Hospital Care Without the Carbon Baggage: The CGH@Home Transport Footprint Pilot Study

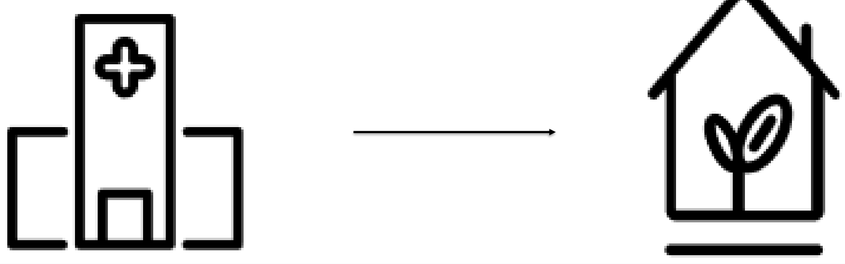
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Aim / Objectives

Exploratory study to compare the transport-related carbon footprint of patients managed under CGH@Home with the estimated footprint associated with conventional inpatient care.

Background

Hospital-at-home programmes may reduce healthcare-related carbon emissions by decreasing hospital energy use and transport requirements. However, data from Singapore remain limited.



Methodology

We mapped the hospital-at-home journeys of 49 CGH@Home patients.

Variables Collected	
Length of stay	Origin of referral
Travel distance	Admitting diagnoses

CGH@Home Transport Emissions

Transport CO_2e
$= (Round\text{-}trip\ distance)$
$\times (Number\ of\ visits)$
$\times 0.145\ kg\ CO_2e/km$

Distance measured between CGH and patient's home
Emissions factor derived from Singapore UOB Corolla Altis ICE study

Estimated Inpatient Emissions

Inpatient CO_2e
$= (Length\ of\ stay)$
$\times (Mean\ ward\ emissions\ per\ bed\text{-}day)$

Results & Outcomes/ Discussion

49

6.27
Mean LOS
(days ± 3.34)

45.6
Avg. travel/patient
(± 34.2 km)

6.62
Mean home CO_2e
(± 4.96 kg)

143.5kg
Mean hospital CO_2e
(± 76.5 kg)

X 21.7
Hospital vs. home ratio

~95% Estimated Lower carbon footprint vs conventional inpatient care
(carbon savings equivalent to driving a petrol sedan car ~ 600km)

Carbon Footprint Comparison

CGH@Home — 6.62 kg CO_2e ± 4.96 kg

Inpatient equivalent — 143.5 kg CO_2e ± 76.5 kg

Correlation Analysis

Transport emissions vs. total distance travelled
r = 1.00, p < 0.001

Transport emissions vs. length of stay
r = 0.73, p < 0.001

Conclusion

CGH@Home generates estimated ~95% less transport-related carbon than equivalent inpatient care, supporting hospital-at-home as a clinically and environmentally sustainable model.