Pricing and funding for safety and quality:

Hospital acquired complications

IHPA

Background

In 2017, all Australian governments signed the Addendum to the National Health Reform Agreement and committed to improve Australian health outcomes through safety and quality reforms. This is supported by the collaborative work program between the Independent Hospital Pricing Authority (IHPA) and the Australian Commission on Safety and Quality in Health Care (the Commission) to incorporate safety and quality measures into the pricing and funding of public hospital services across three key areas:

Definition

- A hospital acquired complication (HAC) refers to a complication that occurs during a hospital stay and for which clinical risk mitigation strategies may reduce (but not necessarily eliminate) the risk of that complication occurring.

Overview

- In 2012, IHPA and the Commission established a Joint Working Party (JWP) to consider potential approaches to pricing and funding for safety and quality in Australian public hospital services.
- The JWP developed a national list of 16 HACs.
- The HACs list offers a set of agreed, high-priority complications which clinicians, managers and others can work together to address and improve patient care.
- The Commission is responsible for the ongoing curation of the HACs list to ensure it remains clinically relevant. The HACs list and specifications are available on the Commission's website.
- Version 3.1 of the HACs list is outlined in **Table 1**.

Table 1

Hospital Acquired Complications List Version 3.1

Complication	Diagnosis
1 **Pressure injury**	• Stage III ulcer • Stage IV ulcer • Unspecified decubitus ulcer and pressure area • Unstageable pressure injury • Suspected deep tissue injury
2 **Falls resulting in fracture or intracranial injury**	• Intracranial injury • Fractured neck of femur • Other fractures
3 **Healthcare-associated infection**	• Urinary tract infection • Surgical site infection • Pneumonia • Blood stream infection • Infections or inflammatory complications associated with peripheral/central venous catheters • Multi-resistant organism • Infection associated with prosthetics/implantable devices • Gastrointestinal infections • Other high impact infections
4 **Surgical complications requiring unplanned return to theatre**	• Post-operative haemorrhage/haematoma requiring transfusion and/or return to theatre • Surgical wound dehiscence • Anastomotic leak • Vascular graft failure • Other surgical complications requiring unplanned return to theatre
5 **Unplanned intensive care unit admission**	• Unplanned admission to intensive care unit
6 **Respiratory complications**	• Respiratory failure including acute respiratory distress syndrome requiring ventilation • Aspiration pneumonia • Pulmonary oedema
7 **Venous thromboembolism**	• Pulmonary embolism • Deep vein thrombosis
8 **Renal failure**	• Renal failure requiring haemodialysis or continuous veno-venous haemodialysis
9 **Gastrointestinal bleeding**	• Gastrointestinal bleeding
10 **Medication complications**	• Drug related respiratory complications/depression • Haemorrhagic disorder due to circulating anticoagulants • Movement disorders due to psychotropic medication • Serious alteration to conscious state due to psychotropic medication
11 **Delirium**	• Delirium
12 **Incontinence**	• Urinary incontinence • Faecal incontinence
13 **Endocrine complications**	• Malnutrition • Hypoglycaemia
14 **Cardiac complications**	• Heart failure and pulmonary oedema • Arrhythmias • Cardiac arrest • Acute coronary syndrome including unstable angina, STEMI and NSTEMI • Infective endocarditis
15 **Third and fourth degree perineal laceration during delivery**	• Third and fourth degree perineal laceration during delivery
16 **Neonatal birth trauma**	• Neonatal birth trauma • Hypoxic ischaemic encephalopathy

Development of the funding approach

- Since February 2017, IHPA has worked with a range of stakeholders including jurisdictions, clinicians and technical experts to develop and refine a risk adjustment methodology for a HAC funding approach.
- Key considerations included ensuring that hospitals treating more high risk patients are not disadvantaged and providing assurance for high risk patients that hospitals take all necessary action to mitigate the occurrence of adverse events.

How is the funding approach applied?

- In July 2018, IHPA introduced a funding adjustment for HACs whereby funding is reduced for any episode of admitted acute care where a HAC occurs.
- The reduction in funding reflects the additional cost of providing hospital care that is attributable to the HAC and recognises that the presence of a HAC increases the complexity of an episode of care.
- The HAC funding approach incorporates a risk adjustment model that assigns individual patient episodes with a HAC complexity group (low, medium or high), which is used to adjust the funding reduction for an episode containing a HAC.
- Further information on the HAC risk adjustment model and application of the funding approach is available within the latest version of the National Pricing Model Technical Specifications.

Case study

The following clinical example demonstrates the application of the HACs risk adjustment model and funding adjustment to an individual episode of care.

Initial admission and hospital acquired complication

A 73-year-old female patient presented to the emergency department for acute shortness of breath. She was diagnosed with respiratory distress and admitted to hospital. The patient was treated with non-invasive ventilation before being transferred to a geriatric ward seven days later.

While on the ward, the patient's demeanour became more agitated and withdrawn. The patient also started complaining of pain to her lower back. A pathology test revealed she had contracted a urinary tract infection.

The patient was assigned to the Diagnosis Related Group (DRG) E41B (Respiratory System Disorders with Non-Invasive Ventilation, Minor Complexity) and the hospital received 2.0431 National Weighted Activity Unit (NWAU).

Application of the risk adjustment model

As the patient acquired the urinary tract infection during her hospital admission (a healthcare-associated infection), the episode of care is subject to a HAC adjustment.

This requires calculation of the overall complexity score for the patient episode, derived by summing the complexity scores for each risk factor variable relevant to the HAC. For healthcare-associated infection, the variables include age, gender, emergency admission, DRG type, Major Diagnostic Category and Charlson Score. The patient is then assigned to a complexity group.

Low complexity group	Moderate complexity group	High complexity group
At the time of admission, the patient was otherwise fit and healthy, with no comorbidities.	At the time of admission, the patient's medical history included hypertension and type 2 diabetes managed with oral medication.	At the time of admission, the patient's medical history included dementia, cirrhosis of the liver, chronic renal failure, chronic obstructive pulmonary disease and type 2 diabetes managed with insulin.

Calculation of the funding adjustment

Once the complexity group has been assigned, the final adjusted NWAU can be calculated. The base price for the initial episode is multiplied by the risk adjustment for the complexity group. The total of this is then subtracted from the funding for the initial episode of care to determine the funding for the initial episode of care.

Low complexity group	Moderate complexity group	High complexity group
As this patient was assigned to a low complexity group, this equates to a funding reduction of 7.4%. Funding for the initial admission NWAU of 2.0431 was therefore reduced by 7.4% to a total NWAU of 1.8919 for the episode of care.	As this patient was assigned to a moderate complexity group, this equates to a funding reduction of 2.1%. Funding for the initial admission NWAU of 2.0431 was therefore reduced by 2.1% to a total NWAU of 2.0002 for the episode of care.	As this patient was assigned to a high complexity group, this equates to a funding reduction of 1.7%. Funding for the initial admission NWAU of 2.0431 was therefore reduced by 1.7% to a total NWAU of 2.0008 for the episode of care.