

Validation of Administrative Coding for Hospital-Acquired Acute Kidney Injury in Adults

Zhang J¹, Drawz PE², Zhu Y¹, Hultman G¹, Melton GB^{1,2}

University of Minnesota Institute for Health Informatics¹, University of Minnesota Medical School²

Introduction

- Acute kidney injury (AKI) is common among inpatients and potentially catastrophic.
- Large-scale historic studies of evaluating AKI often use administrative coding.



Figure 1. Pooled incidence rate of AKI worldwide. AKI affects 21.6% in hospitalized adults and 33.7% in hospitalized children worldwide.¹

- In the US, the quality of administrative coding for capturing AKI accurately is questionable and needs to be updated.
- Leveraging EHR documentation and clinical data may help improve our ability to identify AKI.

Objective

- To assess the recognition of hospital-acquired AKI (HA-AKI) administrative coding in adults and compare this with evidence of HA-AKI from EHR data and by comorbid conditions.

Methods

- Data from 6 hospitals in the Fairview Health Services health system were extracted retrospectively from the EHR data on all adult inpatients between 2008 and 2019.
- Patients were included if they had 1) admission serum creatinine (Scr) available and at least one SCr measured during stay; 2) no AKI on admission; and 3) No indications of prior AKI or CKD.

Results

There were 9,943 patients in our cohort. Of these, 937 had HA-AKI defined by KDIGO diagnostic criteria. Administrative coding indicated 447 AKI cases.

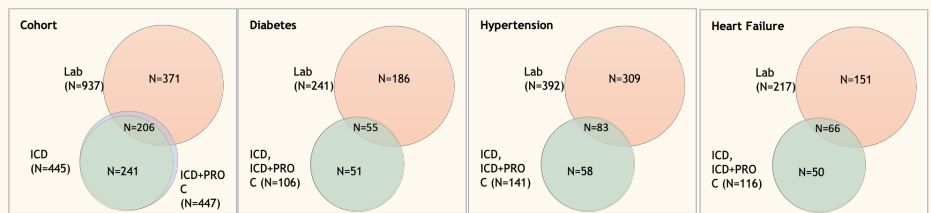


Figure 2. Venn diagrams of the distributions of patients with AKI defined by ICD9/10, dialysis and renal transplant therapy procedure code and lab measure (reference standard).

PERFORMANCE OF AKI BILLING CODES

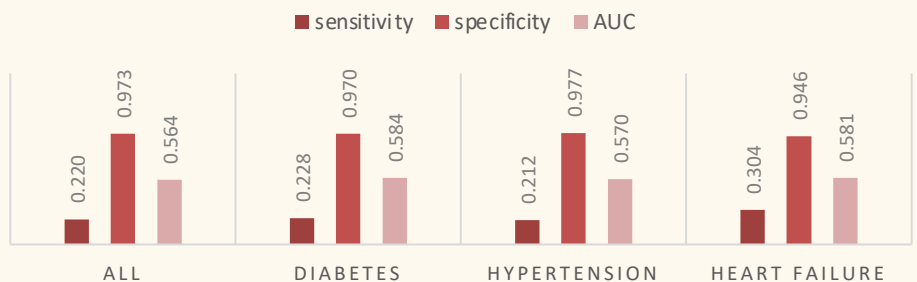


Figure 3. The sensitivity, specificity and area under curve (AUC) of AKI ICD+PROC codes in capturing AKI by patient comorbid conditions during inpatient stay. Validated against SCr-based KDIGO diagnostic criteria.

Discussion

- The quality of administrative coding in capturing HA-AKI is poor.
- There is an opportunity to improve clinical recognition of HA-AKI potentially leveraging EHR data sources for end user clinicians.
- Future work includes utilizing additional data sources such as clinical notes with natural language processing, designing EHR tools to improve coding quality, and ultimately developing predictive algorithms to decrease patient morbidity.

Reference

1. Susantitaphong, P., Cruz, D., Cerda, J., Abulfaraj, M., Alqahtani, F., Koulouridis, B., & Jaber, P. (2014). Acute Kidney Injury Advisory Group of the American Society of Nephrology: World incidence of AKI: A meta-analysis (vol 8, pg 1482, 2013). *Clinical Journal of The American Society of Nephrology*, 9(6), 1148.

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