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A Cost Effectiveness Study on an Acute Medical Teleconsultation Program in Nursing Home Residents in Singapore

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Problem Statement

A large majority of Nursing home (NH) residents, who are sent to the hospital's emergency departments (EDs) are admitted, when they turn acutely ill.

Purpose of Study

To study the cost-effectiveness of an acute medical teleconsultation service model in avoiding unplanned hospital admissions among nursing home residents, compared to usual care where nursing home residents are sent directly to ED.

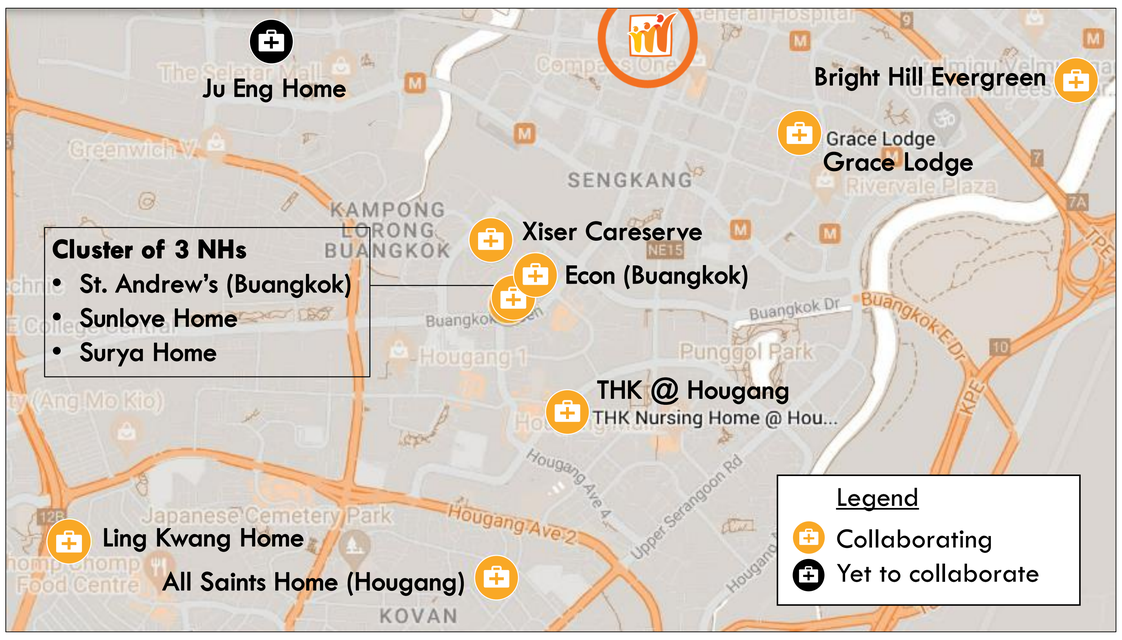

Figure 1. Geographical visualisation of 11 NHs within vicinity of SKH (circled) and their status of collaboration. 10 partnered NHs had a total bed capacity of 2,778.

Results & Discussion

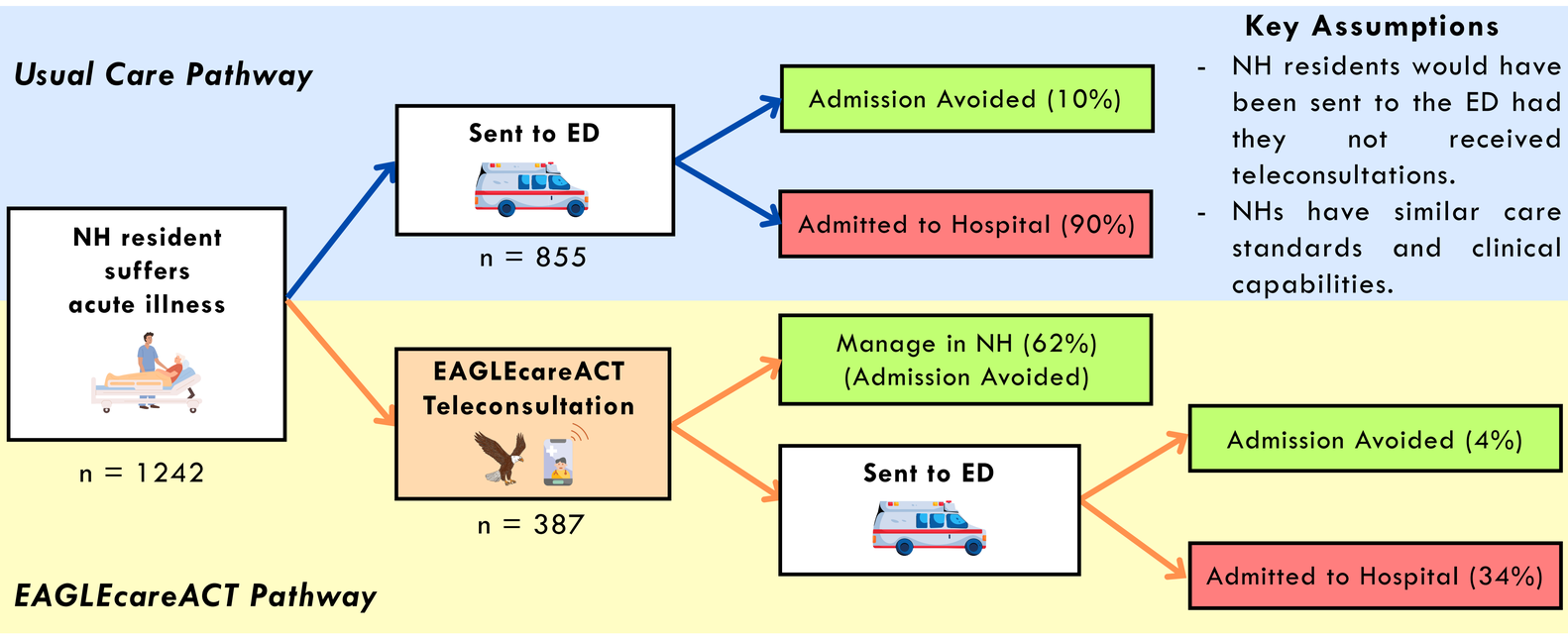

Figure 2. Decision Tree Model simulating a NH resident's journey using either the Usual Care Pathway or acute medical teleconsultation (EAGLEcareACT) Pathway. The estimated subsidized cost of sending to ED was $148, while the cost for the teleconsultation was $116. Figures are rounded off to nearest whole numbers.

Table 1. Incremental Cost Effectiveness Ratio Revealed Cost Savings Per Unplanned Hospital Admission Avoided via Acute Medical Teleconsultation (EAGLEcareACT) Pathway.

Estimated Outcomes	EAGLEcareACT Pathway	Usual Care Pathway	Difference (Δ)
Expected Cost	$276	$422	-$146
Expected Effectiveness (Avoid Admission)	66%	10%	56%
Incremental Cost Effectiveness Ratio (Δ Cost / Δ Effectiveness) = -$146 ÷ 56% = -$257.50			

Figures are rounded off to the nearest whole number, except for the final incremental cost effectiveness ratio value which considered the raw figures of all previous calculations.

In 2024, the service helped avoid 257 hospital admissions, amounting to over SGD $66,178.58 in cost savings for the hospital and the emergency medical services (Table 1). This estimate excludes additional savings from reduced ED congestion and bed days avoided, where nursing home residents spend 6 days in hospital on average.

Conclusion

Avoiding unplanned and unnecessary hospital admissions for NH residents in Singapore alleviates the bed crunch situation, while maximising resources in both NH and hospitals. These results support wider adoption of hospital-managed teleconsultation models to improve system efficiency and address the growing demand from an ageing population.

Methodology

This retrospective economic analysis used 2024 data from EAGLEcareACT teleconsultations and SKH ED visits.

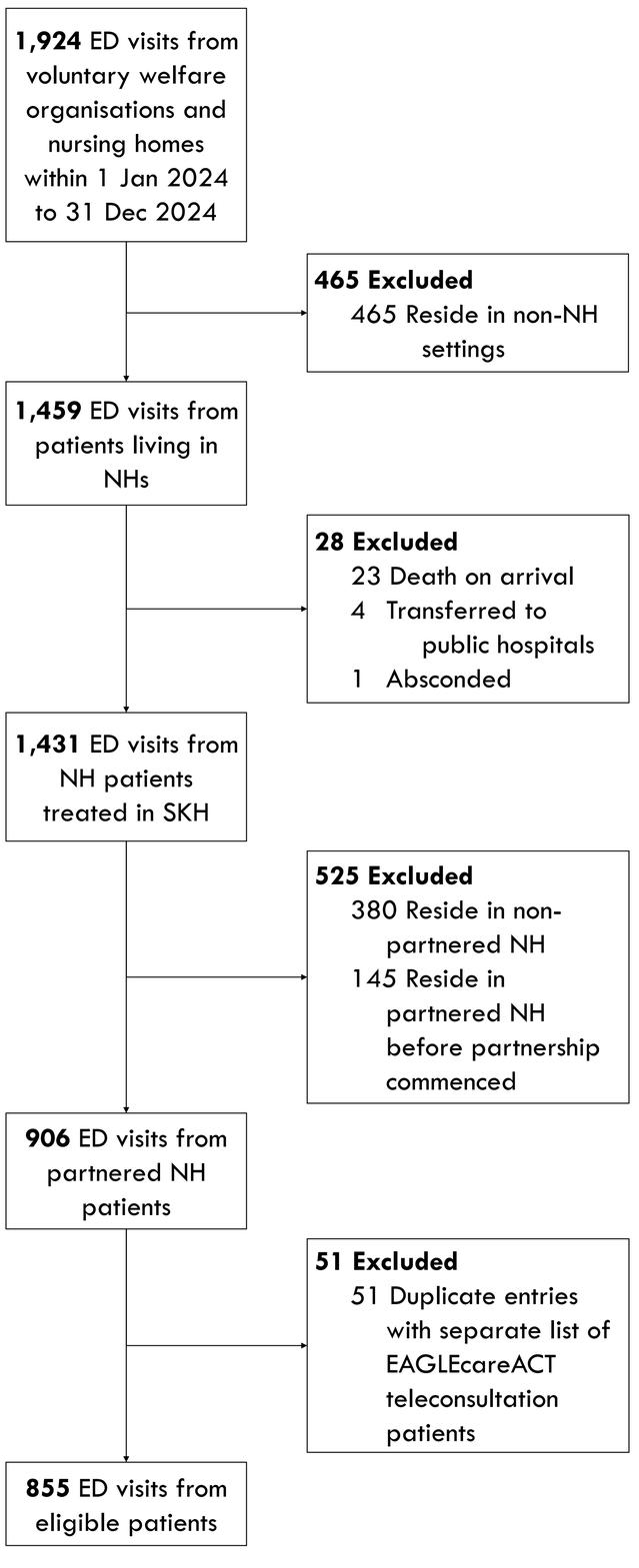

Figure 3. Selection of ED Study Participants from the 2024 Electronic Health Records at SKH.