

Spread of Acute Kidney Injury Improvement Programme across a Large Multi-Site Teaching hospital

Mr Prasanna Hanumapura¹, Dr Leonard Ebah¹, Mrs Deryn Waring¹, Dr Robert Henney¹, Dr Rachael Challiner¹, Dr Katherine Hayden¹, Dr Rachel Lennon¹, Mrs Charlotte O'Toole¹, Mrs Michelle Murphy¹, Miss Siobhan Halligan¹

¹Manchester Foundation Trust, Manchester, United Kingdom

Background

Acute kidney injury (AKI) is a widely recognised serious health care issue. Up to 25% of hospital patients can develop it, with worse outcomes. The trust set up the AKI Team in 2014 to improve AKI detection, care and outcomes after local audit in 2014 showed poor AKI care management.

Successful implementation of a Multifaceted Quality Improvement (QI) Programme for AKI across the main hospital campus since 2015 saw significant improvement in AKI care and outcomes; recognition within 24hrs improved from 52% to 100% since 2016; 34% reduction in AKI incidence, 26% in length of stay (LoS), 42% in AKI days (time to recovery) and 10% less AKI associated mortality.

The Trust being one of the largest acute trusts in the UK (10 hospitals across 6 sites, over 2000 beds), the QI spread represented a formidable challenge.

We describe the methodology and outcomes of AKI QI spread across the trust.

Method

Central Campus Hospitals: Improvement on this site involved setting a bespoke electronic alert coupled with education, key stake holder engagement, gradual culture change and AKI Priority Care Checklist (PCC) and use of change agent (AKI Clinical Nurse Specialist-CNS) visiting local teams and empowering them to manage AKI using Demming's Model for Improvement

A stepwise staggered similar approach was implemented first in the Women's and Eye Hospitals followed by Children's Hospital after a local adaptation and testing of algorithm, PCC and appointment of local change agent, a Paediatric AKICNS.

West Campus Hospital: A DGH, 1-2 incident cases of AKI/day required a bespoke approach. The central AKI team populates AKI alerts report and remotely alert the local multidisciplinary teams and empowering them to implement the PCC.

South Campus Hospitals: A large tertiary hospital merged in 2018 with an existing AKI CNS team. Detection algorithms, education material, PCC, reporting, and approach have been progressively harmonized using the Central Campus model.

Data is expressed using SPC charts and analysed by t-test.

Results

Care process and outcome measures have seen a consistent improvement across all sites. In Central Campus, recognition of AKI within 24hrs has improved from 52% to 100% since 2016; 34% reduction in AKI incidence ($p < 0.00001$), 26% in LoS and a 42% in AKI days (time to recovery).

The Children's Hospital had 24% reduction ($p < 0.0001$) in AKI incidence and a 34% reduction in hospital acquired AKI. Recognition of AKI has improved from 42% to 100%; 15% in AKI and 22% reduction in AKI days.

In the South Campus recognition of AKI has improved from 67% to 100% and 19% reduction ($p < 0.0015$) in AKI incidence. LoS and AKI days data yet to be reported whilst IT systems are being harmonised.

In West Campus recognition is 100% but the small numbers prevent any meaningful analysis of other outcomes.

Conclusion

This study demonstrates how a cluster of simple interventions and approach to AKI detection and care were successfully rolled out across a multisite large complex acute care organization taking into account the local realities of each site/Hospitals whilst maintaining the core interventions.