AUSTRALIAN COMMISSION ON SAFETY AND QUALITY IN HEALTH CARE

Safety and quality in hospital funding: why, when, and how?

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The Commission

- Commenced formally 2006
- Australian Government agency – **COAG funded**
- **Leads & coordinates national improvements** in safety & quality of health care based on best available evidence
- Works in partnership with Commonwealth, state & territory governments, private sector, patients, clinicians, managers, & health care organisations
- Aims to achieve a sustainable, safe & high-quality health system
- **Work program decided 3 years in advance** by agreement by Commonwealth and state and territory Health Ministers

What does the Commission do?

- Australian Health Service Quality Standards
  - Teams focused on
    - Hospital Acquired Infections
    - Medication Safety
    - Communication for safety
    - Responding to patient deterioration
- Administer the Accreditation System
- Australian Atlas of Healthcare Variation
  - Look at variation and appropriateness
- Clinical Care Standards
- National Healthcare Associated Infection Programs
- Data to improve health outcomes
  - Clinical quality registries
  - Hospital Acquired Complications
  - Bringing safety and quality into the funding system

NSQHS STANDARDS
A better way to care

AURA
Antimicrobial Use and Resistance in Australia

Clinical Care Standards

National Safety Standards have worked…

Improvements to patient safety and quality resulting from the implementation of the first edition of the NSQHS Standards from 2011 include:

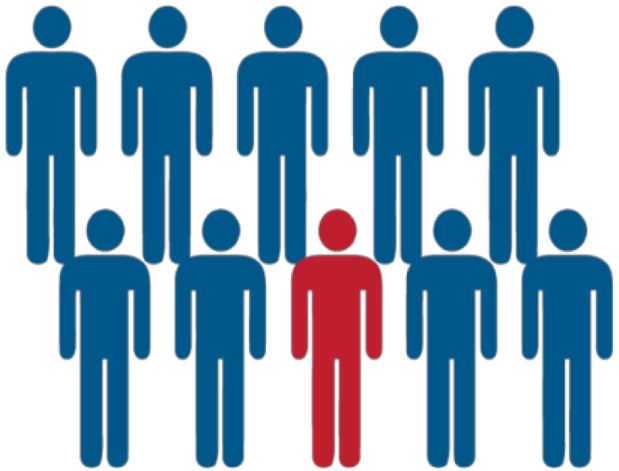
- A decline in the *Staphylococcus aureus* bacteraemia rate per 10,000 patient days under surveillance between 2010 and 2014, from **1.1** to **0.87** cases
- A drop in the yearly number of methicillin-resistant *S. aureus* bacteraemia cases between 2010 and 2014, from **505** to **389**
- A decline of almost one-half in the national rate of central line-associated bloodstream infections between 2012–13 and 2013–14, from **1.02** to **0.6** per 1,000 line days.
- Greater prioritisation of antimicrobial stewardship activities in health service organisations
  - The number of hospitals with antimicrobial stewardship increased from **36%** (2010) to **98%** (2015)
  - Formularies restricting use of broad-spectrum antimicrobials increased form **41%** (2010) to **86%** (2015)

Continued…

National Safety Standards have worked… (cont.)

- Inappropriate use of anti-bacterials in Australian hospitals reduced by **12.6%** from 2010 to 2016.
- Better documentation of adverse drug reactions and medication history
- Reduction in yearly red blood cell issues by the National Blood Authority between mid-2010 and mid-2015, from approximately **800,000** units to **667,000** units
- Declining rates of in-hospital cardiac arrest and intensive care unit admissions following cardiac arrests:
  - Early warning or track and trigger tools in **96%** of systems in 2015, compared with **35%** in 2010
  - NSW Between the Flags program report **51.5%** decrease in cardiac arrest rates
  - Victorian hospitals report a **20%** relative reduction in monthly cardiac arrest rates
- Hospital boards or their governance equivalent (84%) reported that as a result of the NSQHS Standards the board understood and enacted their roles and responsibilities concerning patient safety and quality.

Patient safety



Estimated about 10%-15% of all health spending is wasted due to poor-quality care

Safety studies show that additional hospitalisation, litigation costs, infections acquired in hospitals, disability, lost productivity, medical expenses and costs associated with low value health care and unwarranted variation add to health spending.

The economic benefits of improving patient safety and value are compelling.

Patient safety and quality

- Australia's health system performs well compared to other OECD countries

Exhibit 2. Health Care System Performance Rankings

	AUS	CAN	FRA	GER	NETH	NZ	NOR	SWE	SWIZ	UK	US
OVERALL RANKING	**2**	**9**	**10**	**8**	**3**	**4**	**4**	**6**	**6**	**1**	**11**
Care Process +	2	6	9	8	4	3	10	11	7	1	5
Access +	4	10	9	2	1	7	5	6	8	3	11
Administrative Efficiency +	1	6	11	6	9	2	4	5	8	3	10
Equity +	7	9	10	6	2	8	5	3	4	1	11
Health Care Outcomes -	1	9	5	8	6	7	3	2	4	10	11

- However, we know that a significant proportion of Australian hospital admissions are associated with an adverse event*:

Table 12.4 **Separations with an adverse event per 100 separations, public hospitals, 2014-15[a]**

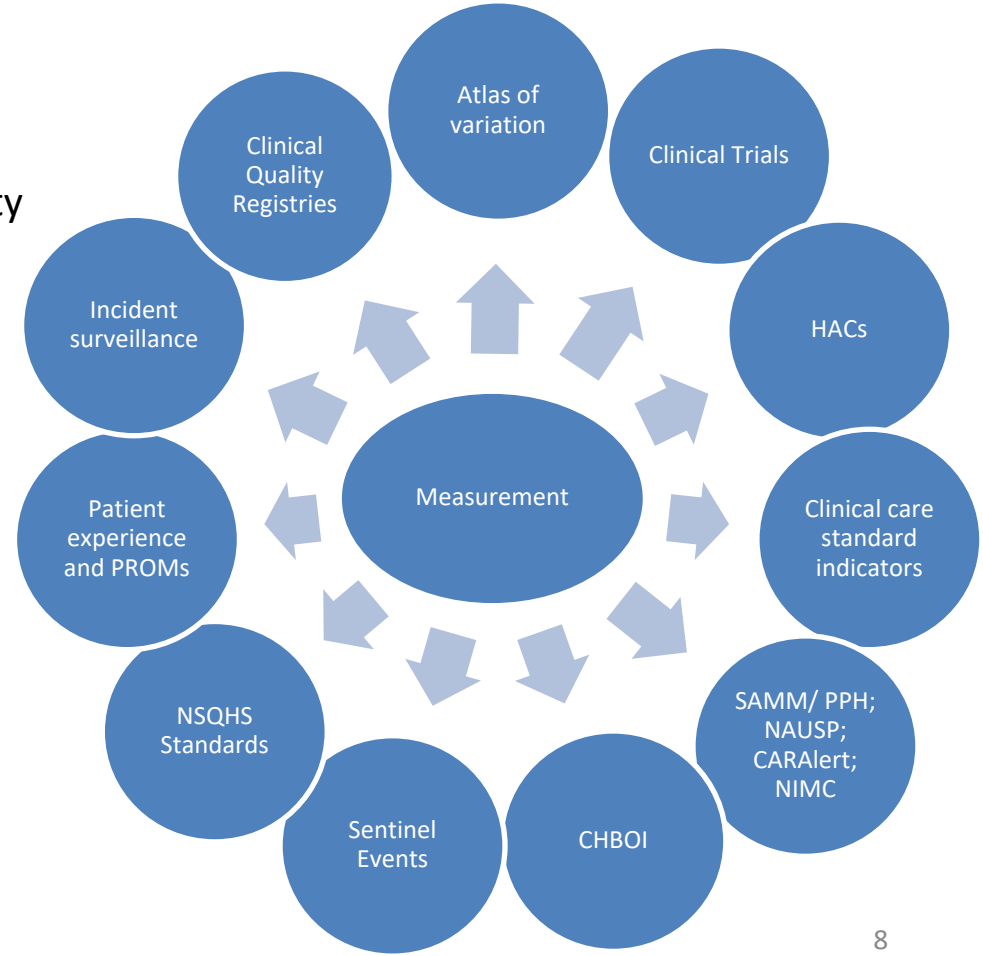
	NSW	*Vic*	*Qld*	*WA*	*SA*	*Tas*	*ACT*	*NT*	*Aust*
Total	6.8	6.6	6.4	7.1	7.5	8.0	7.3	3.5	6.7

- Australian data systems are not sufficient on their own to support improvements
- Reduction in the rate of adverse events and unwarranted variation – could potentially produce productivity savings, as well as direct benefits to patients

Source: ROGS 2017 2: Schneider, E., Sarnak, DO., Squires, D., Shah, A., Doty, M., *Mirror, Mirror 2017: International Comparison Reflects Flaws and Opportunities for Better U.S. Health Care.* The Commonwealth Fund July 2017
Source: AIHW (unpublished), National Hospital Morbidity Database, table 12A, 35.

Measurement is the foundation to advancing healthcare improvement

- A robust safety and quality monitoring system requires multiple measurements of patient safety
- Need to establish standard metrics across the care continuum
- Develop methods to identify and measure risks and hazards proactively
- Encourage the development of organisational & clinical culture of learning and improvement
- Local monitoring through to national reporting



Aetiology & treatment of puerperal fever

- Almost 30% of the women in hospitals died in childbirth
- Semmelweis investigated its cause over the strong objections of his chief, who, like other physicians believed is was **unpreventable**
- Semmelweis observed that, among women cared for by medical students infection rates was three times higher than by midwives
- He found that students who came from the dissecting room to the maternity ward carried cadaverous particles from mothers who had died of the disease to healthy mothers
- He ordered the students to wash their hands in a solution of chlorinated lime before each examination
- Mortality rates dropped from **18.27% to 1.27%**
- The Vienna medical establishment remained hostile toward him
- He died from an infection in a mental hospital after an assault by guards

Ignaz Semmelweis
GERMAN-HUNGARIAN PHYSICIAN

BORN
July 1, 1818
Budapest, Hungary

DIED
August 13, 1865 (aged 47)
Vienna, Austria

SUBJECTS OF STUDY
preventive medicine
puerperal fever
antiseptic

165 years later

Medical Staff hand hygiene compliance rate by Moment

Moment	Correct Moments	Total Moments	Compliance Rate
1- Before Touching A Patient	16,771	24,762	67.7%
2 - Before Procedure	6,333	7,832	80.9%
3 - After a Procedure or Body Fluid Exposure Risk	6,791	8,266	82.2%
4 - After Touching a Patient	21,231	26,995	78.6%
5 - After Touching A Patient's Surroundings	10,940	17,088	64.0%

Nursing/Midwifery Staff hand hygiene compliance rate by Moment

Moment	Correct Moments	Total Moments	Compliance Rate
1 - Before Touching A Patient	110,570	130,675	84.6%

- **The disturbing paradox**
  - **Glacial learning** & adoption of foundational safety e.g. hand washing
  - **Rapid adoption** of new techniques, devices and drugs, with harmful results – transvaginal mesh

Hospital-acquired complications (HACs)

A HAC is a patient complication for which clinical risk mitigation strategies may reduce (but not necessarily eliminate) the risk of that complication occurring

HACs are identified using routinely collected data which is extracted from the patient medical record. A HAC is identified using the combination of:

an additional diagnosis on the HACs list + **a condition onset flag indicating the additional diagnosis occurred during the episode of care (COF =1)** + some HACs also use relevant procedures or external cause codes to identify the complication

Development of HACs

2013 Clinical experts commence work to assess the reliability and validity of using routinely documented clinical information from patient medical records

2013 interim HACs list developed based on the criteria of preventability, severity, health service impact and clinical priority

2014-2015
Proof of concept studies

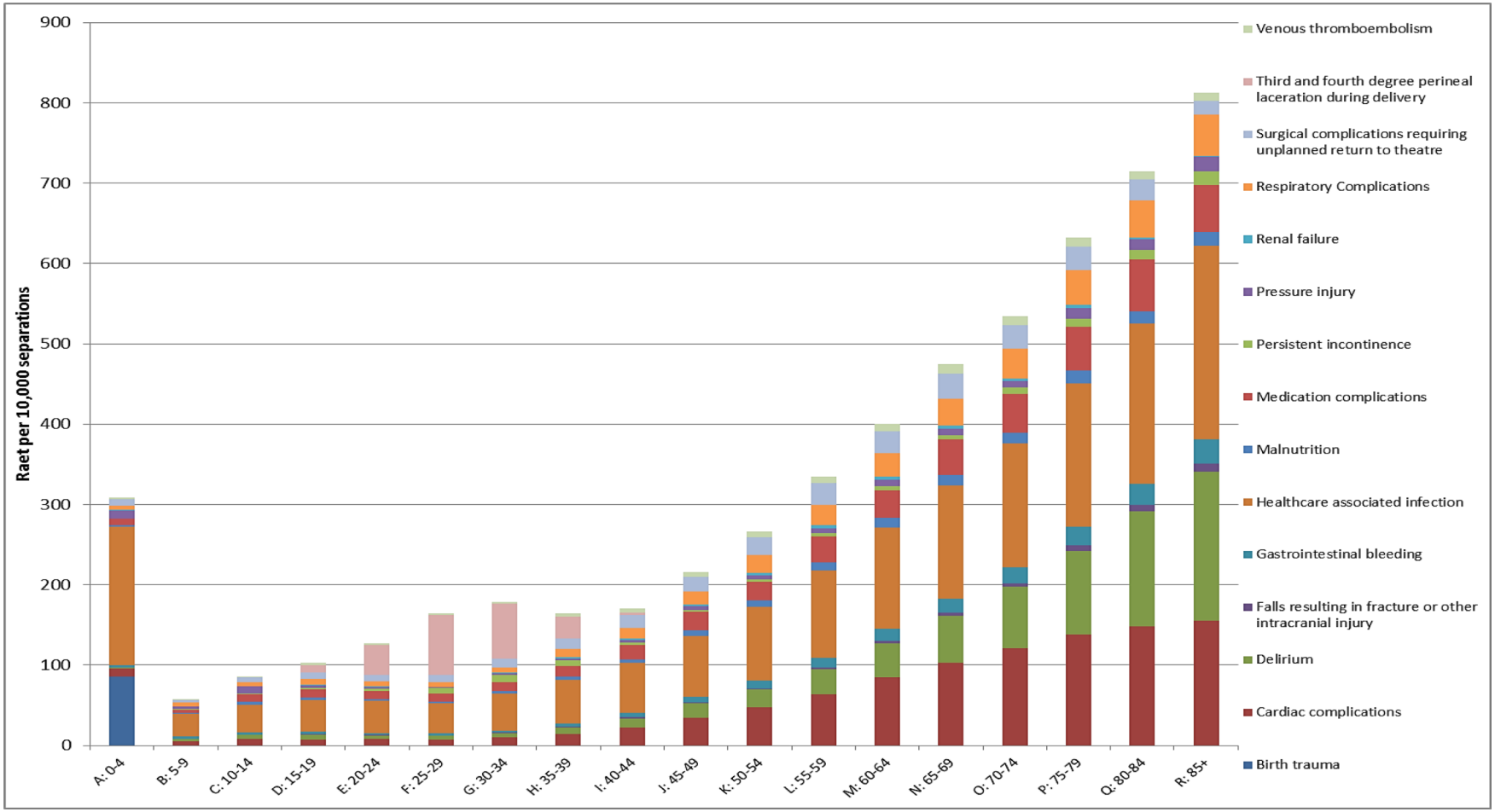
2016 Version 1
HACs list and specifications published on the Commissions website

2018 curation process commences

Final HACs

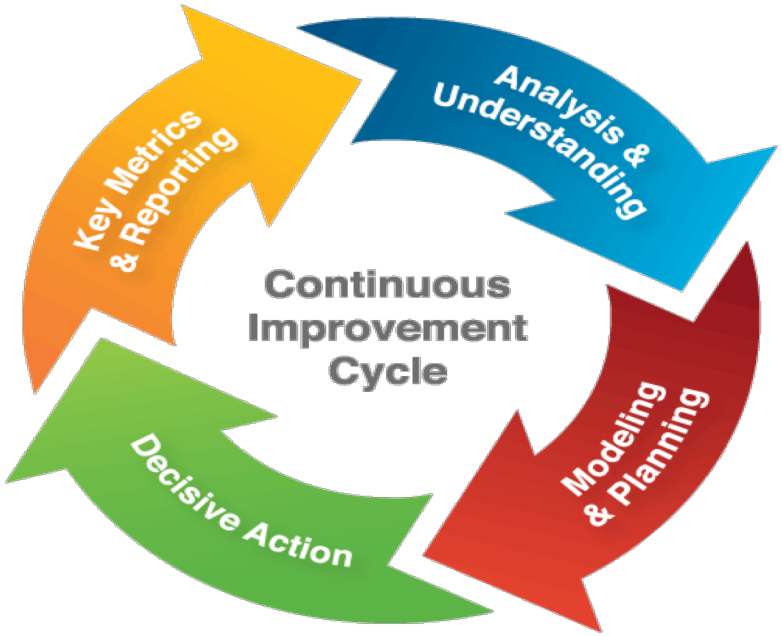
1. Pressure injury	9. Gastrointestinal bleeding
2. Falls resulting in fracture and intracranial injury	10. Medication complications
3. Healthcare associated infection	11. Delirium
4. Surgical complications requiring unplanned return to theatre	12. Persistent incontinence
5. Unplanned Intensive Care Unit admission	13. Malnutrition
6. Respiratory complications	14. Cardiac complications
7. Venous thromboembolism	15. Third and fourth degree perineal laceration during delivery
8. Renal failure	16. Birth trauma

HAC rates per 10,000 acute admitted episodes by age group, public hospitals, 2016-17



Quality improvement

- HACs are significantly preventable
  - Clinical risk mitigation strategies can be put in place to reduce their occurrence
- HACs are one trigger/ indication of success
- They are an information source for local activity

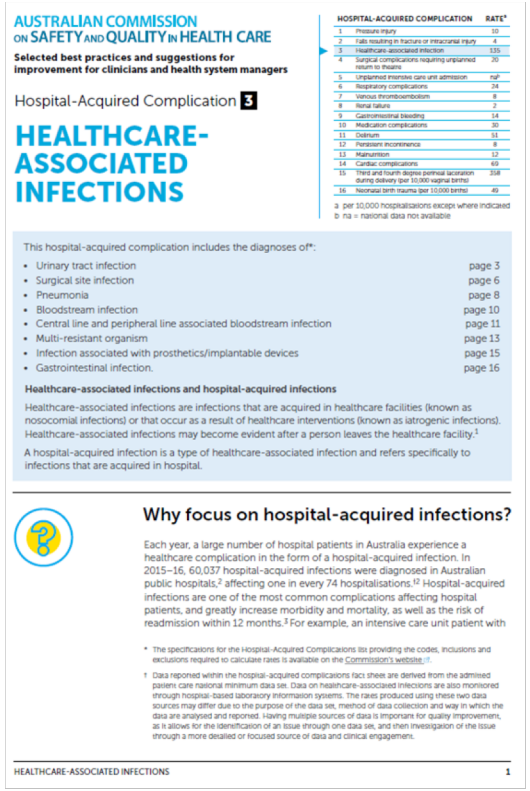


Healthcare-associated Infections

Healthcare-associated infections are infections that are acquired in healthcare facilities

- Urinary tract infection
- Surgical site infection
- Pneumonia
- Bloodstream infection
- Central line and peripheral line associated bloodstream infection
- Multi-resistant organism
- Infection associated with prosthetics/implantable devices
- Gastrointestinal infection

In 2015-16, 60,037 hospital acquired infections were diagnosed in Australian public hospitals, affecting one in every 74 hospitalisations.



AUSTRALIAN COMMISSION ON SAFETY AND QUALITY IN HEALTH CARE

Selected best practices and suggestions for improvement for clinicians and health system managers

Hospital-Acquired Complication 3

HEALTHCARE-ASSOCIATED INFECTIONS

	HOSPITAL-ACQUIRED COMPLICATION	RATE[a]
1	Pressure injury	10
2	Falls resulting in fracture or intracranial injury	4
3	Healthcare-associated infection	135
4	Surgical complications requiring unplanned return to theatre	20
5	Unplanned intensive care unit admission	na[b]
6	Respiratory complications	24
7	Venous thromboembolism	8
8	Renal failure	2
9	Gastrointestinal bleeding	14
10	Medication complications	30
11	Delirium	51
12	Persistent incontinence	8
13	Malnutrition	12
14	Cardiac complications	69
15	Third and fourth degree perineal laceration during delivery (per 10,000 vaginal births)	358
16	Neonatal birth trauma (per 10,000 births)	49

a per 10,000 hospitalisations except where indicated
b na = national data not available

This hospital-acquired complication includes the diagnoses of*:

Healthcare-associated infections and hospital-acquired infections

Healthcare-associated infections are infections that are acquired in healthcare facilities (known as nosocomial infections) or that occur as a result of healthcare interventions (known as iatrogenic infections). Healthcare-associated infections may become evident after a person leaves the healthcare facility.[1]

A hospital-acquired infection is a type of healthcare-associated infection and refers specifically to infections that are acquired in hospital.

Why focus on hospital-acquired infections?

Each year, a large number of hospital patients in Australia experience a healthcare complication in the form of a hospital-acquired infection. In 2015–16, 60,037 hospital-acquired infections were diagnosed in Australian public hospitals,[2] affecting one in every 74 hospitalisations.[12] Hospital-acquired infections are one of the most common complications affecting hospital patients, and greatly increase morbidity and mortality, as well as the risk of readmission within 12 months.[3] For example, an intensive care unit patient with

* The specifications for the Hospital-Acquired Complications list providing the codes, inclusions and exclusions required to calculate rates is available on the Commission's website.[13]

† Data reported within the hospital-acquired complications fact sheet are derived from the admitted patient care national minimum data set. Data on healthcare-associated infections are also monitored through hospital-based laboratory information systems. The rates produced using these two data sources may differ due to the purpose of the data set, method of data collection and way in which the data are analysed and reported. Having multiple sources of data is important for quality improvement, as it allows for the identification of an issue through one data set, and then investigation of the issue through a more detailed or focused source of data and clinical engagement.

HEALTHCARE-ASSOCIATED INFECTIONS 1

Infection, Disease & Health (2016) 21, 162–168

Available online at www.sciencedirect.com

ScienceDirect

journal homepage: http://www.journals.elsevier.com/infection-disease-and-health/

Research

Administrative data has poor accuracy for surveillance of *Staphylococcus aureus* bacteraemia

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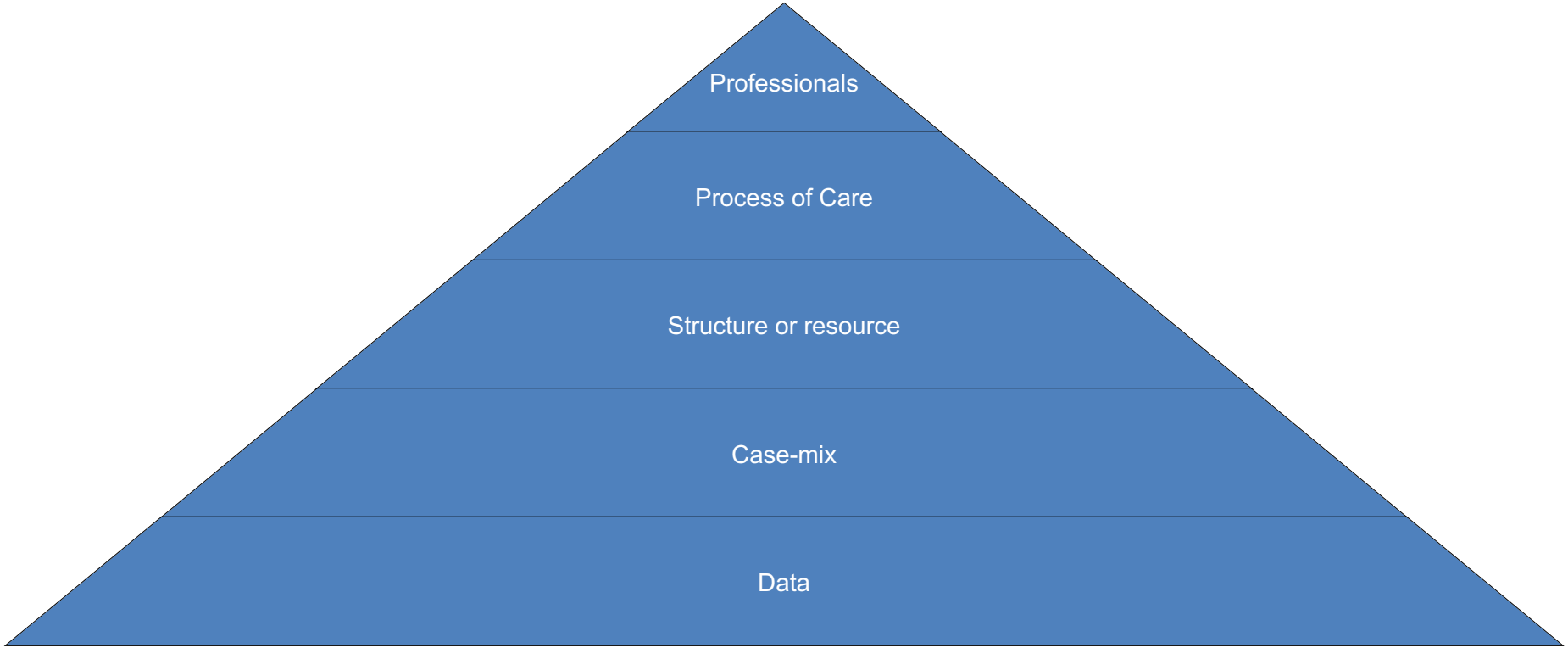
KEYWORDS
Clinical coding;
Staphylococcus aureus;
Bacteremia

Abstract *Background:* To determine the accuracy of the International Classification of Diseases (ICD-10) coding for *Staphylococcus aureus* bacteremia (SAB) compared with laboratory results during a ten-year period (January 2002–December 2011).
Methods: A retrospective comparison of ICD-10 code A41.0 for *S. aureus* sepsis with SAB identified from the laboratory information system (LIS). Patients with LIS identified SAB (LIS+) and/or the ICD-10 A41.0 code (ICD-10) were identified and classified as concordant (LIS+/ICD+) or discordant (LIS+/ICD− or LIS-/ICD+). From July 2010 an additional code for healthcare associated SAB (HA-SAB), U90.0, was introduced and evaluated against prospectively designated episodes of HA-SAB.
Results and Conclusions: There were 740 laboratory confirmed episodes of SAB however, only 408 of these were recorded by ICD-10 A41.0whilst 106 patients with negative blood cultures were miscoded as ICD-10 A41.0. The sensitivity and PPV for ICD-10 A41.0 were 55% [95% CI: 51–59%] and 72% [95% CI: 68–76%]. For the subset of HA-SAB, the sensitivity and PPV for ICD-10 U90.0 were only 12% [95% CI: 5–24%] and 32% [95% CI: 15–54%] respectively.

Pyramid tool of investigation



Mohammed MA, Rathbone A, Myers P, Patel D, Onions H, Stevens A. An investigation into general practitioners associated with high patient mortality flagged up through the Shipman inquiry: retrospective analysis of routine data. BMJ 2004; 328: 1474-7.

“A robust safety and quality monitoring system requires multiple measurements of patient safety”

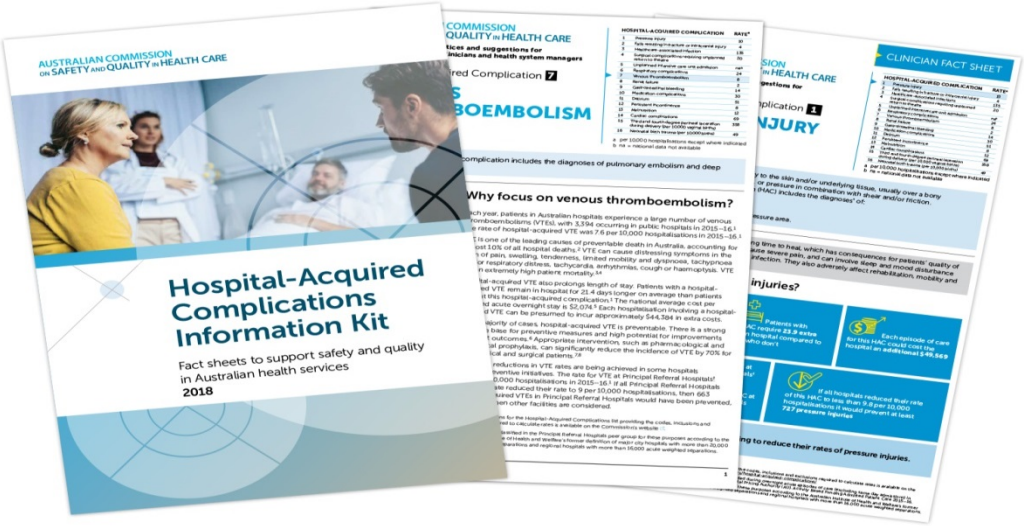
NOT HACs (through the patient administrative data system) **OR** the laboratory information systems (surveillance) systems

BUT

HACs **AND** the surveillance systems

Supporting resources: HACs Fact Sheets

- Suite of resources:
  - Clinicians (short)
  - Managers (longer)
  - Book
- Support local monitoring and quality improvement
- Describe HAC and impact
- Describe preventability
- Steps to reduce occurrence



www.safetyandquality.gov.au

The Fact Sheets for Health-acquired Infections (HAIs) provide:

- Information about each specific hospital-acquired infection
- Risk factors to consider
- Issues to monitor
- Actions for prevention and to improve patient care
- Information about clinical governance structures and quality-improvement processes to support best practice in prevention and management of hospital-acquired infections
- Quality improvement activities
- Resources to support action in regard to individual infections

What does success look like?

- Improved patient safety by reducing adverse events
- Routine systematic reporting of clinically meaningful metrics to identify and proactively reduce clinical risks
- Identification and quantification of common hospital acquired complications to prioritise local patient safety risk mitigation initiatives

Qld hospital acquired complications workshop
Brisbane May 2018

COAG Heads of Agreement (April 2016):

- *the parties, in conjunction with IHPA and the Australian Commission on Safety and Quality in Health Care, will develop a "comprehensive, risk adjusted model to integrate quality and safety into hospital pricing and funding"*

Heads of Agreement between the Commonwealth and the States and Territories on Public Hospital Funding

This Agreement is made between the COMMONWEALTH OF AUSTRALIA (Commonwealth) and NEW SOUTH WALES, VICTORIA, QUEENSLAND, WESTERN AUSTRALIA, SOUTH AUSTRALIA, TASMANIA, the AUSTRALIAN CAPITAL TERRITORY and the NORTHERN TERRITORY (the States)

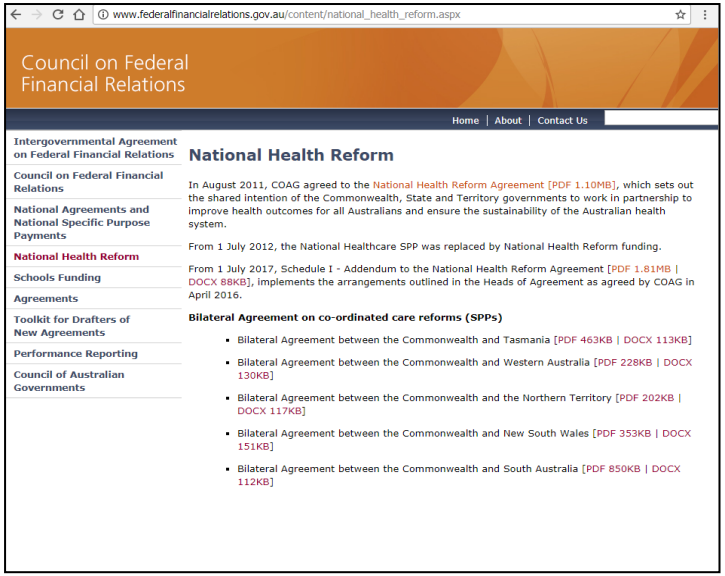
Overview of Commission's work on funding for safety and quality

National Health Reform Agreement Addendum (1 July 2017 – 30 June 2020)

> "Reforms to **integrate safety and quality into the pricing and funding** of Public Hospitals Services in a way that **improved patient outcomes**… and **signals to the health system** the need to reduce instances of preventable poor quality patient care…"

The Commission is responsible for developing advice on:

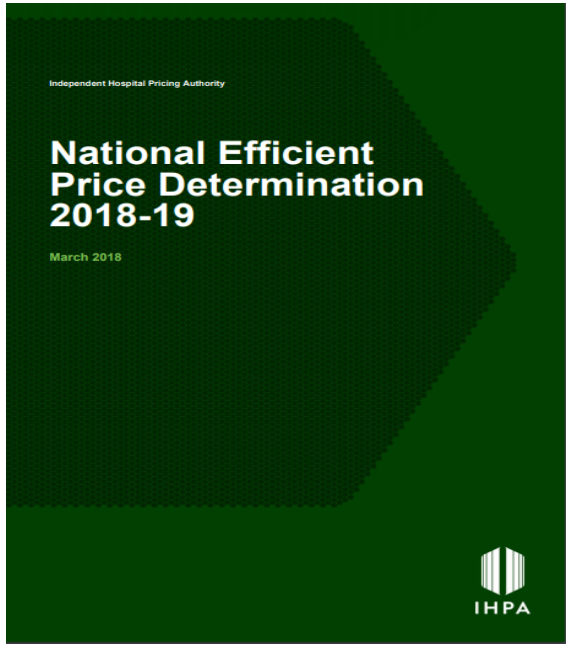
- Hospital acquired complications
- Potentially avoidable hospital readmissions
- Sentinel events



NHRA Addendum
www.federalfinancialrelations.gov.au

Funding approach

- IHPA responsible for pricing and funding, in consultation with Commission and states and territories
- Report on “shadow implementation” informed by public consultation undertaken in 2017 for COAG Health Council
  - “impact on funding, data reporting, clinical information systems, and specific population and peer hospital groups”
- National efficient price determination for 2018-19 released
  - Includes HACs
  - Effective 1 July 2018



www.IHPA.gov.au

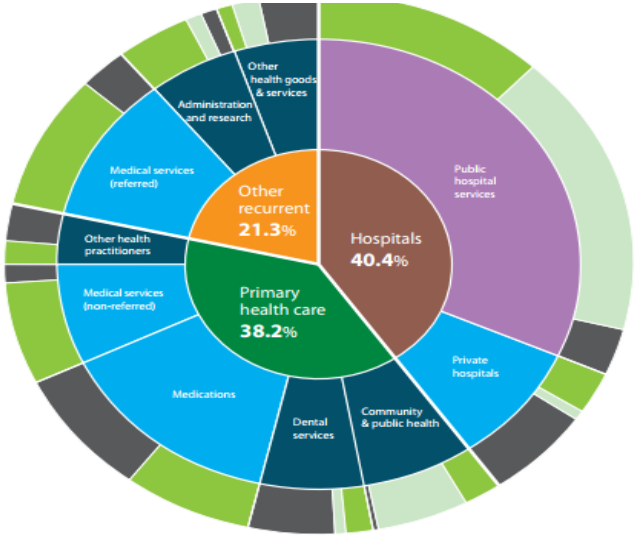
Safety and quality in activity based funding

- States and Territories are the hospital system operators
- Commonwealth funding 40%

1. No payment for Sentinel Events
2. Decreasing ABF cost-weight
   - Risk adjusted for HACs
3. Decreasing ABF cost-weight
   - Risk adjusted for readmissions

- Risk adjustment will take into account risks (age, SES, Sex), co-morbidities and degree of preventability
- Messaging the system that safety and quality is important and hospitals will not be paid for preventable adverse events.

Total expenditure - $160 Billion

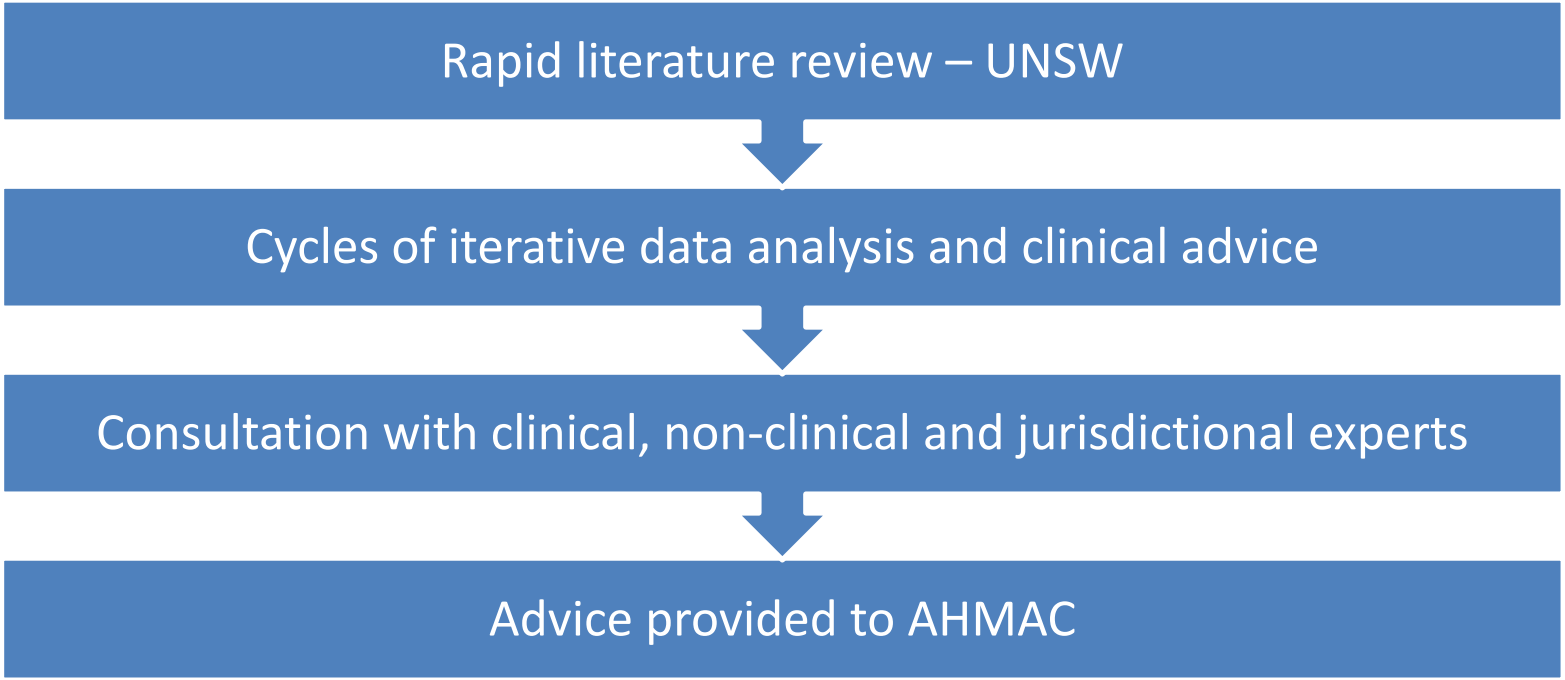


Note: The inner segments indicate the relative size of expenditure in each of the 3 main sectors of the health system ('hospitals', 'primary health care', and 'other recurrent'). The middle ring indicates the relative expenditure on each service in the sector (shown by the size of each segment) and who is responsible for delivering the service (shown by the colour code). The outer ring indicates the relative size of the funding (shown by the size of each segment) and the funding source for the difference services (shown by the colour code). For more detail, refer to the main text.

Health services—funding and responsibility

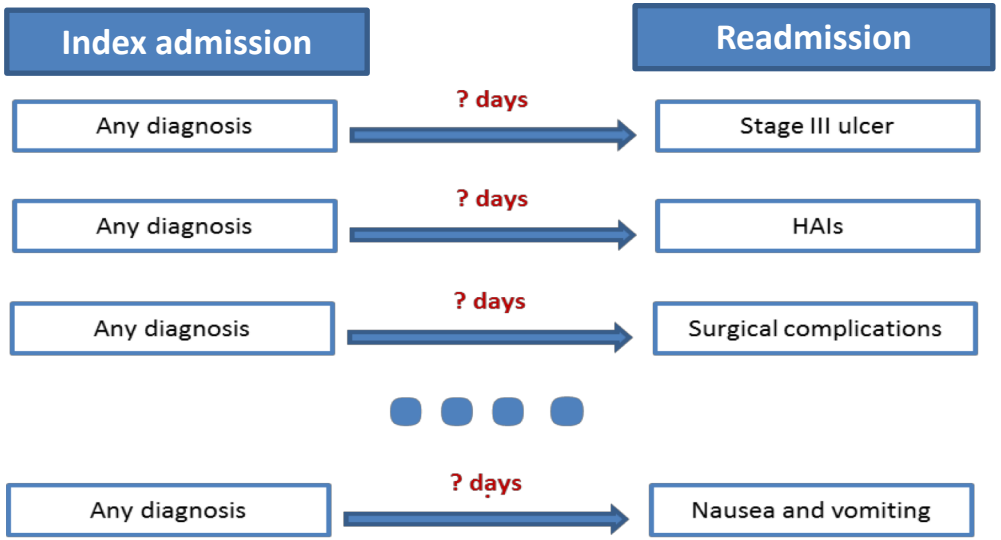
Ref: AIHW *Australia's Health 2014* Australian Institute of Health and Welfare June 2014

Potentially avoidable hospital readmissions - Methodological approach



Develop readmission intervals

Defines the time between the index admission and a subsequent readmission – provides reasonable indication that the reason for readmission arose from complication of the management of the original condition



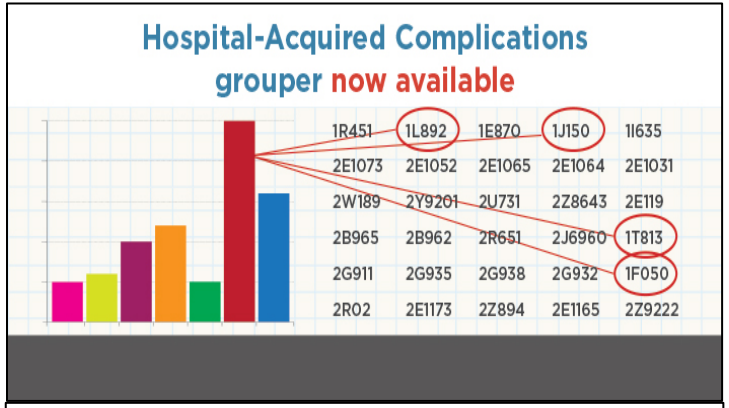
Potentially avoidable hospital readmissions

Readmission condition group	No. of diagnosis	Readmission interval	Number of readmissions within interval
Pressure injury	3	7-14 days	144
Infections	10	2 - 90 days	18,273
Surgical complications	5	14- 28 days	7,249
Respiratory complications	2	14-21 days	1,728
Venous thromboembolism	1	90 days	2,402
Renal failure	1	21 days	1,335
Gastrointestinal bleeding	1	2 days	661
Medication complications	2	2 - 4 days	850
Delirium	1	10 days	1,224
Cardiac complications	4	14-30 days	19,518
Constipation	1	14 days	2,408
Nausea and vomiting	1	7 days	1,314
		TOTAL	**57,106**

Funding approach

- Funding approach for potentially avoidable hospital readmissions under development
- Public consultation took place in June 2018
- Independent Hospital Pricing Authority to release plans for shadow implementation when finalised

Next steps – Improve the documentation and standard of care



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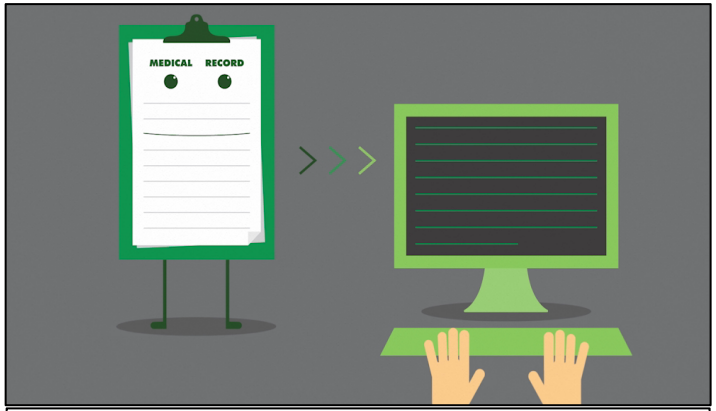
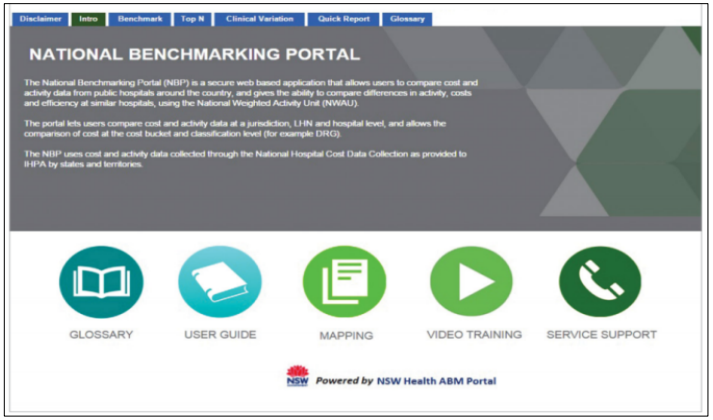


YouTube: Medical records and data-driven health care

www.safetyandquality.gov.au



Next steps - Curation of the HACs

Review of all HACs is underway, in a staged approach

Stage 1 – Pressure injury and delirium

- Meetings held October 2018

Stage 2 – HAI and neonatal birth trauma

- Meetings to be scheduled January/February
- Nominations have been received, but if you are interested, please nominate at:

SQIS@safetyandquality.gov.au

or email at Rebecca.Ireland@safetyandquality.gov.au

The beginning, the end and discussion

Ellis Island – New York.