# Innovating care delivery effective cellulitis management by KTPH@Home

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## Aim

This study aims to evaluate the effectiveness and feasibility of the Hospital-at-Home (HaH) model for treatment of cellulitis, specially assessing clinical outcomes, healthcare resource utilization and return to hospital rates. By comparing these metrics with traditional inpatient care, we aim to provide evidence on whether HaH can be a viable and efficient alternative for cellulitis management.

## Background

Cellulitis is a bacterial infection of the skin or soft tissue that may lead to bacteremia or necrotizing fasciitis if not treated promptly[1]. Traditionally managed in inpatient settings, recent advancements in healthcare delivery have introduced HaH services as an alternative. HaH service has mainstreamed in Singapore in April 2024 and Khoo Teck Puat Hospital has been providing HaH service as KTPH@Home.

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## Team Members

| Name | Designation | Department |
|---|---|---|
| Low Sing Ee | Nurse Manager | KTPH@Home |
| Neo Wan Qi, Phoebe | Senior Staff Nurse | KTPH@Home |
| Kelly Chong Yew Ting | Manager | KTPH@Home |
| Kanak Naidu | Senior Consultant | Emergency Medicine |
| Zhang Ruyi | Assistant Nurse Clinician | KTPH@Home |
| Neo Hwee Nah | Nurse Clinician | Emergency Medicine |
| Ong Shu Fen | Advanced Practice Nurse | KTPH@Home |
| Nurliyana Binte Hussien | Executive Assistant | KTPH@Home |
| Bernice Leong Su Min | Assistant Director | Operations Admin |

## Interventions / Implementation

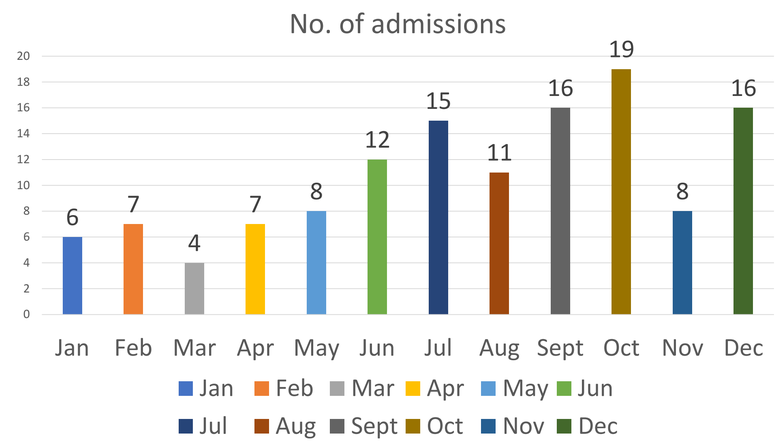
A retrospective analysis was conducted on patients diagnosed with cellulitis who were admitted under the KTPH@Home service between January 2024 and December 2024. Key outcomes measured included clinical resolution, healthcare resource utilisation, and return to hospital rates. Data were extracted from electronic health records.

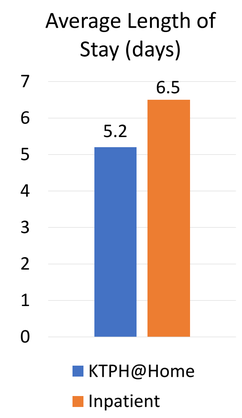
- Clinical resolution is defined as patients being discharged in stable condition. Patients requiring a return to the Emergency Department for escalation of care related to cellulitis were classified as clinically unresolved.
- Healthcare resource utilisation is measured by the number of hospital bed days saved during the period patients recovered at home from the time of admission until discharge from the KTPH@Home
- Length of stay is measured by the number of days between admission date and discharge date.
- Return to Hospital rate is defined as the proportion of patients whose care is escalated back to Emergency Department during the service.

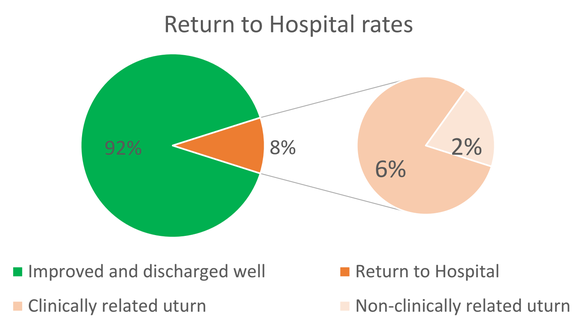
## Onward 2026

KTPH@Home provides an alternative care model to traditional inpatient hospital stays, allowing patients to recover comfortably at home while still receiving safe, high-quality care. In this model, virtual hospital beds were created within the homes of patients, enabling the medical team to manage their care as though they are hospitalized. This approach has significantly reduced the demand for hospital beds, optimizing hospital resources and reducing hospital cost.

## Results & Outcomes

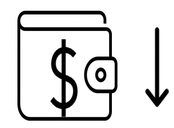



666 bed days saved

44% costs savings



A total of 129 patients with cellulitis were admitted to KTPH@Home from January to December 2024.

- 92% of patients achieved complete symptom resolution with an average length of stay of 5.2 days* (n=129) as compared to 6.5 days (n=1648) for traditional hospital admission. This resulted in a 44% cost savings for patients.
- Approximately 8% of patients (of which 2% is not for clinically related reasons) returned to the Emergency Department, requiring readmission back to hospital with no adverse event reported.
- The commonly used antibiotics are Augmentin, Cefazolin, Ceftriaxone and Clindamycin with the first two serving as the primary treatments.
- Healthcare resource utilisation demonstrated significant optimisation with 666 bed days saved.

*Patients under KTPH@Home tend to have milder course of disease and are stable clinically

## Conclusion

The KTPH@Home service for cellulitis demonstrated non-inferior clinical outcomes comparable to traditional inpatient care, while reducing healthcare costs and resource utilisation. This model offers a viable alternative to conventional inpatient treatment without compromising the quality of patient care.
Moving forward, further exploration into the types of antibiotics used will be valuable, particularly to identify alternatives that could reduce the need for in-person visits, thereby enhancing cost-effectiveness without compromising on clinical outcome.

1Tienpratarn, W., Yuksen, C., Pauly, J. D., Vu, D., Benbourenane, A. N., & Sangskul, N. (2024). Factors and clinical prediction score for complication development after cellulitis diagnosis in adult patients. International Journal of Emergency Medicine, 17(68). https://doi.org/10.1186/s12245-024-00646-w