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NHS
The Royal Wolverhampton
NHS Trust

An audit of interhospital transfers to Royal Wolverhampton NHS Trust for emergency renal intervention Sept 2021-Sept 2022

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Background

Acute Kidney injury (AKI) is common and is a major contributor to hospital length of stay, morbidity and mortality.

If severe enough, patients may require interhospital transfer for emergency renal intervention if not available at their presenting hospital. 2 renal hotbeds were established on one of our renal wards in November 2021 with the aim to ring-fence these beds for emergency transfers..

Renal Services Transformation Programme (2023) recommends that all patients should be transferred within 24 hours of being accepted by receiving consultant nephrologist to reduce adverse events.

GIRFT (2019): 73% of renal centres report delays in transfer of >24 hours. 100% report adverse events.

HES data: Significant variation in time from admission to first dialysis in AKI is 9.2 days in non-renal centres compared to 4.3 days in renal hubs.

Very little published data in UK on transfer times and outcomes.

Local Information

- RWT is a renal hub with on-site acute dialysis and renal biopsy facilities.
- 10 renal consultants and Acute Kidney Injury (AKI) CNS team covering 7 days a week.
- Large District General Hospital – 960 beds

Methodology

Retrospective audit of all patients accepted for interhospital transfer to renal beds from 01/09/21 – 31/08/22.

Time from acceptance of referral started 24-hour clock.

62 patients accepted for transfer

54 transferred across to RWT

8 patients not transferred mostly because they became too unstable for transfer and required critical care admission or were palliated

Transferred patient data

Mean age: 60
Gender: male 32 (59%) female 22 (41%). Total=54
Renal status:

- New AKI – 22 (41%)
  - Pre-renal cause - 54%
  - Suspected/known intrinsic cause – 46%
- AKI on CKD – 17 (31%)
- ESRF (eGFR<15) – 7 (13%)
- Haemodialysis (HD) dependent – 8 (15%)

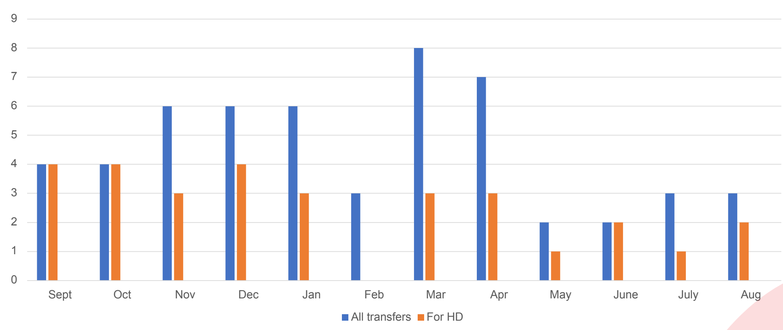
Reason for transfer

- Urgent HD (<24 hours) – 31 (57.4%)
- Medical management -19 (35.2%)
- Renal biopsy – 9 (16.7%)

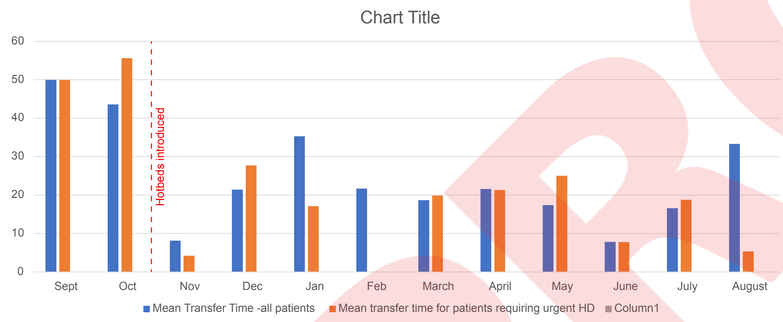
Times to transfer

- Mean time from acceptance to transfer for all transfers – 24.61 hours (pre-hot beds – 46.8hrs; post-hot beds – 20.2hrs)
- Mean time from acceptance to transfer for patients requiring urgent haemodialysis – 25.4 hours
- Mean time from acceptance to HD – 43.66 hours (+18.26 hours from transfer time)
- Number of patients transferred out-of-hours – 35 (64.8%)
- Number of HD out of hours - 7 (22.6%)

Number of transfers per month



Transfer times per month



Delayed transfers (>24 hours from referral)

- Delayed transfers (total) – 21(38.9%)
- Delayed transfers for patients requiring emergency HD – 13 (42%)
- Reasons for delay:
  - Bed capacity at RWT – 81%
  - Patient instability pre-transfer – 9.5%
  - Transport issues – 9.5%

Outcomes: Critical Care days due to delayed transfer

'Spoke' Hospital:
Admission to Critical Care for multi-organ support – 2 (3.7%)
Delayed discharge from Critical Care – 4 (7.4%)

RWT:
One admission to Critical Care soon after delayed transfer with multi-organ failure (died before haemofiltration) (1.85%)

22.6% (7/31) total number of transfers for HD requiring an extra 13 critical care days.
Consequences of long-term kidney health unclear

Outcomes

Length of Stay (LOS) for AKI & AKI-on-CKD transfers (n=39)

	Non-delayed	Delayed	AKI Population at RWT (Sept'21 - Sept '22) (n=1641)
Range	6 - 89 days	4 - 21 days	1 - 68 days
Mean	26.3 days	15.3 days	11 days

"The presence of renal hotbeds has more than halved transfer times"

Outcomes: 30 day emergency re-admission rates (AKI and AKI-on-CKD, n=39)

Transfer patients	RWT AKI population	National AKI population data
30 day emergency readmission rate - 23%	30 day emergency readmission rate - 23%	30 day emergency readmission rate - 20%

Outcomes: dialysis dependency (AKI and AKI-on-CKD)

Transfer patients: (n=39)

- HD dependent at 90 days – 8/39 = (20.5%)

National data on AKI 3

- HD dependency at 90 days – (8-24%)

Outcomes: 90 day mortality

Transfer patients - (n=39)

- Overall – 7 /39- (18%)
- Delayed transfers – 4/39 (10%)
- Non-delayed transfers – 3/39 (8%)

RWT AKI population (AKI 2 & 3) - (n=1759)

- 90-day mortality – 649/1759 - (37.8%)

National AKI data
90-day mortality – approx. 30-37% for AKI stage 3

Summary

- Having renal hotbeds has significantly reduced transfer times.
- Our average time to transfer patients for emergency HD is 25.4hrs (1.06 days), far shorter than HES data of 9.2 days. This demonstrates a good hub-spoke model of renal care.
- Delays still occur in 38.9% of cases of interhospital transfers.
- Time from referral to emergency HD is generally much shorter in renal centres than for patients requiring interhospital transfer.
- Bed capacity is the biggest threat to timely transfers
- Delays affect critical care capacity and have cost and resource implications.
- A significant proportion of patients are transferred or require HD out of hours, which has risk and cost implications.
- LOS is affected by other factors other than transfer status
- Delayed transfers do not appear to affect 90-day mortality rates
- It is unclear if interhospital transfers have an effect on long term renal disease progression.
- Readmission rates for transfer patients is in line with national data.

Recommendations

- Relaunch referral criteria checklist- may help to identify and expedite timely and suitable transfers
- Identify criteria for most urgent transfers with timelines (6/12/24 hrs etc).
- Development of renal transfer dashboard.
- Formalised referral pathway involving nephrologists on both sides may help with communication.
- Automated pathway for easier audit gathering.
- If effects of longer transfer times do not appear to influence LOS, renal health or mortality – aim to reduce out of hours transfers/HD.

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