

24/7 Haemodialysis: Enhancing Patient Care at AHU (Acute Haemodialysis Unit)

Grace T.F.L¹, Tan S.H²

¹General Medicine, ²Nursing Administration

¹Renal Medicine, ²Renal Centre

Khoo Teck Puat Hospital

Aim

Before the setup of the Acute Haemodialysis Unit (AHU) at Khoo Teck Puat Hospital (KTPH), patients requiring high-acuity care or dialysis outside Renal Centre hours were admitted to ICU/HD. This led to increased ICU/HD admissions and higher healthcare costs. With the setup of Acute Haemodialysis Unit (AHU), it provides 24/7 intermittent haemodialysis for high-acuity patients. It supports patients needing non-invasive ventilation, inotropic support, and close monitoring. Since its opening on 18th June 2024, AHU has allowed unstable patients to receive haemodialysis without ICU/HD admission. Stable patients are transferred to general wards post-haemodialysis, while those who deteriorate are moved to ICU/HD. AHU aims to provide continuous, high-quality haemodialysis for high-acuity patients, ensuring right siting of patients. By offering 24/7 access, AHU optimizes patient care and achieves significant cost savings by alleviating the ICU/HD resource burden.

Background

AS-IS (Before 18 June 24)

Patients requiring high acuity care or patient's requiring dialysis outside of Renal Centre's operation time

Refer to MICU/ICU

TO-BE (After 18 June 24)

Patients requiring high acuity care or patient's requiring dialysis outside of Renal Centre's operation time

Refer to AHU (Acute Haemodialysis)

Prior to the establishment of the Acute Haemodialysis Unit (AHU), patients who required high-acuity care or haemodialysis outside the operating hours of the Renal Centre faced significant challenges. These patients, often in critical condition, needed immediate and specialized care that was not available in the general wards. As a result, they were admitted to the Intensive Care Unit (ICU) or High Dependency (HD) unit for haemodialysis treatment. After the AHU was opened on 18th June 2024, patients requiring haemodialysis who are unstable, yet do not warrant an Intensive Care Unit (ICU) or High Dependency (HD) bed, can be dialysed in the unit. Patients whose conditions stabilize after haemodialysis are transferred to a general ward for continued care. Conversely, patients who remain unstable or become ill during haemodialysis are transferred to the ICU/HD for further management. This approach ensures that patients receive the appropriate level of care based on their clinical condition, optimizing resource utilization and improving patient outcomes.

Team Members

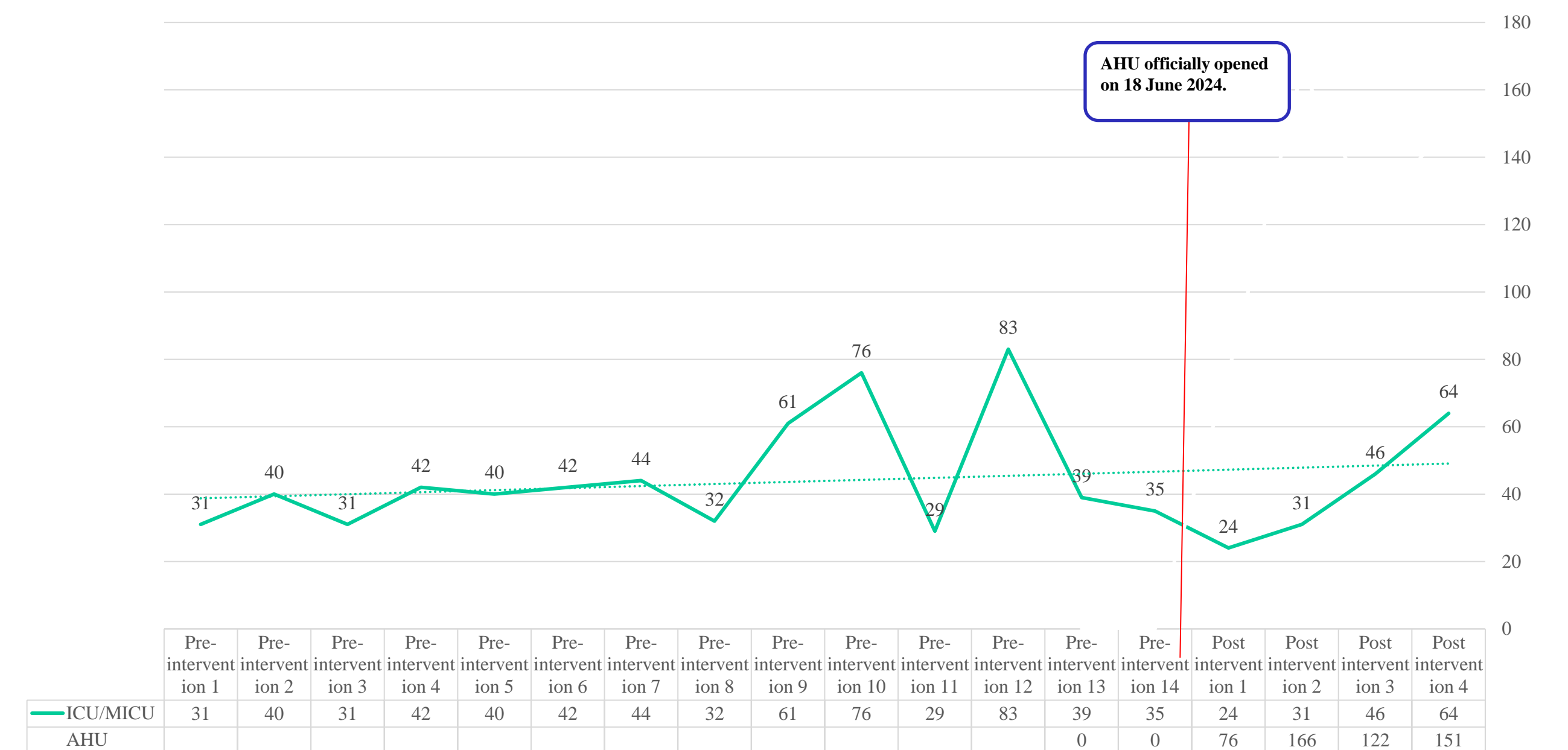
Name	Designation	Department
Si Chanjuan	Senior Nurse Manager	Renal Centre
Deng Ya Ling	Assistant Nurse Clinician	Renal Centre
Chen Shune	Assistant Nurse Clinician	Renal Centre
Allen Liu	Senior Consultant	Renal Centre
Ong Min Yi	Executive	Renal Centre

Conclusion

In conclusion, the setup of AHU relieves the ICU/HD unit of receiving patients solely for the purpose of haemodialysis, as well as providing rapid access to haemodialysis 24/7. This achieves right siting of care and frees up the crucial resources of ICU/HD beds and minimize the admission of patients to ICU/HD beds, together with significant cost savings.

Interventions / Implementation

Since the setup of Acute Haemodialysis Unit (AHU) it helps free up ICU beds for critical care and reduces the workload for Renal Centre nurses. The graph below illustrates the drop in workload in the ICU.



Onward 2026

This project aims to allocate patients to appropriate care streams, reducing ICU admissions. When patients are admitted to A&E or wards, a Renal physician will review them via Blue letter to assess the urgency of dialysis and high-acuity care needs. Patients will then be directed to the Renal Centre, AHU, or ICU for dialysis based on clinical needs.

Quality and Patient Safety: The AHU reduces ICU admissions and enhances patient well-being by managing high-acuity patients with a lower nurse-to-patient ratio of 1:2, compared to 1:3 in the Renal Centre.

Operational Resilience: The AHU provides an additional site for dialysis, ensuring continuity of care during issues like power outages or water disruptions at the main Renal Centre.

Staff Well-being: The AHU improves job satisfaction for nurses by reducing the nurse-to-patient ratio to 1:2 and providing training in life-support and non-invasive ventilation, boosting their confidence in caring for high-acuity patients.

Results & Outcomes

Since the AHU opened on 18th June 2024, we have observed a significant increase in the number of patients receiving high-acuity haemodialysis care. Patients no longer need to be admitted to the ICU or HD units solely for haemodialysis treatment.

Key Highlights:

The AHU has effectively reduced the need for ICU/HD admissions, resulting in substantial cost savings and improved patient care.

Duration	Patients Admitted	ICU Cost Per Day	Potential Cost Savings
18th June 2024 - 31st October 2024	710	\$1,706	\$1,211,210