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A Novel Approach to Acute Kidney Injury Management in a District General Hospital



Role of kidneys in health



**Clear waste from
protein breakdown**

**Stop hardening of
arteries**



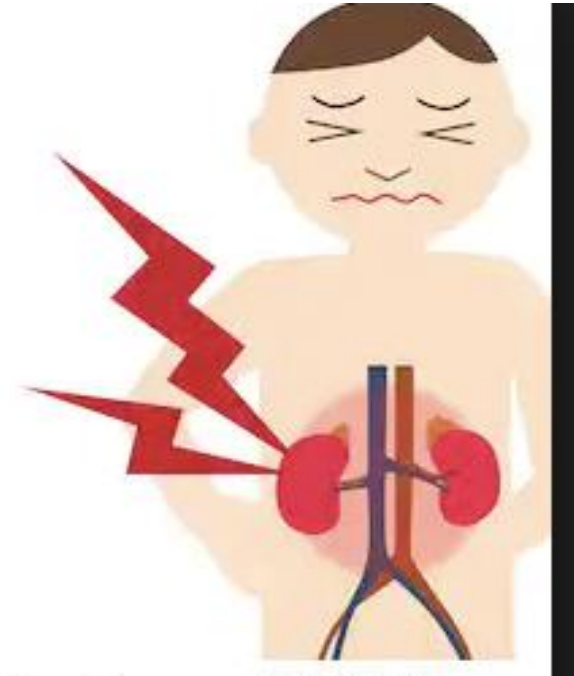
**Help produce
red cells**



**Produce
Vit D.
Prevent
fractures**

Acute kidney injury (AKI)

- Catastrophic decline in kidney function over hours to days
- Very ill
- High mortality
- Potential for complete recovery



Stage 1 to stage 3
Blood test and urine
output

Magnitude of the AKI problem

- Incidence of AKI: 150 episodes per 10,000 population per annum.
- Total population of the Health Board (Hywel Dda) is estimated at 385,600 = 5775 AKI episodes per year
- Population predicted to rise to 425,000 by 2033.
- 1 in 3 die in hospital and 1 in 3 develop long standing kidney damage

What was in place for AKI management in Glangwili Hospital

- National AKI algorithm to detect and prevent progression of AKI
- AKI e-alert system
- Local non specialist teams and visiting Renal Consultants (twice weekly).
- Heavy reliance on telephone advice , referral and subsequent transfer to the tertiary renal service in Swansea Bay University Health Board (SBUHB).

Challenges with AKI care delivery

- In the majority, AKI is a collateral event in a gravely ill body
- Multiple medical and surgical specialities have to understand how to deal with it
- Need immediate care and consistent care followed through very closely, day after day
- AKI is heterogenous and does not always lend itself to the broad guidance of an algorithm

Taste of change

In 2023 over a course of 1 year, Pilot work was undertaken by a Renal Registrar (SpR) and Renal Consultant in Glangwili to address the above issues.

A referral pathway was successfully developed along with teaching resources for medical staff through face-to-face lectures and simulation sessions.

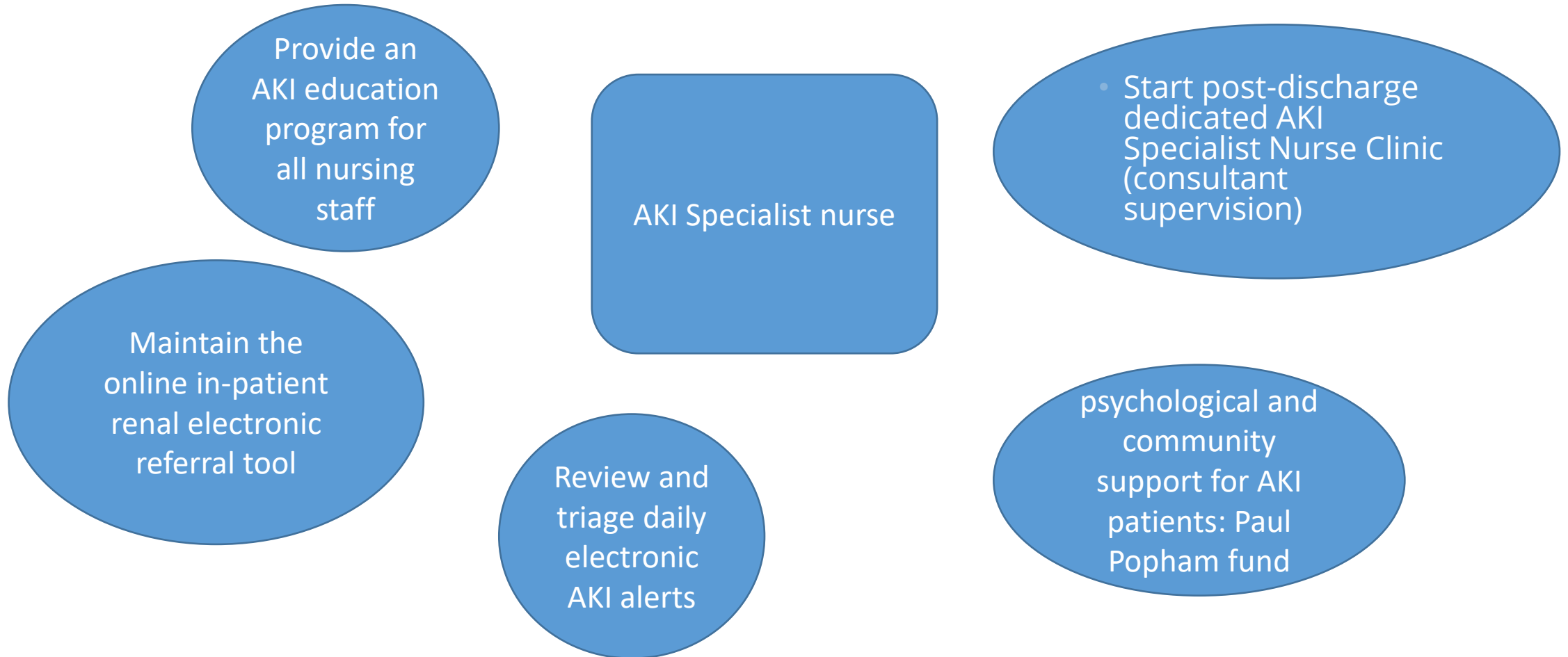
Project Background/Aspirations

Utilising the experience of the AKI project in 2023, our aim was

1. To optimise the treatment of patients with AKI in GGH with a dedicated AKI team.
2. Reduce progression of AKI and the need for acute HD as a single organ failure management in ICU in GGH.
3. Educate and empower nursing staff to enhance patient experience and outcomes

Reducing diagnosis times with early input from the specialist AKI team

Project method: AKI nurse led plan



Project Approach

The service was implemented through a multidisciplinary team approach adhering with All Wales AKI guidelines.

Four fundamental elements were identified.

- 1. Robust patient referral and triage systems**
- 2. Tailored work place based education programme**
- 3. Timely Central Venous Catheter (CVC) insertion and initiation of acute dialysis preventing single organ CVVHF failure in ICU**
- 4. Dedicated Follow up clinic for patients on discharge following an AKI**

AKI Quick Reference Bundle- think ROUNDUP'

R – Repeat U&E's daily whilst in AKI - Include a bicarbonate or a venous blood gas

O – Obstruction ruled out - Bladder scan and urinary tract imaging

U – Urinalysis - Document a urine dip(blood/protein) in the medical notes.

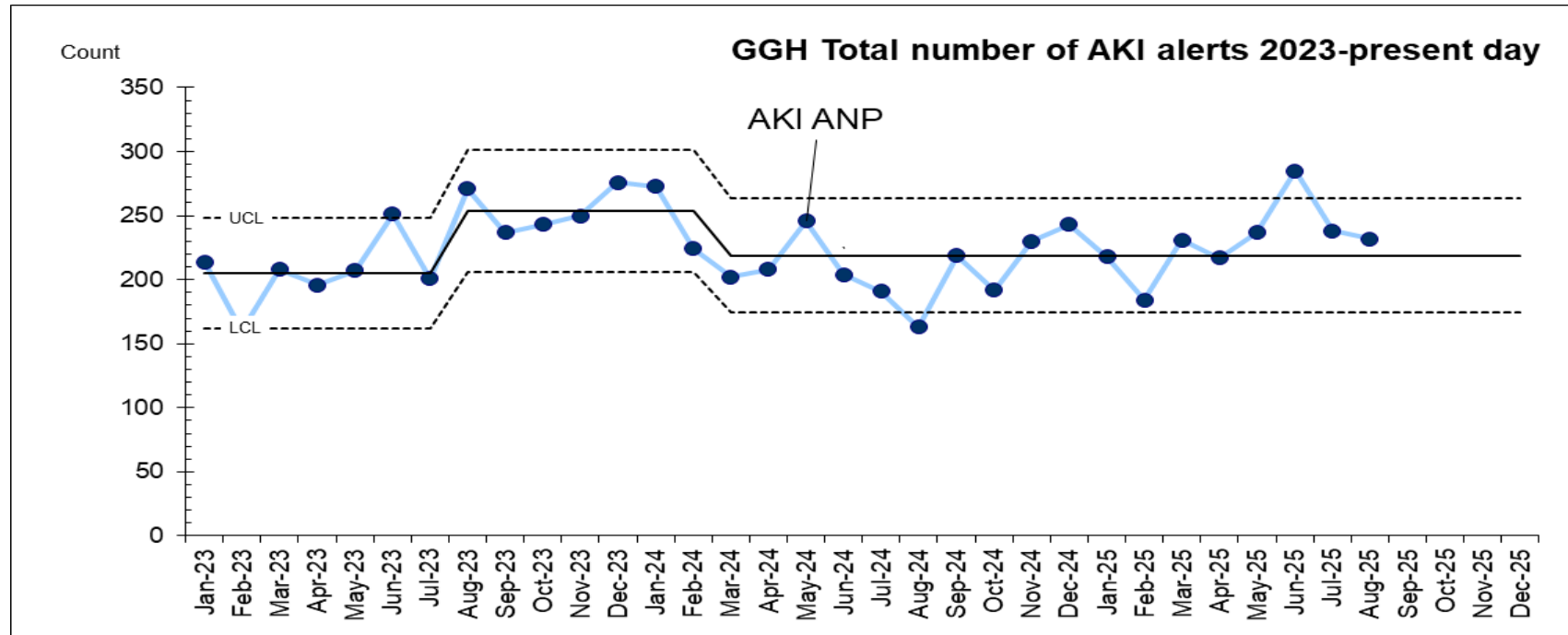
N – News2 - Consider co-existing sepsis

D – Dehydrated or Overloaded? - Fluids if dry. If overloaded – senior medical/renal review assess

U – Urine Output - Ensure an accurate fluid balance chart with hourly urine output.

P – Prescriptions Review - May need to hold nephrosensitive medications or dose adjustments to medications cleared by the kidneys

Work generated through daily AKI alerts



Project evaluation

Number of patients followed up
in AKI nurse led clinic with
feedback

Number of transfers to
Morriston hospital
prevented

AKI progression and
outcome

Number of single organ
AKIs prevented from
going to ITU

Number of ICU patients who could step
down because of dialysis provision in
carmarthen

Adherence to AKI core
principles (ROUNDUP)

Attendance and feedback of
AKI nurse education sessions



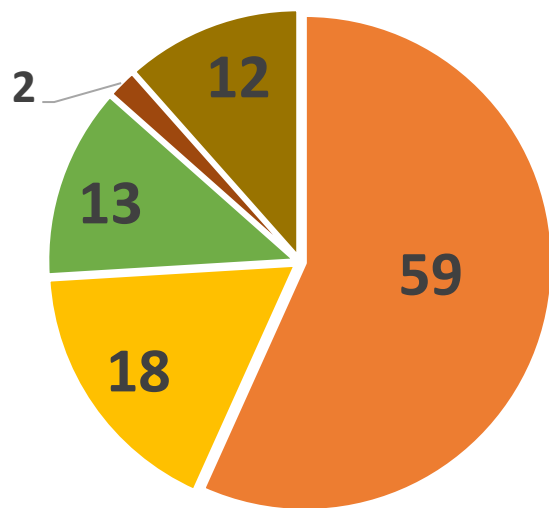
Project Outcomes: AKI progression and mortality

Patient Referrals / Reviews

Prospective audit data collection, June 2024 to August 2025

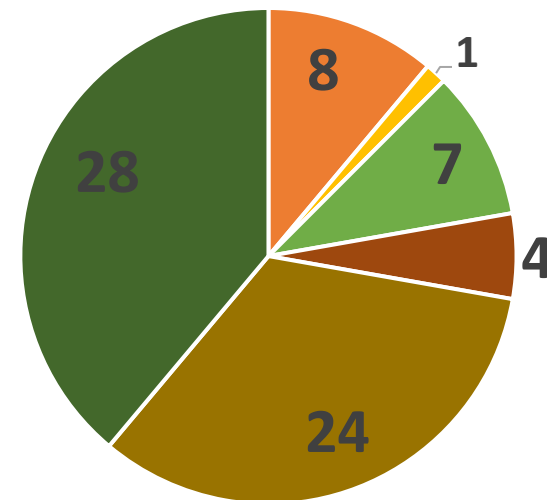
176 patient reviews

Patient Outcomes
AKI Progression prevented (n =104)



- Renal function recovery 59
- Renal clinic F/U (partial recovery) 18
- GP F/U (partial recovery) 13
- RIP 2
- RIP Within 30 days 12

Patient outcomes
AKI Progression NOT prevented (n=72)



- Renal function recovery 8
- Renal clinic F/U (partial recovery) 1
- GP F/U (partial recovery) 7
- RIP 4
- Dialysis dependent 28
- RIP Within 30 days 24

Project Impact: Mortality and morbidity

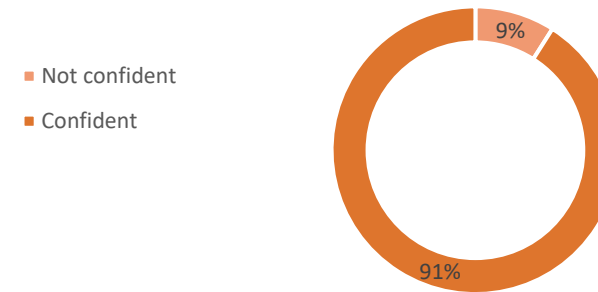
	No AKI progression (104 patients)	AKI progression (72 patients)
Full recovery of kidneys functions (%)	57%	11%
Partial recovery of kidney functions (%)	29.5%	11%
Deaths (%)	13.5%	39%
Dialysis (%)	0%	39%
Renal bed days (No days)	841 days (Average 8 days per patient)	1,080 days (Average 15 days per patient)

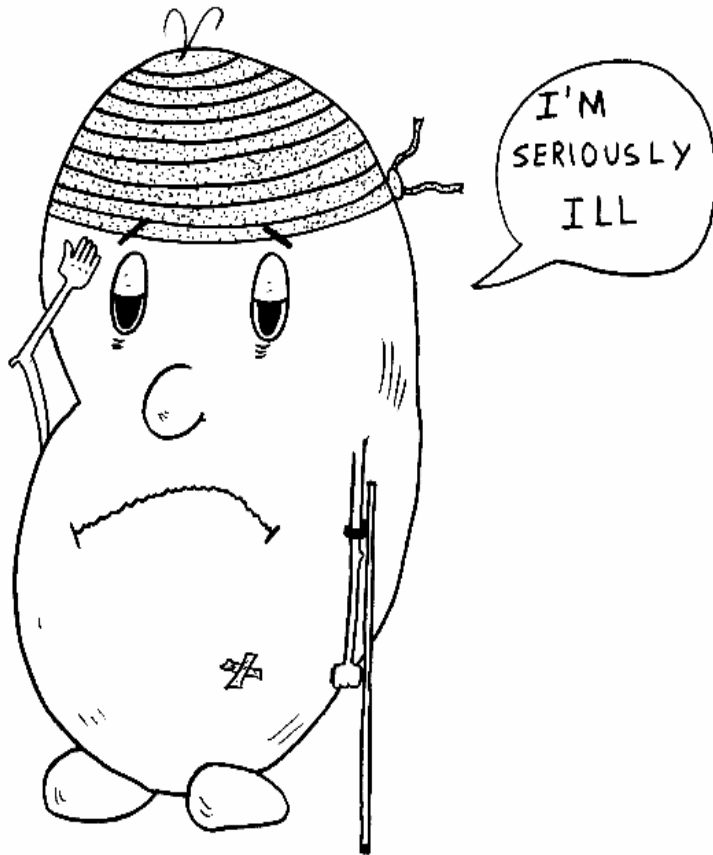
Project Outcomes: AKI nurse led teaching programme

AKI Specialist Nurse Ward based teaching sessions

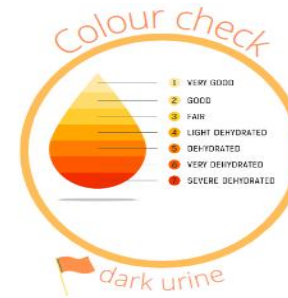
- Undertaken over a period of 8 months August 2024 - April 2025
- Diverse nursing audience /pharmacists
- 76 attendees in total covering 11 clinical areas
- Online evaluations via QR code. 45 forms completed in total.
- Positive feedback with 59% of evaluations rating the content and relevance of the teaching sessions to be good.

Accessing all Wales AKI guidelines





AKI Awareness



Has your patient passed urine?



N.B In >65yrs unless there are symptoms of UTI, disregard positive leukocyte & nitrate indicator due to asymptomatic bacteriuria



Project impact: Education

60% adherence to the AKI core principles by the end of the project reflects the benefits of nurse led point of care education.

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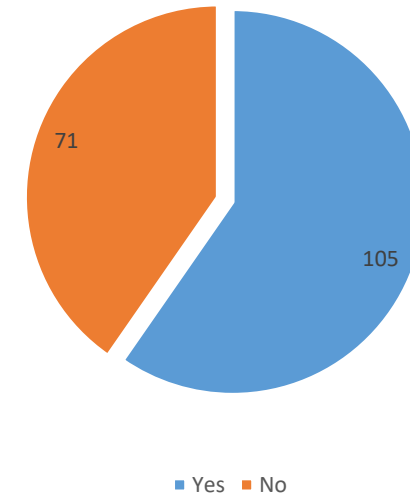
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Staff adherence to ROUNDUP (n=176)



Project Outcomes: managing dialysis dependent AKI

Acute dialysis and CVC insertion.

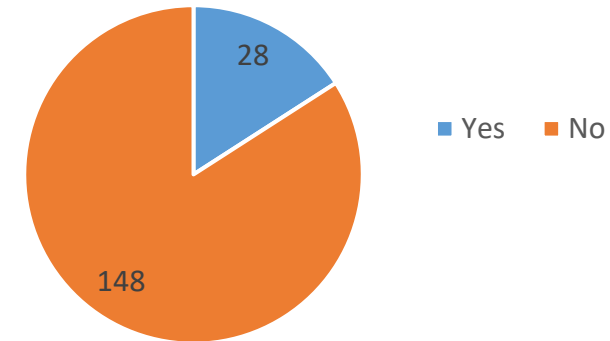
2 patient dialysed in the RDU in Carmarthen GGH

3 patients previously on CVVHF in ICU were able to step down to the ward sooner by providing HD in the RDU in GGH.

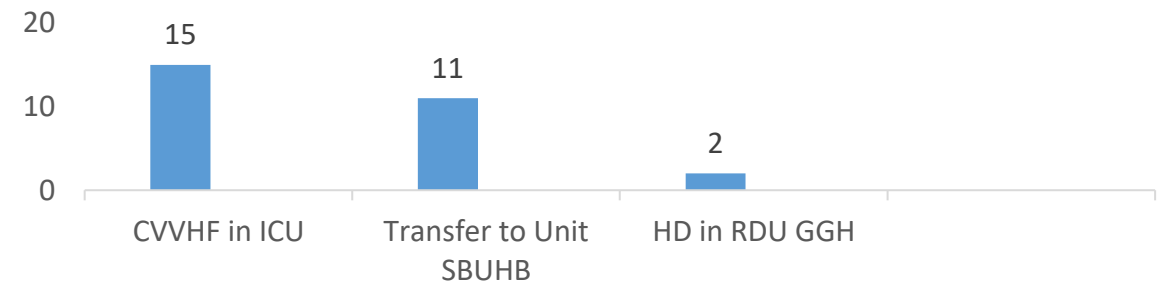
There was a 10 month hiatus during which the dialysis unit in Carmarthen was unable to take stable single organ AKIs for dialysis. A SOP was deemed mandatory. New SOP approved in June 2025

Since approval of the SOP acute dialysis in GGH has been re initiated.

Renal Replacement therapy needed (RRT)
n= 28/176)



Location of Renal Replacement Therapy (RRT)
(n=28)



Project Outcomes: AKI nurse led follow up clinic

AKI Specialist Nurse follow up clinic

- Commenced September 2024
- Total number of patients seen 54.
- 10 patient quality impact surveys completed.
- **90% of patients reported having a positive experience.**
- 1% would have preferred the communications in clinic to have been undertaken in the Welsh language.

Conclusions

- Compliance with AKI guidelines improved with targeted ward based education
- In hospital mortality from AKI can be reduced by preventing AKI progression
- It is possible to prevent progression of AKI by a consistent nurse led outreach service
- Delivering the AKI service closer to home can be achieved: providing equity of service to all patients, avoid unnecessary ICU admissions and tertiary hospital transfers.

Thank You

Any Questions?

