

VALUE-BASED HEALTHCARE CONFERENCE 2024

22-23 AUGUST 2024



Tan Tock Seng
HOSPITAL

National Healthcare Group

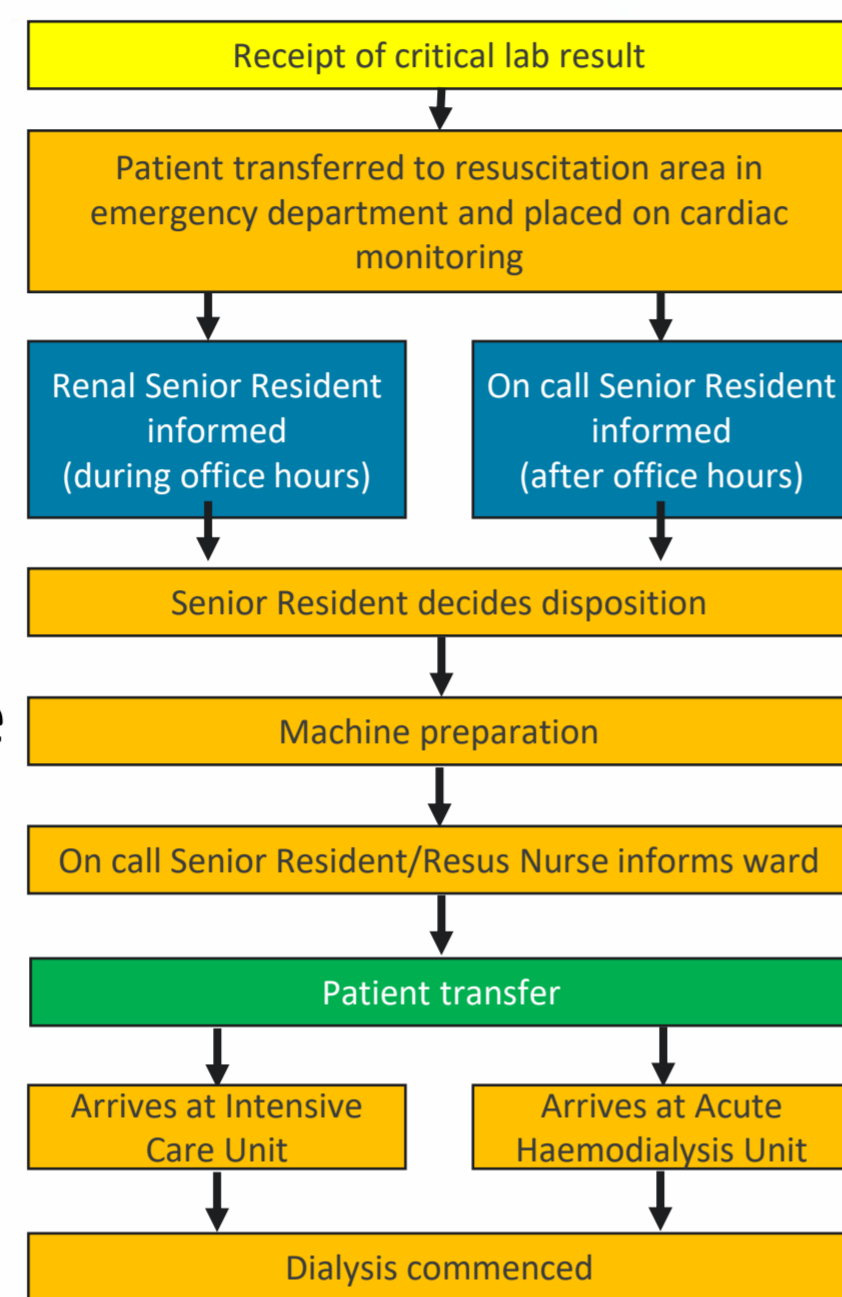
TIMELY DIALYSIS FOR HAEMODIALYSIS PATIENTS WHO PRESENT TO EMERGENCY DEPARTMENT WITH SEVERE HYPERKALEMIA

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PROBLEM STATEMENT

- Patients with end-stage renal disease (ESRD) and hyperkalemia are generally accepted to require urgent dialysis
- If dialysis is delayed, cardiovascular collapse and demise may result
- Many process steps and often delays between recognition of hyperkalemia and initiation of dialysis



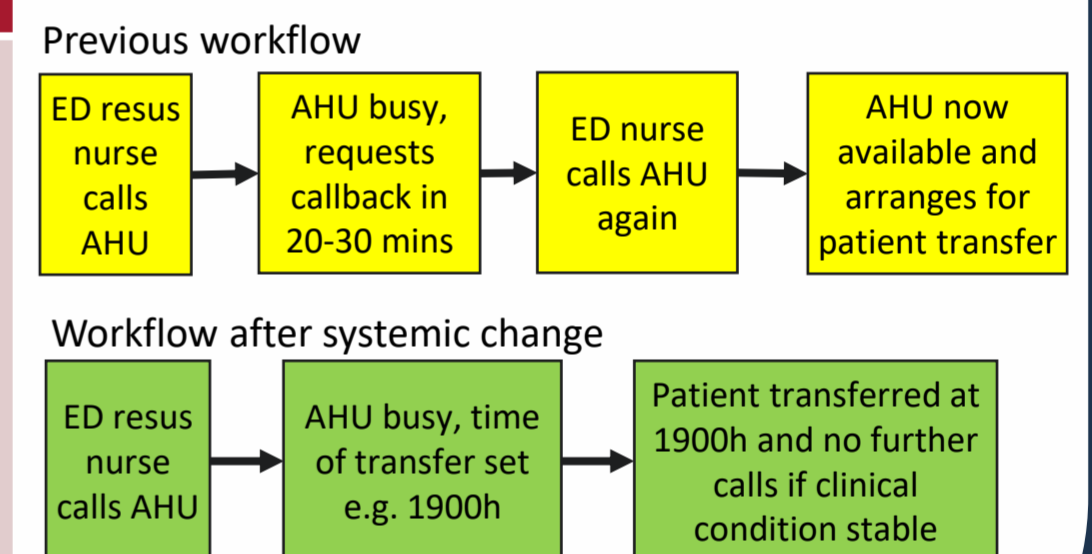
INTERVENTIONS

| CAUSE / PROBLEM | INTERVENTION | DATE IMPLEMENTED |
|---|--|------------------|
| No standardised criteria for dialysis | PDSA #1A: Standardised criteria sent out to Emergency Department (ED) + Renal + Medical Intensive Care Unit (doctors and nurses) | 16 Sep 2022 |
| Lack of knowledge of indication for urgent dialysis | PDSA #1B: Optimizing transfer of patients between ED and Acute Haemodialysis Unit (AHU), by requiring standardizing nursing handover | 5 Oct 2022 |
| | PDSA #1C: Standardised criteria disseminated to medical Senior Residents via email | 10 Oct 2022 |
| Lack of available empty AHU bed | PDSA #2A: Prompt decantment of patients who completed dialysis in AHU | 17 Oct 2022 |
| | PDSA #2B: Decantment of machines for disinfection in isolation room to free up AHU bed space for dialysis | 14 Nov 2022 |

PDSA: Plan, Do, Study Act. All implementation cycles had these 4 phases as an iterative process.

| Criteria | Priority | Action |
|--|-------------|---|
| ESRD patients on HD with $K \geq 6.5$ OR $K \geq 6.0$ with ECG changes | P1 (Urgent) | <ol style="list-style-type: none"> Aim to initiate dialysis <u>within 3 hours</u> of receipt of critical lab result No need to wait for repeat potassium before arranging dialysis To indicate in nursing orders "P1 dialysis" |

Note: All other indications for urgent dialysis should proceed as per current practice



PDSA #1A: Standardised criteria disseminated to stakeholders

PDSA #1B: Optimising patient transfer by standardizing nursing handover

PROJECT AIM

Initiation of dialysis within 3 hours from receipt of critical lab result to increase from 48% to 90% of ESRD patients on haemodialysis who present to Emergency Department with Severe Hyperkalemia ($K \geq 6.5$ mmol/L or $K \geq 6.0$ mmol/L with hyperkalemic ECG changes)

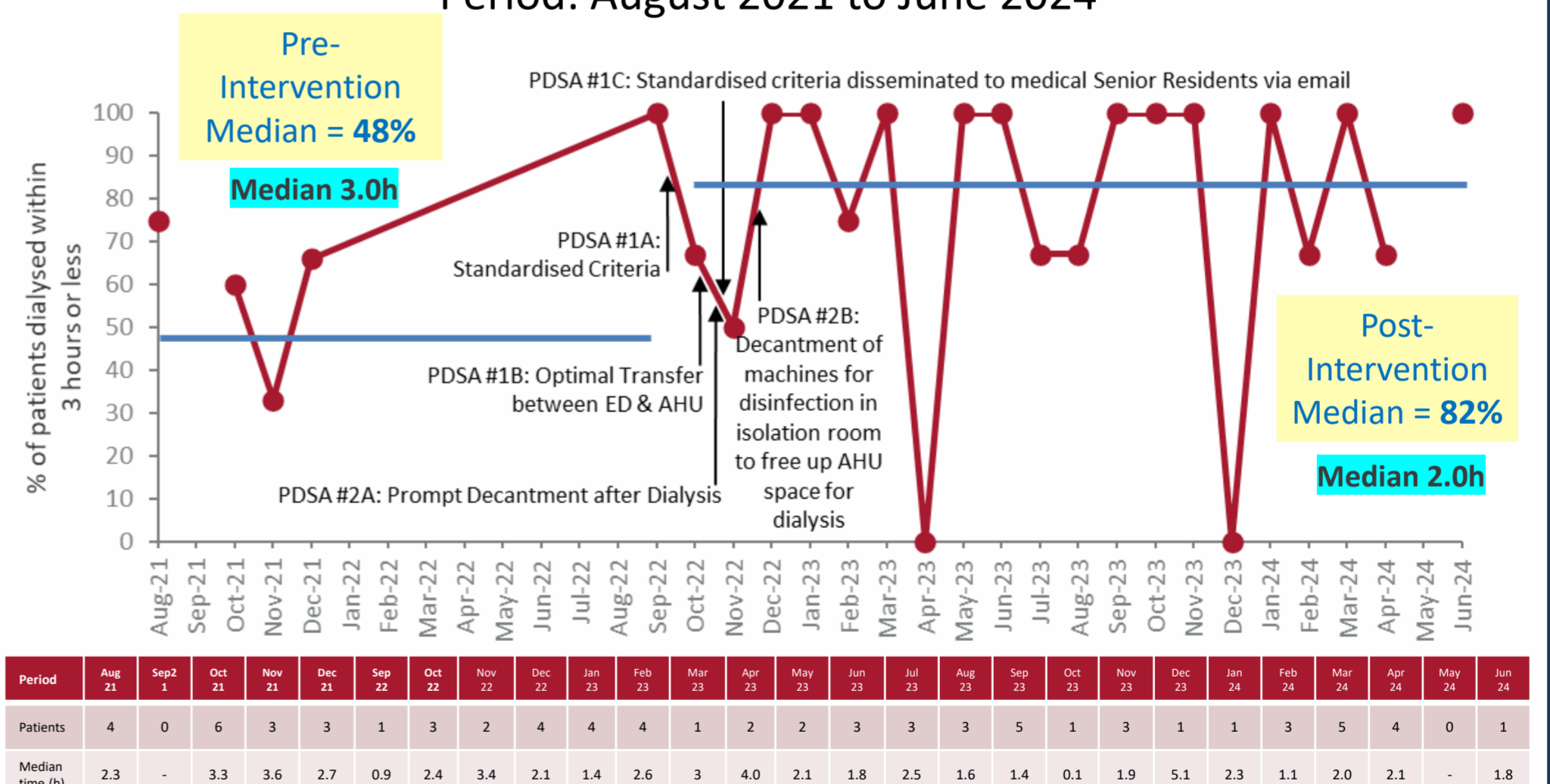
LESSONS LEARNT

- Analysis and refinement of the process workflow required expertise from medical and nursing representatives from various departments working together.
- Challenging to manage change among stakeholders. Support from department heads was crucial to successful implementation.
- For effective communications, we had to simplify our message depending on the target audience.

OUTCOMES & IMPACTS

Percentage of Patients Dialysed within 3 Hours or Less

Period: August 2021 to June 2024



- Reducing patient morbidity through timely care.
- Reduced average length of stay in ED resuscitation (3 hours to 2 hours).
- This resulted in \$95 man-hour cost saved per patient with an estimated annualised cost savings of \$3,975.
- There is also an estimated annualised cost savings of \$37,440 from the avoidance of rare but serious adverse events.
- Potential to spread to other conditions requiring urgent dialysis and leveraging on electronic health record to drive compliance.