

CENTRE VARIATION IN MORTALITY AFTER HOSPITAL-ACQUIRED ACUTE KIDNEY INJURY IN ENGLAND

Peracha J.^{1,2}, Pitcher D.¹, Santhakumaran S.¹, Steenkamp R.¹, Fotheringham J.³, Medcalf J.^{1,4}, Nitsch D.^{1,5}, McKane W.^{1,3}, Lipkin G^{1,2}.

¹ UK Renal Registry, ² University Hospitals Birmingham NHS Trust, ³ Sheffield Teaching Hospitals NHS Trust, ⁴ University Hospitals Leicester NHS Trust, ⁵ London School of Hygiene and Tropical Medicine

Background: Acute kidney injury (AKI) is a syndrome frequently observed in patients with serious illness or undergoing major surgery. It is associated with significant patient morbidity, mortality and financial costs to the NHS, which may be reduced through delivery of high quality patient care.

Objectives: We set out to establish a case-mix adjusted, 30-day mortality metric for patients with hospital-acquired AKI (HA-AKI) to facilitate identification of unwarranted centre-variation in outcomes across acute hospital trusts in England.

Dataset: Routinely collected national database of patients with biochemically identified AKI, linked with English hospital administrative data, 'Hospital Episodes Statistics' and mortality data from 'Office for National Statistics'.

Methods: Death in hospital or within 30-days of discharge was recorded for each adult with HA-AKI at acute hospital trusts in England between 1st January 2017 - 31st December 2018. Standardised Mortality Ratios (SMRs) were calculated for each trust using logistic regression; adjusting for age, sex, primary diagnosis, comorbidity score, AKI severity, month of AKI, and admission method.

Results: 250,504 AKI episodes were studied across 103 acute hospital trusts in England. Mean 30-day mortality rate was 28.6%. Patients with HA-AKI had mortality rates more than 5 times higher than the overall hospital population across 90/136 diagnosis groups and over 10 times higher in 60/136 diagnosis groups. Despite case-mix adjustment, mortality varied significantly between trusts (22.3%-35.5%), with 23/103 outliers (95% control limits).

Conclusion: 30-day Mortality following HA-AKI was high, affecting patients with a broad range of clinical diagnoses. We found significant centre-variation in mortality rates that persisted despite case-mix adjustment. Routine monitoring of outcomes for patients with AKI, using the developed indicator, will likely serve as an important patient safety indicator for hospitals across England and provide a valuable tool to guide ongoing quality improvement in AKI care.