**Optimising the Management of Patients with Acute Kidney Injury Stage 3 using a Multifaceted Approach.**

**1) Background:**

It is well recognised that AKI stage 3 is associated with an increased length of stay (LOS), an increased need for admission to critical care beds and increased morbidity and mortality. A local audit conducted as part of a NHS England Acute Kidney Injury Audit in 2012, found that patients in the local area had a slightly increased mortality (39% cf national average of 37%) and a prolonged LOS of 16 days compared to the national average of 12 days.

**2) Aim:**

· As part of the UHS AKI Safety Improvement Plan (2015-2017) a number of interventions were introduced in an attempt to in optimise the management of AKI 3, specifically with regards to: 1) reducing number of new AKI 3 alerts; 2) reducing length of stay, and 3) reducing AKI 3-associated mortality.

 **3)** **Methods:**

A multifaceted approach to improve the management of AKI was conducted over an 18 month period and included the following: 1) implementation of the NHS England electronic algorithm , 2) appointment of an AKI Advanced Nurse Practitioner (AKI ANP); 3) setting up of an AKI working group with a Consultant Lead and, 4) introduction of a Consultant and nurse-delivered multi-disciplinary education programme on AKI including an electronic learning package, bedside education and clinical guidelines on AKI management. One of the primary roles of the AKI ANP was to perform a daily review of all new patients with AKI 3 and ensure their management was optimised. Improvement was assessed using a retrospective notes review. Data was collected on 1) number of patients with AKI 3; 2) mortality and 3) LOS.

**4) Results:**

 A comparison was made between Quarter 4 2016 (January 1st to March 31st) and over a similar time period in Quarter 4 2017. There was: 1) 18% reduction in total number of new AKI 3 alerts from 239 to 197; 2) reduction in mean length of stay from 25.8 days to 20.5 days equating to a total bed day saving of 2122 bed days and, 3) 9% reduction in AKI 3-associated mortality (37% to 28%). Total bed day saving was 2122 bed days. With a bed day cost of approximately £250 per patient per day this is a total saving of £530,000.

**5) Conclusions:**

· Management of patients with AKI 3 can be optimised using a multifaceted approach. In our experience, the most effective methods of improvement were regular education of junior staff including access to AKI management guidelines and ensuring an early review of patients with AKI 3 by an experienced ANP. All methods are cost effective, easy to implement and reproducible and have demonstrated measurable benefits with respect to LOS, and patient outcome.