

AUSTRALIAN COMMISSION ON SAFETY AND QUALITY IN HEALTH CARE

Selected best practices and suggestions for improvement for clinicians

Hospital-Acquired Complication **8**

RENAL FAILURE

HOSPITAL-ACQUIRED COMPLICATION	RATE ^a
1 Pressure injury	10
2 Falls resulting in fracture or intracranial injury	4
3 Healthcare-associated infections	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 (HAC) relates to renal failure (or acute kidney injury). It includes hospital-acquired acute renal failure requiring haemodialysis or continuous haemofiltration.*



Hospital-associated acute kidney injury (also known as acute renal failure) is common as it may be caused by impaired renal perfusion due to hypotension or dehydration, medicines, recent surgery, radiographic contrast media, or sepsis. Renal failure may cause distressing symptoms including fluid retention and swelling, dyspnoea, drowsiness, fatigue, cognitive clouding and confusion, persistent nausea, and seizures. The condition also has an extremely high mortality rate of 50%. Early recognition and intervention are important elements of effective treatment.

Why focus on renal failure?

Around 1,000 hospital-acquired episodes of renal failure occur each year in Australian hospitals[#]

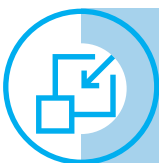
Hospital-acquired renal failure increases the **length of stay and the cost of admission**[§]

12.3 Highest rate of this HAC at Principal Referral Hospitals[†]

3 Aggregate rate of this HAC at Principal Referral Hospitals

Per 10,000 hospitalisations

If all hospitals reduced their rate of this HAC to less than 3 per 10,000 hospitalisations, it would prevent at least **317 episodes of renal failure**



All facilities should be working to reduce their rates of renal failure.

* 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: www.safetyandquality.gov.au/our-work/indicators/hospital-acquired-complications/
[#] The data used in this sheet are for hospital-acquired complications recorded in Australian public hospitals in 2015–16. Sourced from: Independent Hospital Pricing Authority (AU). Activity Based Funding Admitted Patient Care 2015–16.
[§] Independent Hospital Pricing Authority (AU): Pricing and funding for safety and quality: risk adjustment model for hospital-acquired complications, version 3, 2018.
[†] Hospitals were classified in the Principal Referral Hospitals peer group for these purposes according to the Australian Institute of Health and Welfare's former definition of major city hospitals with more than 20,000 acute weighted separations and regional hospitals with more than 16,000 acute weighted separations.

Top tips for prevention and management of renal failure

The following provides key points for clinicians to consider to avoid this hospital-acquired complication.

Conduct risk assessment

- Conduct a comprehensive risk assessment
- Identify risk factors such as: major surgery and trauma, multi-organ failure, increased age, diabetes mellitus, cardiovascular disease and malignancy, chronic kidney disease, sepsis, hypovolemia, hypotension, nephrotoxic medications and/or muscle ischaemia
- Assess patients for renal failure risks, particularly when their hospital episode is associated with:
 - The use of iodinated contrast agents
 - Chronic kidney disease (adults with an estimated glomerular filtration rate less than 60 ml/min/1.73 m²)
 - Oliguria (urine output less than 0.5 ml/kg/hour)
 - Symptoms or signs of nephritis (such as oedema or haematuria)
 - Symptoms or history of urological obstruction, or conditions that may lead to obstruction
 - Neurological or cognitive impairment or disability, which may mean limited access to fluids because of reliance on a carer
 - Deteriorating early warning scores/physiological parameters.

For a patient at risk, develop a prevention plan as part of a comprehensive care plan

Develop prevention plan

Clinicians, patients and carers develop an individualised, comprehensive prevention plan to prevent renal failure that identifies:

- Goals of treatment consistent with the patient's values
- Any specific nursing requirements, including equipment needs
- Any allied health interventions required, including equipment needs
- Observations or physical signs to monitor and determine frequency of monitoring
- Laboratory results to monitor and determine frequency of monitoring
- If specialist assistance is required.

Deliver prevention plan

Where clinically indicated, deliver renal failure prevention and management strategies, such as:

- Systems to recognise and respond to oliguria and/or deterioration in defined early warning criteria
- Routine consultation with nephrology specialists prior to administering iodinated contrast agents, and consideration of the requirement, and patient suitability, for volume expansion and pharmacological protection
- Fluid resuscitation and management as indicated
- Consideration of pharmacological intervention as appropriate
- Haemodialysis and/or continuous renal replacement therapy if the patient is not responding to medical management, as indicated by hyperkalaemia, metabolic acidosis symptoms and/or complications of uraemia (for example, pericarditis or encephalopathy) and/or fluid overload pulmonary oedema.

Monitor

- Monitor the effectiveness of renal failure prevention and management strategies, and reassess the patient if renal failure occurs
- Review and update the care plan if it is not effective or is causing side effects
- Engage in reviewing clinical outcomes, identifying gaps and opportunities for improvement.

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