

## Annual burden of emergency hospital admissions for patients on Renal Replacement Therapy (RRT) in England – GIRFT analysis of linked UK Renal Registry (UKRR) and Hospital Episodes Statistics (HES) data over a 5 year period 2013-2017.

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### Background/Aims:

Emergency Hospitalisation (EH) in RRT patients is associated with significant financial costs to the healthcare system and emotional cost to patients and caregivers. The annual EH rate for prevalent RRT patients in England is currently unknown. Using linked HES and UKRR data, we aim to describe trends in EH amongst RRT patients between 2013-2017, patterns of demography, centre variation and most common primary coded diagnoses.

### Methods:

Prevalent haemodialysis (HD), peritoneal dialysis (PD) and transplant patients in England on 01/01/2017 were identified using UKRR database and EH during the subsequent year extracted from HES. All planned/elective and day case admissions were excluded from analysis. Primary coded diagnosis was taken from final episode of each admission.

Kaplan-Meier curves were plotted from 01/01/2017 to date of first EH for patients on each RRT modality, censoring at date of RRT modality change or death. Cox proportional hazards models were used to calculate hazard ratios (HR) for admission associated with demographics (age, sex, ethnicity, social deprivation (IMD)). Bed nights per RRT patient were compared across all renal centres.

Above analysis was repeated for prevalent RRT patients in each year between 2013-2016 inclusive, to investigate for temporal trends.

### Results:

There was little variation in annual results (2013-2017) therefore only 2017 results are presented here.

On 01/01/2017 there were 21,097 people registered on HD, 3,071 on PD and 27,488 with a kidney transplant. During 2017, approximately half of all dialysis patients and a fifth of transplant patients had at least one EH (51% HD, 52% PD, 22% transplant) (Figure 1). Just under a third of all dialysis patients and a tenth of transplant patients had more than 1 EH (27% HD, 30% PD, 9% transplant).

The total burden of emergency bed nights for RRT patients in England was 235,142 HD, 33,331 PD and 94,200 transplant. Average emergency bed nights per RRT patient at 51 English renal centres varied considerably (6-18 HD, 2-25 PD, 1-8 Transplant).

Analyses, with adjustment for demographic features, confirmed that dialysis patients were three times more likely to have an admission than transplant patients and patients on PD had a slightly higher risk of admission those on HD. Age over 60, Asian and Caucasian ethnicity, female gender and social deprivation were all risk factors for admission, with persisting difference between RRT modalities (Table1).

Commonly coded primary diagnoses for dialysis patients included CKD (16% HD, 22% PD) and access related complications (13% HD, 23% PD). Respiratory infections were a large group across RRT modalities (15% HD, 16% PD, 11% transplant). Other commonly coded diagnoses included 11% PD peritonitis and in transplant patients; UTI (10%) and AKI (7%).

#### Discussion:

There is a high burden of EHS for RRT patients each year, particularly in patients on dialysis. Considerable variation is observed in centre level admission rates and further work is still required to understand why this is the case.

CKD is commonly coded as primary diagnosis in hospitalised RRT patients, masking the real cause for admission and highlighting the need for improvement in clinical coding practice.