# Medication prescription after admission with hospital coded acute kidney injury in Wales

## Background:

Acute kidney injury (AKI) is common in hospital admissions and is associated with a high risk of mortality. Clinical reviews and prescriptions from general practitioners following an episode of AKI has not been well described. The Secure Anonymised Information Linkage (SAIL) databank at Swansea University allows for this analysis. It contains datasets encompassing information on the 3.1 million Welsh population, including the Patient Episodes Database for Wales (PEDW) dataset (hospital admissions), mortality and demographic data and GP data on 70% of the country.

## Objectives:

We aim to assess the effect of hospital admissions coded for AKI have on general practitioner’s (GP) subsequent disease monitoring and prescribing practices.

## Methodology:

The analysis was carried out using pseudo-anonymised data in SAIL. We used ICD-10 coding to identify the first hospital admissions of the year with AKI between 2010 and 2015 in the PEDW dataset. We then linked these admissions with death records in SAIL supplied by the Office of National Statistics and also the primary care dataset. We used Read codes for medications, comorbidities and reviews allowing us to compare practice 90 days before and after the admissions. The 90 day period did not include the day of admission or discharge. In the post admission analysis, only those patients who were alive at 91 days were analysed (i.e. those that died during or soon after admission were excluded in post admission analysis). We determined a patient to be receiving a medication if they were issued at least one prescription during the period.

## Results:

There were 65,574 patients coded with AKI between 2010 and 2015, of these, 70.1% (n=45,992) had linked data present in the SAIL primary care dataset. Inpatient mortality and 1 year mortality in this cohort were 27.4% and 51% respectively. When comparing prescribing practice for a 90 day period before and after admission with AKI we found that loop diuretics, potassium sparing diuretics, beta blockers, sulphonylureas, insulin, calcium channel blockers, statin, aspirin, proton pump inhibitor and histamine receptor 2 antagonists use increased, all with p values <0.05. Prescriptions for non-steroidal anti-inflammatory drugs (NSAIDS), angiotensin converting enzyme inhibitors or angiotensin receptor blockers (ACEi/ARBs), thiazide diuretics and metformin decreased (p<0.05). Of the patients prescribed NSAIDS in the 90 days prior to admission (7.1% of the cohort, n=3,268), 59.9% of these patients stopped the medication post admission but 18.6% continued the medication (21.5% of those on NSAIDS died during admission). Recording of medication reviews, blood pressure readings and GP requested serum creatinine tests increased after admission (p<0.05), but urinalysis investigation was unchanged.

## Conclusions

We observed a change in prescribing practice following hospital admission with AKI. Prescriptions for medications that may be deemed nephrotoxic following an admission with AKI appropriately decreased when compared to the baseline period pre-admission. While prescriptions of other medications used in a variety of chronic diseases increased. Patient monitoring by blood pressure readings, medication reviews and GP requested blood test increased following admissions with AKI.