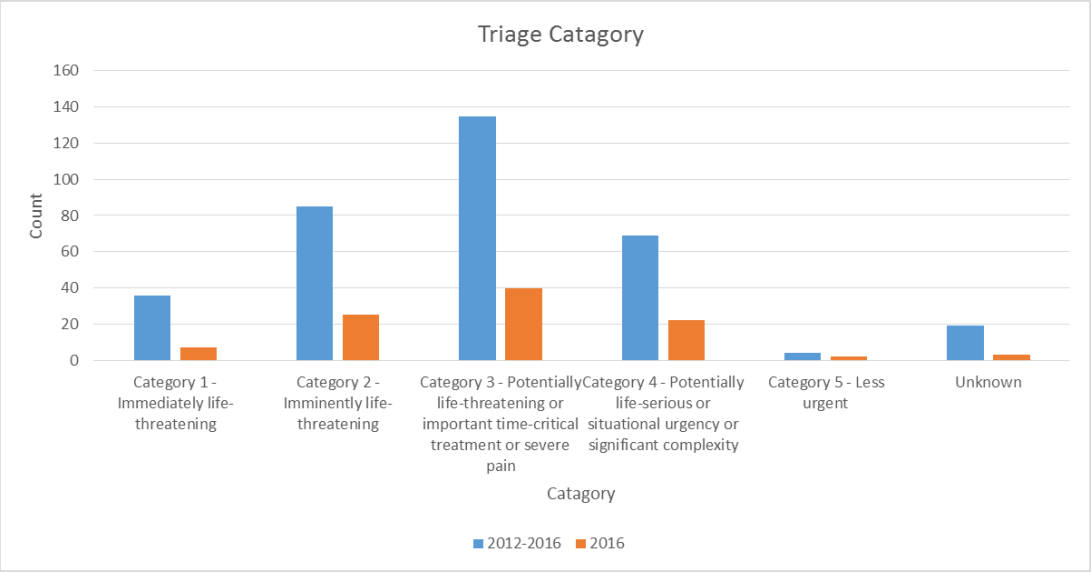

Figure 7 Count of subject's triage score on presentation 2012-2016

Reporters were asked to nominate the medical specialties involved in the incident. Multiple medical specialities were able to be selected against each incident. Of the 348 incidents a medical specialty was selected 437 times. Figure 8 shows that 31 different medical specialities were identified having been involved in an incident (not including "Other") with "Emergency Medicine" being the specialty most common (accounting for 178 of the 348 incidents) and "Radiology/Imaging" being the next most common (n=34), followed by Ambulance Service (n=25). The number of medical specialties selected for an incident ranged from 1-19 with the mean being 2.4 (SD = 2.5).

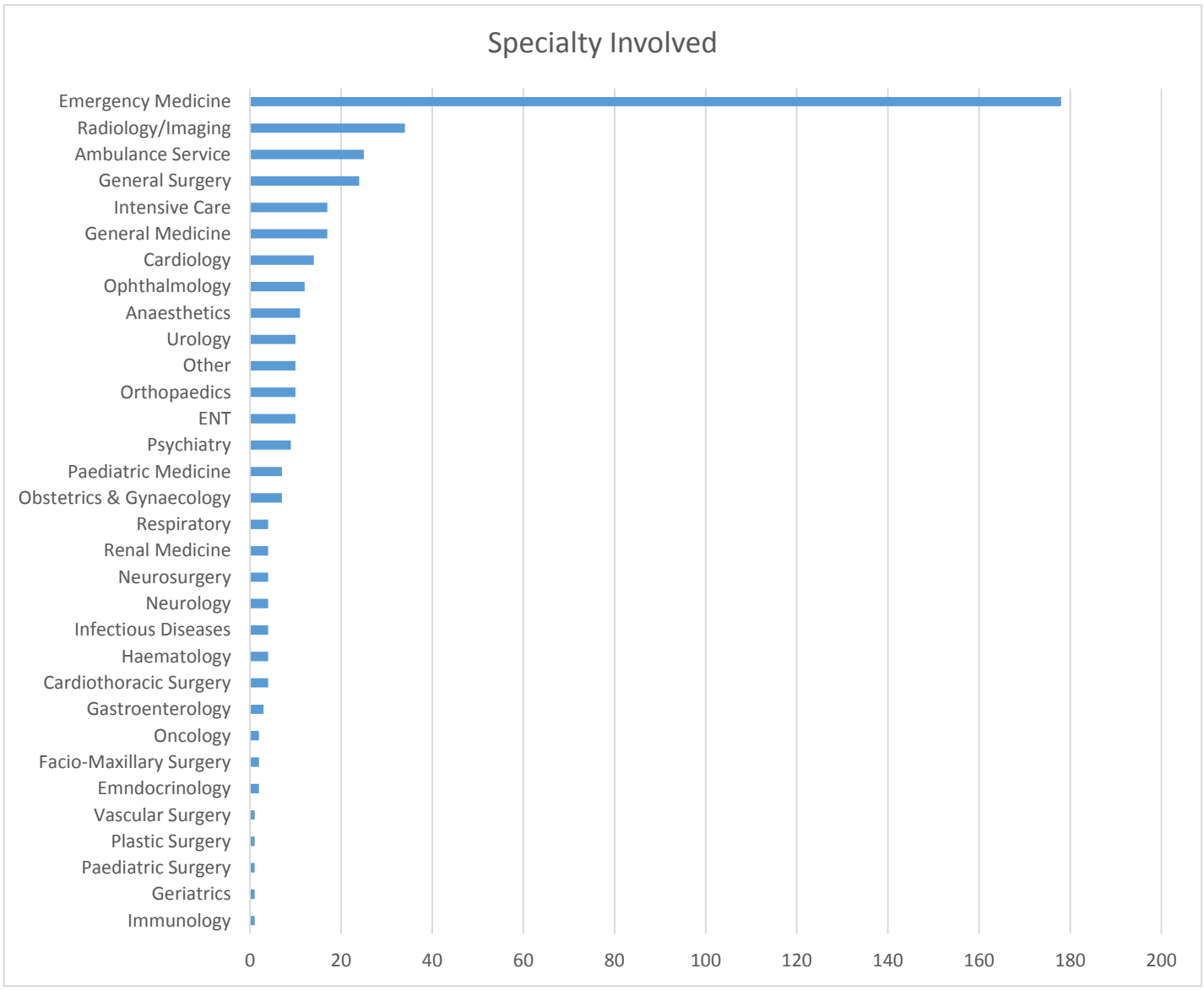

Figure 8 Summary of medical specialty involved

Stage of the patient's journey (for incident initiated and detected) had been allocated as a mandatory field. Most incidents (n=172; 49%) were initiated during the "Initial assessment or treatment" phase followed by during "Further investigation" (n=51; 15%), whereas most incidents were detected following "Initial assessment or treatment phase" (n= 96; 28%) and then "In-patient consultation or review" (n= 61; 18%) (Figure 9).

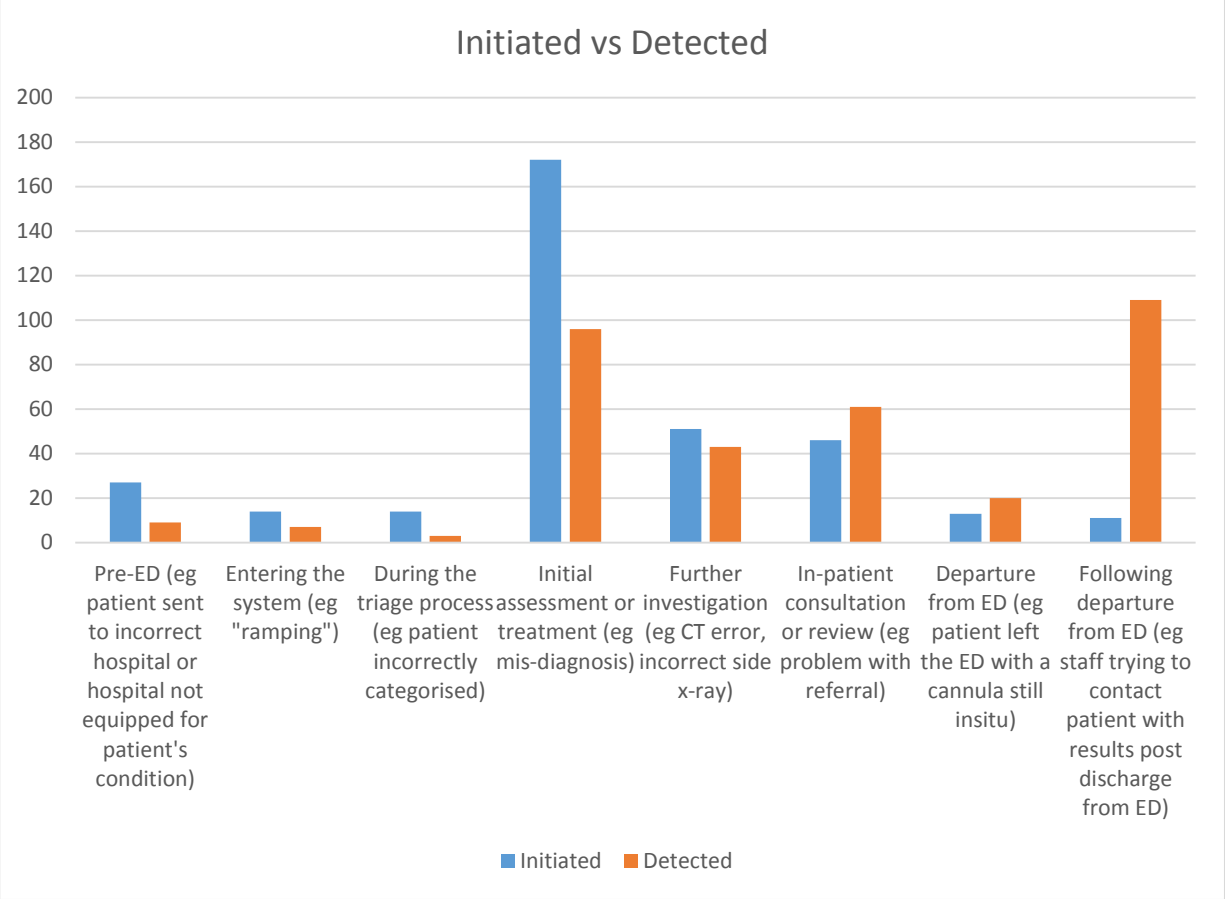

Figure 9 Stage of incident initiation and detection

The final two EMER questions asked whether the incident was associated with (i) a handover problem, and (ii) an incorrect patient, side or procedure. Ninety (out of 304) (30%) incidents were considered to be handover problems, and 27 (out of 341) (8%) were considered to involve a failure in selection of the correct patient, site or procedure.

5.2.2 Consumer Reporting

Since commencement, consumers have reported 26 incidents into EMER.

Table 15 identifies to whom the incident occurred. Parents reported on behalf of their child in 27% (n=7) of the incidents followed by self-reporting and reporting on behalf of a parent in 23% (n=6) of the incidents.

Table 15 Responses to question "Who did the experience happen to?"

Who did the experience happen to?	Number
Your child	7
You	6
Your parent	6
Other	4
Your partner	3
Grand Total	**26**

Incidents occurred most frequently to people aged between 65-69 years (19%) with the age band 20-24 years and 85-80 years with an equal distribution (15%) (Figure 10).

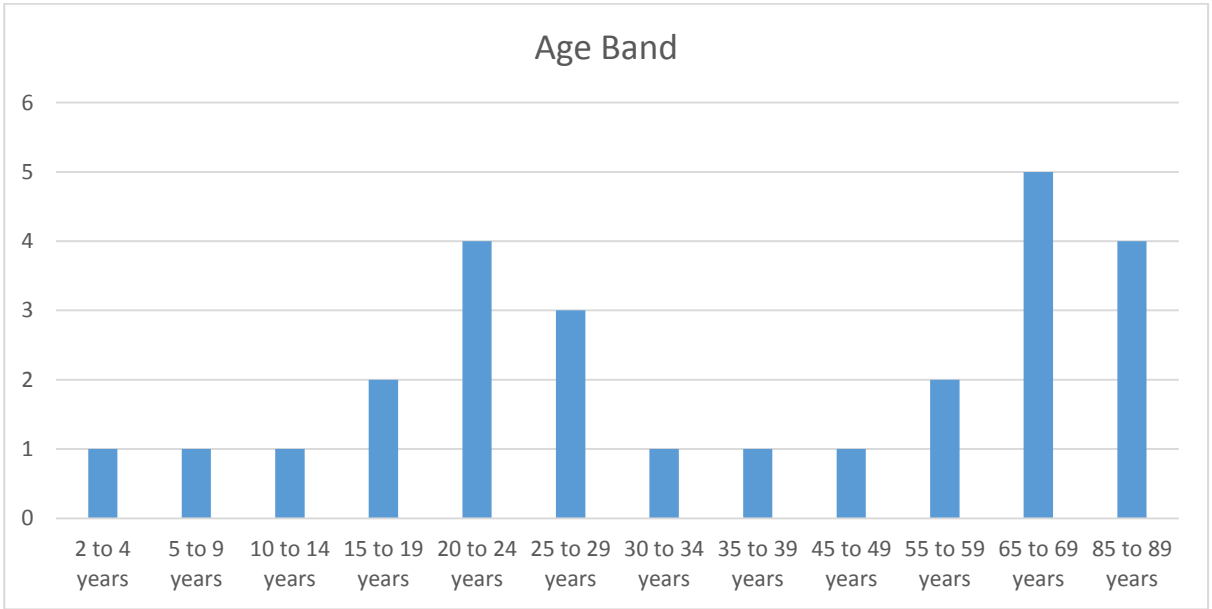

Figure 10 Age Band

Of the reported incidents 76% (n=20) occurred to females with only 23% occurring to males (**Error! Reference source not found.**); all the incidents occurred in Australia. Of the 26 ncidents, 8 (31%) occurred "Within the last month" with "in the last week" and "More than 12 months ago" following with 5 (19%) reports each (Figure 11).

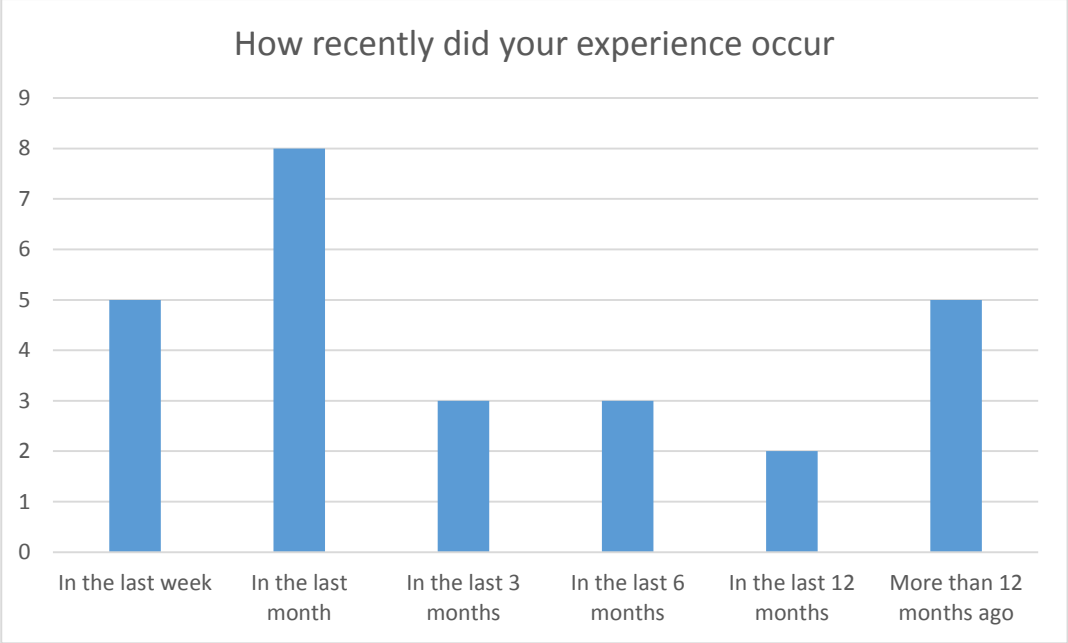

Figure 11 When did the experience occur?

The "time of day" field (Figure 12) showed no significant peak in time of occurrence with an even distribution of 3 (13%) incidents being reported as occurring between 1:00-1:59am, 9:00-9:59am, 11:00-11:59am and 9:00-9:59pm.

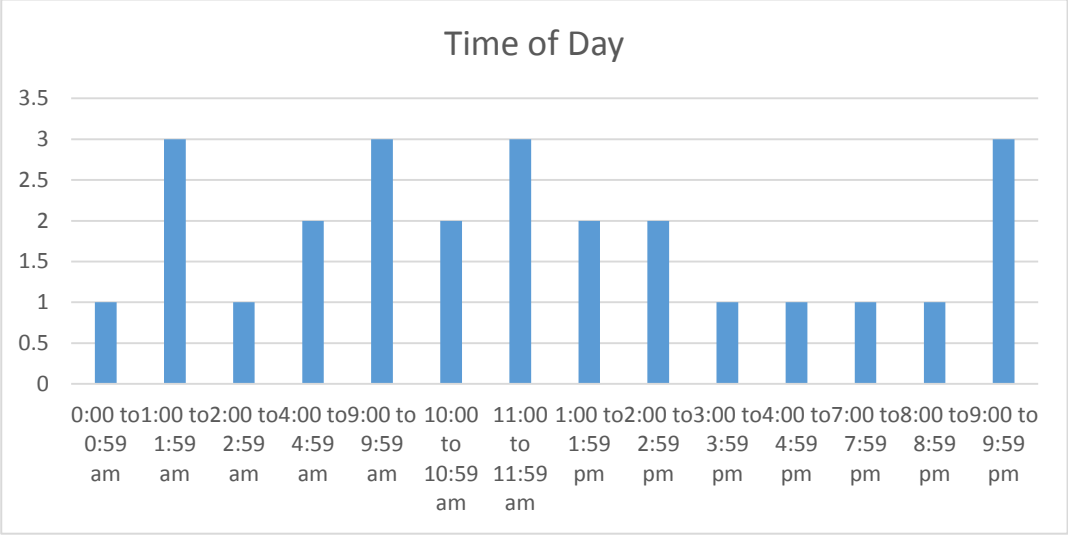

Figure 12 Time of Day

Awareness of EMER continues to increase through greater uptake of EMER site champions, increasing numbers of publications and presentations, promotion via ACEM newsletters and, significantly, through novel dissemination methods including the Patient Safety Alerts and consumer reporting. These latter two methods have only recently commenced; continued work in 2017 is required to promote Patient Safety Alerts to clinicians, and consumer reporting to consumers.

5.2.3 Principal Natural Category classification results

Throughout 2016 Dr Carmel Crock, Dr Kim Hansen and Anita Deakin periodically held meetings to classify the EMER incidents. Clinical expertise was provided by Drs Carmel Crock and Kim Hansen whilst classification expertise was provided by Anita Deakin. Incidents were "grouped" by Principal Natural Category (PNC) or the main reason(s) (the "crux") for the incident being submitted. The results were presented at various conferences and in-service meetings both nationally and internationally and the results were published in a paper authored by Dr K Hansen et al titled "The Emergency Medicine Events Register: An analysis of the first 150 incidents entered into a novel, online incident reporting registry"[2] . A response to the article was submitted by Adam West to the EMA Letter to the Editor. His letter praised the work of EMER stating "The work of ACEM and the Australian Patient Safety Foundation in ED adverse events should be applauded. However, there is much work still to be done, in particular, in making the recording and response to adverse events as simple and easy as possible"[3].

Forty two incidents (13%) resulted in a death with diagnostic error accounting for over half of the errors (n=22; 52%) (Figure 13).

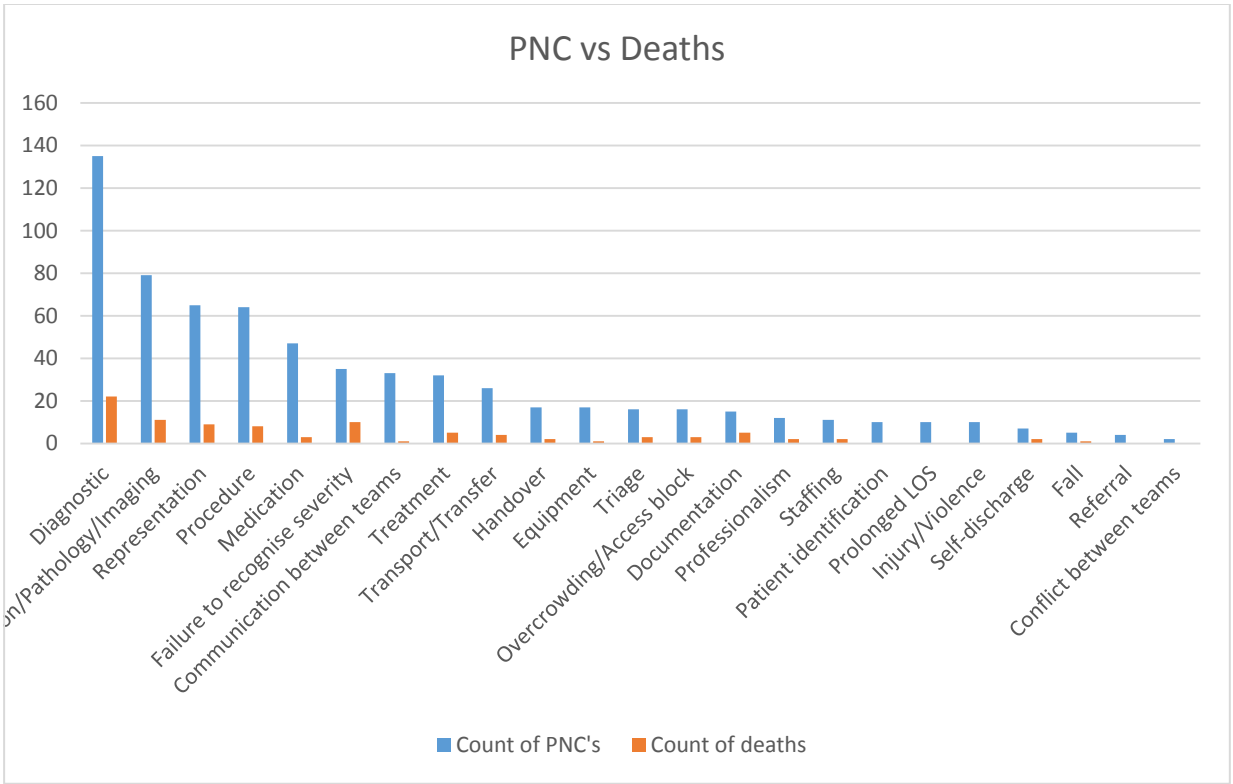

Figure 13 EMER incidents – By PNC versus Death

6. Benefits to the Profession

EMER has been designed to be an easy to use, online, anonymous reporting system available to all ED clinicians to report any incident that occurs in an ED. Incident analysis requires a set of diverse skills that are not easily obtainable, including clinical expertise, human factor knowledge, quantitative analysis and qualitative thematic exploration.

The benefits of using EMER over any other incident reporting system is:

- Provides greater insight into what's happening in Australasian EDs with the additional advantage of identifying the low frequency issues specific to EDs which are otherwise difficult to identify and analyse
- Analysis of incidents by independent world experts with vast experience and knowledge in patient safety who also have clinical experience in concert with people with additional insight into hospital work flows, logistics and healthcare team interactions.

7. Challenges to reporting

Despite consistent efforts by EMER steering group members and other stakeholders, clinician uptake to reporting remains lower than desired. The barriers to reporting have been extensively documented and have remained consistent over decades, not only within the health industry but across many other industries; time, anonymity, poor reporting system design and/or accessibility, lack of feedback and fear of litigation still remain the primary concerns. The design and implementation of EMER has acknowledged these barriers and aimed to provide a simple, ED-specific, time efficient, easily accessible web based reporting tool. EMER also provides feedback directly to ACEM and the profession via presentations and publications, social media updates, newsletters, internal promotion by site champions and EMER steering group members. Although EMER has acknowledged and attempted to minimise the reporting barriers through the careful development of a specialty specific anonymous reporting tool, only continued promotion of a strong safety culture within EDs, with management support, will see a rise of reporting rates into EMER[4]. Additional measures, such as a requirement for trainees to undertake mandatory reporting of a set number of incidents per year, could be initiated by ACEM. EMER was also discussed as being utilised as part of a Work Based Assessment (WBA), incorporated into training or used as a case based discussion. Although EMER has been recognised by ACEM as a valuable teaching tool, the college remains reluctant in its inclusion of EMER in such activities. All you can do is collect information after the event, aggregate, analyse and feedback to identify and characterise low frequency events specific to EDs.

8. Future plans ("wish list") and sustainability

The EMER steering group has identified several avenues for future sustainability of EMER that could be considered to increase the prospects of EMER continuation and promotion for the future for both clinician and consumer reporting. These include:

1) *Initiate a consumer call centre* – a direct telephone reporting service for consumers to report incidents into EMER. This was identified as a means of enabling the older demographic who often struggle with computer systems and those that may not use electronic devices (due to socioeconomic or remote locations) to contribute to incident reporting. It has been proposed that the call centre would be available Monday – Friday during normal business hours and would be manned by trained APSF staff who would directly enter the incident into EMER in "real-time".

2) *Mobile friendly reporting app* – to improve accessibility to the EMER website for those entering incidents using mobile phone technology. Although it may be deemed as a non-lucrative potential plan as 81% of users access EMER using a desktop PC and only 14% utilise mobile phone technology, reporting may be hindered by reporters inability to easily access or navigate the EMER website on a mobile phone and aborting reporting an incident as a result. Alltraders have estimated the cost of developing a mobile friendly website at approximately $2,000.

3) *Promotion of amalgamation and data sharing with other specialty groups* – this has been identified as requiring priority consideration with more external stakeholders requesting sensitive information from the EMER database and the legal implications of releasing such data[3]. Consideration needs to be made as to the extent that ACEM "controls" the data usage once released i.e. Do ACEM need to "vet" how the data is presented prior to publication? Does an EMER steering group member have to be acknowledged as a contributing author?

4) *Face-to-face site visits* – it has been identified that access to EMER and reporting rates show a "spike" during and immediately post EMER presentations. Steering group members have identified the need to perform more site visits with the intention of conducting EMER education directly to clinicians. With EMER steering group members spread across most Australian states this would be achievable with minimal additional resources.

5) *Data utilisation* – EMER is rich in information and learnings provided from both the clinician and consumer reports. Future consideration by ACEM in expanding the utilisation of this data to inform policy and advocacy work and improve quality of EM practice should be of high consideration.

9. Publications and Presentations

Below is a list of the EMER publications and presentations for 2016/2017. A full list of EMER publications and presentations can be found in Appendix 4. EMER Publications and Presentations

9.1. Publications

- Deakin, A., Crock, C. and Newell, S. (2017). "What do I know about patient safety? I'm just a patient" (in draft)
- Deakin, A. and Crock, C. (2017) "They only had their tonsils out. It wasn't risky surgery" (in draft)
- Deakin, A. and Crock, C. (2017) Corneal foreign body (in draft)
- Shepherd, M. (2017). Erring on the Side of Education. Emergency Medicine Australasia. (submitted awaiting publication)
- Runciman, W.B et al (2017) "Airways Paper" (in draft)
- Hansen, K., Schultz, T., Crock, C., Deakin, A., Runciman, W. and Gosbell, A. (2016) *The Emergency Medicine Events Register: An analysis of the first 150 incidents entered into a novel, online incident reporting registry*. Emergency Medicine Australasia, 28(5), 544–550. DOI: 10.1111/1742-6723.12620. http://onlinelibrary.wiley.com/doi/10.1111/1742-6723.12620/full
- Crock, C. and Deakin, A. (2016). Interviewed by Lucy Palermo for Health Matters. *EMER: How consumers & clinicians can improve patient experiences in Hospital Emergency Departments*. Health Consumers Council (WA) Inc Magazine. Issue 2. 24-25. http://www.hconc.org.au/emer/
- Schultz, T.J., Hansen, K. and Crock, C. (2016) *Re: Improving the governance of patient safety in emergency care: a systematic review of interventions*. *BMJ Open.* http://bmjopen.bmj.com/content/6/1/e009837.abstract/reply#bmjopen_el_9640
- In addition 3 case studies are in draft format; Consumer reporting, Post tonsillar bleed and Corneal foreign body
- The "airways" paper scheduled for submission in 2016 has been postponed to March 2017

9.2. Presentations

- Crock, C. (2016). *Houston, we've had a problem. Incident monitoring in emergency medicine*. ACEM ASM, New Zealand.
- Crock, C. (2016). *Picking up the pieces: when things go wrong in emergency medicine.* ACEM Victorian Faculty meeting, Torquay, Victoria.
- Hansen, K (2016). *Voices from the grave: Deaths in the emergency services register.* ACEM ASM, New Zealand.
- Crock, C. (2016). *Emergency Department consultant meeting*. Austin Hospital, Victoria.

- Crock, C. (2016). *Presentations on EMER for ED registrars* (multiple presentations). Royal Victorian Eye and Ear Hospital, Victoria.
- Crock, C. and Deakin, A. (2016) *Patient Experience Week.* Health Consumers Council. WA, Australia.
- Hansen, K (2016). Emergency Medicine Events Register: A Clinical analysis of Procedural Errors. *The Social Media and Critical Care Conference*, Dublin, UK. Poster SMACC.

10. Conclusion

Since the start of 2016 EMER has been of increasing value in growing the understanding of what is going right/wrong in Australasian EDs and continued progress of the project has been demonstrated. Although many achievements have been reached some of the major achievements include six presentations to national and international groups, four publications (with another four publications awaiting submission/in draft), winning the 2015 ACEM ASM e-poster award, publication of a case study that contributed to the Australasian Triage Scale being updated to now include testicular pain as a category 2, launching of consumer reporting at the Patient Safety Experience week (Perth, WA), continuation of EMER education and promotion and continued interest from a wide variety of EM leaders, researchers and practitioners from all over Australia and New Zealand.

11. Acknowledgements

The EMER website was developed and maintained by Alltraders Pty Ltd. Funding for the project was provided by the Australasian College of Emergency Medicine (ACEM). The authors wish to thank the project steering committee for their guidance throughout 2016 and the site champions for their continued interest, enthusiasm, time, expertise and energy during the year. We would also like to acknowledge the Health Consumers' Council (WA) Inc. for their invitation to present at the Patient Experience week.

12. References

1. Crock, C. and A. Deakin, EMER: How consumers & clinicians can improve patient experiences in Hospital Emergency Departments, in Health Matters, L. Palermo, Editor. 2016: Health Consumers Council (WA) Inc Magazine. p. 24-25.
2. Hansen, K., et al., The Emergency Medicine Events Register: An anlysis of the first 150 incidents entered into a novel, online incident reporting registry. Emergency Medicine Australia, 2016.
3. West, A., One register to rule them all: Emergency Medicine Events Register? Emergency Medicine Australasia, 2016. 28(6): p. 760.
4. Hesselink, G., et al., Improving the governance of patient safety in emergency care: a systematic review of interventions. BMJ Open, 2016. 6(1).

13. Appendices

Appendix 1. EMER clinician report data fields

No.	Field	Description	Type	Tip
1	DateSubmitted	Automatically generated		
2	IdNumber	Automatically generated		
3*	Country		Single select pick list	Australia; New Zealand
4	Funding	How is the organisation funded?	Single select pick list	Public; Private
5*	Date Incident Occurred	The Incident Date is the date that the incident occurred.	Date picker Manual entry	
6	Date_is		Single select pick list	Exact; Approx-week surrounding; Approx-month surrounding
7	Weekend or Public Holiday		Multi select pick list	Weekend; Public Holiday
8	Timeband	The time band of the approximate time the incident occurred.	Single select pick list	(25 time bands listed in hourly increments. Includes Unknown)
9	Person Involved		Multi select list	Staff; patient; visitor
10*	Did the incident involve any of the following events		Multi select list	Representation within 7 days; Recall of patient; Follow-up of test results; Diagnostic error; Access block; Procedural error; "Did not wait"; Patient absconded; “Left against clinical advice”; None of the above
11*	What was the subjects triage score on presentation		Single select pick list	Category 1 – Immediately life threatening; Category 2 – Imminently life threatening; Category 3 – Potentially life threatening or important time critical treatment or severe pain; Category 4 – Potentially life serious or situational urgency or significant complexity; Category 5 – Less urgent
12	What medical specialty(ies) was involved in the incident?		Multi select pick list	(39 different specialties listed)
13	What was the patient’s age at the incident?	The actual or approximate age range of the subject.	Single select pick list	(25 age bands listed at 4 year increments)
14	Gender		Single select pick list	Male; Female; Other
15	Clinical Presentation	Enter a description of the clinical presentation (diagnosis) of the subject.	Free text	

No.	Field	Description	Type	Tip
16*	What happened?	Enter details of the incident. This includes what happened, who was involved and how the situation was dealt with immediately after it occurred. Please use generic descriptions - Nurse A- Doctor on duty etc.	Free text	
17	What were the contributing factors?	Details of factors which contributed to the incident occurring. For example, insufficient staff, patient intoxication, failure to read etc.	Free text	
18	What were the factors that reduced the impact of the incident?	Description of actions taken to minimise the outcome of this incident, e.g. early recognition, appropriate treatment.	Free text	
19	What were the consequence or outcomes of the incident?	Enter the details of the outcome of the incident. e.g procedural complication, shortness of breath, delayed procedure, increase financial cost, waste of resources .	Free text	
20	How could the incident have been prevented?	Enter the details of how you think the incident could have been prevented. Please use generic descriptions - Nurse A- Doctor on duty etc.	Free text	
21	What was the immediate action(s) taken to manage the incident?	Enter the details of the immediate steps or actions taken to manage the incident.	Free text	
22*	What is your designation?	Select the designation (job type) of the notifier from the list.	Single select pick list	ED Physician; ED Registrar; RMO, Intern; CMO; GP; Nurse; Allied Health; Patient; Other
23*	At what stage in the patients journey was the incident first initiated?		Single select pick list	• Pre-ED (e.g. patient sent to incorrect hospital or hospital not equipped for patient's condition) • Departure from ED (e.g. patient left the ED with a cannula still insitu) • During the triage process (e.g. patient incorrectly categorised) • Entering the system (e.g. "ramping") • Initial assessment or treatment (e.g. mis-diagnosis)
24*	At what stage in the patients journey was the incident detected?		Single select pick list	

No.	Field	Description	Type	Tip
				• Further investigation (e.g. CT error, incorrect side x-ray) • In-patient consultation or review (e.g. problem with referral)Following departure from ED (e.g. staff trying to contact patient with results post discharge from ED) • Departure from ED (e.g. patient left ED with a cannula still insitu) • Following departure from ED (e.g. staff trying to contact patient with results post discharge from ED)
25	Did this incident or near miss involve a failure associated with application of the correct patient correct site or correct procedure policy		Single select pick list	Yes, No
26	Did the incident involve a problem with handover?		Single select pick list	Yes, No
27	Is this incident a “burst report” on either of the following incident types?	Identify if the incident was any of the following topics	Single select pick list	Airway management (e.g. intubation, laryngoscopy; equipment failure, human error, system failure); Interhospital transfer; Conflict between teams; Violence in EDs.

Appendix 2. EMER consumer report data fields

1*	Who did the experience happen to?	Select an option to identify who the experience you are reporting happened to	Single select pick list	You; Your child; Your parent; Your partner; Other
2*	Tell us what happened?	Describe using your own words what happened. Please use generic descriptions – Nurse A, Doctor on duty	Free text	
3*	What was the result of your experience?	Using your own words enter a brief description explaining the outcome (final result) of the experience you are reporting.	Free text	
4	How could the incident have been prevented?	Using your own words enter the details of how you think your experience could have been prevented. Use generic descriptions – Nurse A, Doctor on duty	Free text	
5	What could the emergency department have done better?	Using your own words enter what you believe the emergency department do better to minimise or prevent re-occurrence	Free text	
6	What was your/the patient's age at the time the experience occurred?	The actual or approximate age range of the person the experience happened to	Single select pick list	(25 age bands listed at 4 year increments)
7	What is your/the patient's gender?	Select an option to identify the gender of the person the experience happened to	Single select pick list	Male; Female; Other
8*	In what country did your experience occur?		Single select pick list	Australia; New Zealand; Other
9	How recently did your experience occur?	Select an option to identify how recently your experience occurred	Single select pick list	In the last week; In the last month; In the last 3 months; In the last 6 months; In the last 12 months; More than 12 months ago
10	Approximately at what time of the day did your experience occur?	Select an option to identify the approximate time of day your experience occurred	Single select pick list	(25 time bands listed in hourly increments. Includes Unknown)

Appendix 3. Case Study

EMA Emergency Medicine Australasia

Emergency Medicine Australasia (2015) 27, 618–619 doi: 10.1111/1742-6723.12473

CASE LETTER

'Knickers in a twist'

Dear Editor,

The following incident was submitted to the Emergency Medicine Events Register (EMER – http://www.emer.org.au). Anyone working in emergency medicine can enter a near miss or AE by following the link from the website. It should only take 5 min and will help to inform practice and improve patient safety in emergency medicine.

Torsion of the testicle results from twisting of the spermatic cord, which can compromise the organ's blood supply. Torsion might occur proximal (extravaginally) or within (intravaginally) the tunica vaginalis; the former occurs in the very young and comprises a small percentage of cases,[1] whereas the latter occurs in older children and adolescents (65% of cases), and is believed to be due to abnormal fixation of the testis within the tunica vaginalis (also known as the 'bell clapper' testicle).[1] In either situation, the resulting ischaemia can lead to significant morbidity, including testicular loss.[1]

The presentation is classically rapid and severe, but might be proceeded by milder episodes due to spontaneous detorsion.[2] Children often present with an 'acute scrotum' and might be reluctant to be examined.[3] The testicle is classically tense, tender and high in the scrotum. If present, twisting of the spermatic cord might be felt as a tight 'knot' as the cord exits the external inguinal ring. The cremasteric reflex might be absent.[3] The clinical diagnosis can be difficult; in Corbett and Simpson's study of 182 boys who presented to the ED, testicular torsion was clinically identified by ED doctors in 39% of cases, registrars in 53% and specialists in 76%.[4] Differential diagnoses include torsion of the testicular appendage, epididymitis, orchitis, trauma, idiopathic scrotal oedema, hernia, hydrocele and tumour.[4]

Rapid surgical intervention is advocated to maximise the chance of a positive outcome. Exploration within 6 h yields a greater than 90% testicular salvage rate, dropping to 20% at 24–48 h.[1] Surgical intervention should not be delayed even if the pain has been ongoing for more than 6 h, because the possibility of salvage can continue for up to 48 h post-torsion.[3] Although testicular torsion can be excluded by experienced examiners in up to 50% of cases, surgical exploration is often required to secure the diagnosis.[3]

BOX 1 *Data reported into EMER from an AE*

Clinical presentation
Patient presented with testicular pain. ED consultant assessed – ? torsion testis, but likely morgagni remnant torsion as tender at upper pole. Apyrexial. Haemodynamically stable. Four hours of pain – therefore time sensitive.

What happened?
Resident was advised by ED consultant to request surgical registrar to attend and consider surgery to explore if torted. Surgical registrar notified resident that he is busy attending to a duodenal bleed in ICU and therefore would not be attending the patient in a timely fashion. The registrar advised the resident to send the patient to a paediatric hospital where that surgical registrar could see the patient. This would delay definitive assessment and care even further. I intervened as the resident was speaking to the paediatric hospital to arrange a transfer – I called the on-call consultant surgeon who promptly attended to the patient in ED and took them to theatre ASAP to assess for torsion.

Contributing factors
Surgical registrar busy. Did not understand time frame? Inexperienced resident – following orders.

Action taken
ED consultant call to surgical consultant.

Factors that reduced the impact
ED consultant intercepting the call.

Prevention
Surgical registrars doing their job. ED resident awareness of guidelines regarding torsion. More ED registrars available to assess and discuss with surgical registrar. Consultant-to-consultant discussion from time zero.

Consequence or outcome
Patient in theatre at 5 h post-onset of pain.

Reporter
ED physician.

BOX 2 *Summary of case study learnings*

Case study learnings – testicular torsion

- Symptoms – sudden onset testicular pain and swelling; often with nausea and vomiting (Guidelines paper Melb hospital).
- Signs – Possible discolouration of scrotum; exquisitely tender and swollen high-riding testis. Cremasteric reflex usually absent (Guidelines paper Melb hospital).
- Acute management – Titrated analgesia and immediate surgical consultation to facilitate emergent scrotal exploration. Keep the patient fasted (Guidelines paper Melb hospital).
- Doppler US can be used to assess testicular blood flow but should not delay obvious cases from emergent surgical exploration.
- History and examination can exclude testicular torsion in more than 50% of cases when performed by an experienced examiner preventing unnecessary surgery.
- Rapid intervention is imperative if a positive outcome is to be achieved.

Colour Doppler US can be used to demonstrate normal testicular blood flow in support of a clinical exclusion of the diagnosis, but must not delay surgery in cases with a high index of suspicion.[2,3] Optimal management is to err on the side of caution in equivocal cases with emergent surgical exploration.[4]

Detorsion and fixation of both testes is considered best surgical practice.[3] If the testicle is necrotic on detorsion, it is removed. Detorsion should relieve the pain, restore a vertical lie of the testis with a lower position in the scrotum and ideally return normal arterial supply.[3]

In the case presented in Box 1, the overall management of the patient could have been improved by several means:

1. the registrar's availability to assess the referred patient immediately; innovative surgical registrar roster design has previously been outlined elsewhere as part of attempts to improve hospital service provision and create safer working hours;[5]
2. better support for the inexperienced resident; whereas the surgical registrar's response to the initial contact is clearly inappropriate, it might also be argued that in a time-critical illness such as testicular torsion, the ED consultant should not have designated the task of referral to a junior doctor, or at least should have been more vigilant in closely following up the outcome of the referral;
3. more appropriate communication between staff members, escalating the problem in a more timely manner and obviating the potential risks associated with transferring the patient to another institution (in this case clearly unnecessary as the surgery was able to be performed within the original facility to which the patient presented). It appears that it was good fortune rather than by design that the ED physician intercepted the problem and then actively redirected all efforts to achieving a positive outcome for the patient. A number of communication tools exist (e.g. ISBAR [Introduction, Situation, Background, Assessment, Recommendation]) to assist healthcare workers in standardising the information they are relaying, allowing for emphasis of the critical components of a given message. Box 2 identifies a summary of clinical learnings for the management of testicular torsion.

Competing interests

None declared.

References

1. Yin S, Trainor JL. Diagnosis and management of testicular torsion, torsion of the appendix testis, and epididymitis. *Clin. Pediatr. Emerg. Med.* 2009; **10**: 38–44.
2. Costello AJ. Acute scrotal pain. In: Tjandra JJ, Clunie GJA, Kaye AH, Smith JA eds. *Textbook of Surgery*, 3rd edn. Oxford: Blackwell Publishing Ltd, 2008; 659–63.
3. Scrinath H. Acute scrotal pain. *Aust. Fam. Phys.* 2013; **42**: 790–2.
4. Corbett HJ, Simpson ET. Management of the acute scrotum in children. *ANZ J. Surg.* 2002; **72**: 226–8.
5. Wysocki AP, McGowan B. Revising the surgical registrar on-call roster. *ANZ J. Surg.* 2010; **80**: 490–4.

Anita DEAKIN[1] and Matthew SHEPHERD[2]
[1]Australian Patient Safety Foundation, Adelaide, South Australia, Australia, and [2]Tamworth Rural Referral Hospital, Tamworth, New South Wales, Australia

Appendix 4. EMER Publications and Presentations

Publications

Deakin, A., Crock, C. and Newell, S. (2017). "What do I know about patient safety? I'm just a patient" (in draft)

Deakin, A. and Crock, C. (2017) "They only had their tonsils out. It wasn't risky surgery" (in draft)

Deakin, A. and Crock, C. (2017) Corneal foreign body (in draft)

Shepherd, M. (2017). Erring on the Side of Education. Emergency Medicine Australasia. (submitted awaiting publication)

Runciman, W.B et al (2017) "Airways Paper" (in draft)

Deakin, A. and Howes, M. (2016) "It's all about me!": Was that the patient speaking?. Emergency Medicine Australasia. doi: 10.1111/1742-6723.12676 http://onlinelibrary.wiley.com/doi/10.1111/1742-6723.12676/abstract

Hansen, K., Schultz, T., Crock, C., Deakin, A., Runciman, W. and Gosbell, A. (2016) The Emergency Medicine Events Register: An analysis of the first 150 incidents entered into a novel, online incident reporting registry. Emergency Medicine Australasia. DOI: 10.1111/1742-6723.12620. http://onlinelibrary.wiley.com/doi/10.1111/1742-6723.12620/full

Crock, C. and Deakin, A. (2016). Interviewed by Lucy Palermo for Health Matters. EMER: How consumers & clinicians can improve patient experiences in Hospital Emergency Departments. Health Consumers Council (WA) Inc Magazine. Issue 2. 24-25. http://www.hconc.org.au/emer/

Deakin, A. & Smith, B, (2015). Interhospital transfer: How can we get it right? *Emergency Medicine Australasia*. 27 (5) 492-493.http://onlinelibrary.wiley.com/doi/10.1111/1742-6723.12453/epdf

Deakin, A., & Hansen, K. (2015). Why did you leave us when we wanted you to stay? *Emergency Medicine Australasia*. 27(5). 488–489.http://onlinelibrary.wiley.com/doi/10.1111/1742-6723.12447/epdf

Deakin, A., & Shepherd, M. (2015). Knickers in a twist. *Emergency Medicine Australasia*. 27,618–619 doi:10.1111/1742-6723.12473.http://onlinelibrary.wiley.com/doi/10.1111/1742-6723.12473/epdf

Deakin, A., Schultz, TJ., Hansen, K., & Crock, C. (2014). Diagnostic error: Missed fractures in emergency medicine. Emergency Medicine Australasia : EMA. http://onlinelibrary.wiley.com/doi/10.1111/1742-6723.12328/epdf

Schultz, T. J., Crock, C., Hansen, K., Deakin, A., & Gosbell, A. (2014). Piloting an online incident reporting system in Australasian emergency medicine. *Emergency Medicine* Australasia : EMA, 26(5), 461–7. http://onlinelibrary.wiley.com/enhanced/doi/10.1111/1742-6723.12271/

Schultz, T. J., & Deakin, A. (2013). Emergency Medicine Events Register (EMER) - Final Report. Adelaide: Australian Patient Safety Foundation.

Schultz, T.J., Hansen, K. and Crock, C. (2016) Re: Improving the governance of patient safety in emergency care: a systematic review of interventions. *BMJ Open.* http://bmjopen.bmj.com/content/6/1/e009837.abstract/reply#bmjopen_el_9640

Presentations

Crock, C. (2016). Houston, we've had a problem. ACEM ASM, New Zealand. Houston, we've had a problem.

Hansen, K (2016). Voices from the grave: Deaths in the emergency services register. ACEM ASM, New Zealand. Voices from the Grave

Crock, C. and Deakin, A. (2016) *Patient Experience Week.* Health Consumers Council. WA, Australia. HCC Presentation 2016

Hansen, K (2016). Emergency Medicine Events Register: A Clinical analysis of Procedural Errors. *The Social Media and Critical Care Conference*, Dublin, UK.Poster SMACC

Crock, C (2015). EMER BMJ Video - Learning from our errors. *20th International Quality and Safety Forum in Healthcare*. London. View via https://www.youtube.com/playlist?list=PLVdY5G6w32NiIHF4C54LTi5BPwaMSps4O

Hansen, K. (2014a). Emergency Medicine Events Register: a new online portal for incident monitoring. In *ICEM*. Hong Kong.

Hansen, K. (2014b). e-poster - Emergency Medicine Events Register: a new online portal for incident monitoring. In *ACEM Queensland Autumn Symposium*. Brisbane.

Hansen, K. (2013a). EMER: Emergency Medicine Events Register, the first 6 months. In *ACEM Queensland Autumn Symposium*. Brisbane.

Hansen, K. (2013b). Emergency Medicine Events Register (EMER). In *Australasian College for Emergency Medicine Annual Scientific Meeting*. Adelaide. Retrieved from http://vimeo.com/94130386

Hansen, K. (2012). Emergency Medicine Events Register (EMER). In *Australasian College for Emergency Medicine Annual Scientific Meeting*. Hobart.

Schultz, T. J., & Magrabi, F. (2012). Specialty specific incident reporting systems in healthcare. In *Measuring and Reducing Avoidable Adverse Events*. Sydney.

Crock, C. (2010). Development of an Australasian Incident Reporting System for Emergency Medicine. In *ACEM Annual Scientific Meeting*. Canberra.

Appendix 5. Site Champion Newsletter

EMER

Emergency Medicine Events Register

EMER SITE CHAMPION NEWS

Edition 13 | **January, 2017**

Welcome!

Another year, another EMER newsletter! Hope you all had a safe and enjoyable Christmas and New Year season.

So, what's been happening over the last few months with EMER? Contract negotiations have been under way and ACEM have committed to continued funding of EMER. Great news! This demonstrates the value ACEM sees in EMER contributing to making our ED's a much safer place.

Those of you who attended the ACEM Annual Scientific Meeting held in Queenstown, NZ in November may have had the opportunity to hear Dr Carmel Crock and Dr Kim Hansen speak about EMER. To read more about the ASM and EMER presentation, go to page 3 of this newsletter.

Other news.....reporting numbers continue to increase but your input is still vital. I'm sure the start of a new year has bought new faces into your department making it a perfect time to rejuvenate EMER promotion amongst both clinicians and consumers. It may also be a perfect opportunity to enlist someone to assist you as the EMER Site Champion.

Best wishes,
The EMER Steering Group

In This Issue

State	Number of sites
Qld	17
Vic	11
NSW	9
WA	7
NZ	3
SA	3
ACT	2
Tas	1
NT	0
SUM	53

EMER Database Update

We have 351 clinician and 25 consumer reports in the EMER database. Currently there are 53 EMER sites with 48 Site Champion across Australia and New Zealand. We still have no representatives for NT. If you know someone who may be interested in being an EMER representative please ask them to contact us. Or give us their details. We are always looking for new recruits to help spread the word.

And don't forget consumers are valuable data sources too. They see what clinicians don't see.....the other side of the event. Please encourage them reporting anything that they express as a complaint, incident or compliment via the EMER (consumer reporting form).

Remember, ALL incidents are valued —near misses and 'good saves' included. So keep reporting!

EMER: Anonymous Confidential Protected

1

Incident in Focus

The incident below was reported by a clinician into www.emer.org.au

Clinical Presentation - Collapse in waiting room of a person who was not a patient/not registered.

What happened? - Nurse noticed person sitting in waiting room, looking pale. Nurse ran into department and called for help, leaving person in waiting room unattended. Team of doctors/nurses ran into waiting room, to find the individual sitting upright but non responsive. Chaos ensued. Eventually a trolley arrived and the individual was lifted by 4 people on to trolley and taken to resus cubicle.

Contributing factors - Occurred during morning handover. End of night shift. Unexpected event.

Minimising factors - Team work and the fact that the individual recovered spontaneously once laid flat. ? had a fit. ? cardiac or vasovagal event

Consequence or outcome - Staff felt that the nurses and doctors did not manage the emergency well. There was a lot of blame and accusations around competency of staff. The overall result, after multiple debriefs is that we will be running fortnightly simulations for night staff to help with them getting more familiarity in managing unexpected events /emergencies such as this.

Prevention - Better monitoring of the waiting room -we have no clerical staff after 2 am (up till 7am) so nurses do the clerical work and the waiting room is not always well monitored.

Immediate actions taken - Code called and team assembled, individual put in resus, monitored, given oxygen etc.

Notifier designation - ED Physician

Publications of interest

1) West, A. (2016) Letter to the editor: One register to rule them all: Emergency Medicine Events register? *Emergency Medicine Australasia*. doi: 10.1111/1742-6723.12692. https://www.ncbi.nlm.nih.gov/pubmed/27748015

2) Leistikow, I., Mulder, S., Vesseur, J. and Robben, P. Learning from incidents in healthcare: the journey, not the arrival, matters. *BMJ Quality & Safety*. 0:1–5. doi:10.1136/bmjqs-2015-004853. (2016). http://qualitysafety.bmj.com/content/early/2016/04/01/bmjqs-2015-004853.full

3) O'Hara, J.K. and Lawton, R.J. At a cross roads? Key challenges and future opportunities for patient involvement in patient safety. *BMJ Quality & Safety*. doi:10.1136/bmjqs-2016-005476 (2016) http://qualitysafety.bmj.com/content/early/2016/06/28/bmjqs-2016-005476

4) Glickman, S.W., Mehrotra, A., Shea, C.m., Mayer, C., Strickler, J., Pabers, S., Larson, J., Goldstein, B., Mandelkehr, L., Cairns, C.B., Pines, J.M. and Schulman, K.A. A Patient Reported Approach to Identify Medical Errors and Improve Patient Safety in the Emergency Department. Journal of Patient Safety (2016) https://www.ncbi.nlm.nih.gov/pubmed/27811598

5) Goldman, B. Doctors make mistakes, can we talk about that? (2011) TEDxToronto. https://www.ted.com/talks/brian_goldman_doctors_make_mistakes_can_we_talk_about_that

The EMER website is: www.emer.org.au

ACEM ASM 2016

The ACEM Annual Scientific Meeting was held in Queenstown in November 2016. We were fortunate enough to be able to showcase EMER over 2 sessions. Dr Kim Hansen presented the deaths in EMER as part of the Patient Safety session, and Dr Carmel Crock in the Quality session summarised studies on, and taxonomies of, error in emergency medicine and how EMER adds to this body of research. Both were well attended and generated considerable discussion.

From the speaker's podium, there were several mentions of how emergency medicine is a "risk business" (the theme), the importance of incident monitoring and how to ensure your department has Patient Safety at the forefront. High risk topics were discussed such as testing for PE and MI, cardiac arrest and intubations. Dr Crock was also interviewed 'on the couch' with Dr Chris Mobbs on physician wellbeing and career sustainability, where the effect of error on ED trainees and physicians was discussed, and how it can contribute to stress and burnout. The benefits of EMER allowing and encouraging open discussion of error by our specialty was also mentioned during this interview.

Targeted reporting

Targeted reporting continues. The incidents we are continuing to focus on include:

1) Airway management
2) Interhospital transfers
3) Conflict between teams

Meet the Steering Group

With increased communication between the EMER Steering Group and Site Champions we would like to take this opportunity to introduce one of the EMER Steering Group members to you via this newsletter! In this edition, It is with great pleasure we introduce you to ***Ms Anita Deakin***.

Anita is the Research Fellow/Data Analyst at the APSF. She has been working in incident monitoring and patient safety since 1999, initially for APSF, then for 7 years at Patient Safety International (now CSC), and returned to APSF in 2012. Initially her journey into patient safety began in 1999 as the AIMS Senior Incident Classification Officer. She then moved into Client Services and Support which then led to her role in software development as the Principal Ontology Developer responsible for the management and design of the AIMS classification system. She has also been involved as a consultant in the development of the WHO International Classification for Patient Safety. Since her return to the APSF she has been involved in various projects utilising her vast knowledge and experience in data management and incident classification. Anita's background in health began as a Registered Nurse. She holds a Bachelor of Applied Science (Nursing), Cert IV in Occupational Health and Safety, along with various other certificates. She has been an active member of the EMER steering group since 2012.

Contact Us

If you have any questions or comments about EMER, please contact us on emer@acem.org.au

This email is monitored by Australian Patient Safety Foundation staff, who can also be contacted on (08) 83022447

www.emer.org.au

1ST AUSTRALASIAN DIAGNOSTIC ERROR IN MEDICINE CONFERENCE

TOWARDS SAFER DIAGNOSIS – A TEAM EFFORT

PULLMAN ALBERT PARK, MELBOURNE, AUSTRALIA

SOCIETY to IMPROVE DIAGNOSIS in MEDICINE

24 – 25 MAY 2017

www.improvediagnosis.org/AusDEM17

For further information contact - AusDEM Conference Secretariat

Info@ausdem2017.com

Ph +61 2 8204 0770

The EMER website is: www.emer.org.au

4