

Local Publications

Ref	Publication title	Summary
Leong et al., 2021	Comparison of Hospital-at-Home models: Systematic review of 10 reviews	• HaH generally results in similar or improved clinical outcomes compared with inpatient treatment. • AA has greater potential benefit than ESD in costs and clinical outcomes.
Lai et al., 2021	Asian Attitudes and Perceptions Toward Hospital-At-Home: Cross-sectional, survey	• Survey of 120 hospitalized patients and caregivers suggested that 72.5% of them are willing to try HaH if offered.
Chua et al., 2022	Perceptions of Hospital-at-Home Among Stakeholders: a Meta-synthesis	• High satisfaction with HaH among stakeholders. • Caregivers should be involved in the decision-making process. • Collaboration and coordination among healthcare professionals are key.
Ko et al., 2022	Treating acutely ill patients at home: Data from Singapore, Retrospective cohort study of HaH	• 108 patients admitted to HaH pilot between Sep 20 to Sep 21 • Median HaH LOS of 4 days • Rate of escalation to acute hospital of 6.5%, 1 mortality, 2 safety events
Chua et al., 2022	Perceptions of Stakeholders Toward “Hospital at Home” Program in Singapore: A Descriptive Qualitative Study	• Interviews with 13 physicians, 10 care provider, 15 patients and 3 caregivers suggested that most stakeholders embraced HaH. • Enablers identified were: timely medical interventions, support from care providers, adequate resources and sound financing mechanisms.
Ko et al., 2023	Proportion of medical admissions that may be hospitalised at home and their service utilisation patterns: a single-centre, descriptive retrospective cohort study in Singapore	• 18% of 20 months of acute hospital admissions may be substituted by HaH • Key services include parenteral drug administration, blood investigations, imaging procedures and AHP consultations.

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Ko et al., 2023	Experiences of Patients and Their Caregivers Admitted to a Hospital-at-Home Program in Singapore: a Descriptive Qualitative Study	- Interviews with 13 patients and 23 caregivers showed that most patients who received HaH care had an overall positive experience. - Enablers identified were: inclusion of family members, effective communication and accessibility, affordable financing strategies.
Goh et al., 2023	Economic Evaluation of Novel Models of Care for Patients With Acute Medical Problems	- HaH care model decreased overall personnel cost of care. - Compared with inpatient care, HaH used 50% less nursing time but 80% more medical time per dengue case.
Ko et al., 2023	Technology-enabled virtual ward for COVID management of the elderly and immunocompromised in Singapore: a descriptive cohort	238 patients enrolled to COVID-19 virtual ward (CVW) - Median virtual ward LOS of 6 days - Rate of escalation to acute hospital: 17.2%, Inpatient mortality rate: 2.1%.
Ko et al., 2023	Experiences of patients and their caregivers in a Virtual Ward in Singapore: A descriptive qualitative study (Covid)	- Interviews with 18 patients and 15 caregivers who received virtual care in Covid-19 Virtual Ward (CVW) perceived their experience to be safe and effective. - Key enablers for a positive experience were the availability of social support, timely care from the care team, and 24/7 access to the team.
Tan et al., 2023	Outcomes of a “hospital at home” programme for the supervised home recovery of COVID-19 patients in Singapore	- The number of days of inpatient hospitalisation avoided was 717 days (average of 7.9 days per patient). Three hospital referrals (3.9%) were readmitted, while seven community referrals (30.4%) required subsequent hospitalisation. - Virtual Ward programme demonstrates that selected COVID-19 patient (N=100) can safely recover at home with remote medical support and monitoring, thereby expanding hospital capacity.
Towle et al., 2023	Enhancing the hospital at home experience	- To understand the challenges of providing and receiving healthcare in the community, design a solution to meet the challenges, and to pilot and evaluate the solution. - Physical home environment was most cited by the nurses as their main challenge, particularly the lack of a dedicated and clean space to conduct nursing procedures. - Medication management was the greatest challenge faced by the patient-caregiver dyads. Based on these findings, a prototype of an integrated structure was fabricated in Phase 2. - Ten patient-caregiver dyads and nine community nurses tested the prototype in Phase 3. The participants found the structure useful to store and organize their healthcare items, and there was ample clean workspace to carry out nursing procedures.

		An integrated structure that can fulfil the physical, spatial and interpersonal needs at an affordable price could be useful in facilitating the delivery of hospital care in the home setting.
Ko et al, 2024	Home-First or Hospital-First? A Propensity Score – Weighted Retrospective Cohort Study	- This study aimed to compare clinical and utilization outcomes between home-first and hospital-first models of care in the operation of a hospital-at-home (HaH) program. - There was no significant difference in the odds of occurrence of the primary outcome between the home-first and hospital-first groups (OR, 1.17; 95% CI, 0.44e3.10). - Home-first patients had a shorter length of stay by an average of 2.02 (95% CI, 1.10e2.93) days with no statistically significant difference in clinical outcomes compared with hospital-first patients. - Patients with COVID-19 suitable for HaH should be considered for direct admission to HaH without need for an initial hospital stay.
Choe et al, 2024	Knowledge, attitudes, and perceptions of residents towards Hospital-at-Home (HaH) and its role in residency training	- This study examines the perceptions of junior doctors towards HaH, and aims to determine the learning needs that might be helpful for future curriculum planning. 106 surveyed residents: Overall knowledge and attitudes were mostly average. Perceptions were neutral but comparatively lower in the domains of safety, efficiency and equity. 80% of keen to have a 2-4 week rotation of HaH incorporated into training.
Teo et al, 2024	Physician time spent on electronic health records in alternative hospital care models	Residents vs Consultants: Residents spend a higher proportion of time on EHR than consultants (40–63% vs 12–23%) in conventional care. HaH Model: Both groups spend more absolute time on EHR but a smaller proportion overall, influenced by commute and safety screening. ACT Model: Cuts total physician time by half and reduces EHR time significantly (2.3× for residents, 1.5× for consultants), lowering EHR proportion for residents. Efficiency & Burnout: ACT demonstrates potential to improve efficiency, cost-effectiveness, and reduce physician burnout amid workforce shortages.
Ng et al, 2024	Navigating COVID-19 Surges: A Case Study of a Hospital-at-Home Implementation	Pilot investigation revealed that the implementation of HaH by CGH can effectively mitigates healthcare costs by facilitating early patient discharge, thereby substantially reducing the need for hospital bed days. 16 patients (Median age = 67) were admitted into the HaH program, saving a total of 48 bed days.

		- Findings suggest that hospitals with internal resource constraints can make adaptations to leverage existing providers and assets within the community where necessary. - HaH shifts many aspects of healthcare responsibility to patients and their caregivers, which may be beyond their expected capabilities. Clear communication of expectations and limitations from all parties involved is paramount to upholding the quality of care in HaH.
Low et al, 2025	Health Care Providers' Experiences and Perceptions With Telehealth Tools in a Hospital-at-Home Program: Mixed Methods Study	- This study aimed to understand the experiences and perspectives of health care providers toward teleconsultations and vital signs monitoring systems within a HaH program in Singapore to optimize effectiveness and address challenges in future implementation - Qualitative analysis identified four themes: (1) benefits of telehealth for health care providers such as improved work convenience, efficiency, and satisfaction; (2) challenges of telehealth implementation relating to communication and technology; (3) perspectives on telehealth impact; and (4) enablers for successful implementation
Ong et al, 2025	Perceptions and anticipated factors influencing the adoption of early supported discharge through hospital-at-home	- Study aimed to explore the patient's perceptions and anticipated factors of HaH with a focus on the factors that affect their acceptance of ESD 4 key themes were distilled following 24 patient's interviews – 1. Perceived benefits, 2. Perceived a of care, 3. Potential challenges and barriers related to home environment, social support and technology, 4. Financial considerations. - Theme 1: Comfort and familiarity, privacy, presence of family, autonomy over care, flexibility in activities, ease bed shortages, fair allocation of resources, lack of awareness of HaH service - Theme 2: perceived limited capabilities of monitoring, lower quality of and less immediate medical attention, need for alignment of care needs and ESD - Theme 3: constraints of home environment, availability of family/caregivers, concerns with use of technology - Theme 4: Expectations of cost with lack of use of hospital facilities and willingness to pay
Lee et al, 2025	Reimagining pharmacy processes for expanding hospital at-home care in Singapore: A qualitative study	- This qualitative study seeks to investigate existing perspectives on MIC@Home and the challenges associated specifically with its provision of pharmacy services, and propose suitable recommendations for the enhancement and upscaling of such services within projected timelines. - Themes under challenges were organized into workflow, logistics and supply, medication management, and manpower. Lastly, the

		various opportunities for innovation highlighted were broadly categorized into service-based and product based strategies (see Table 1 on page 4)
Chua et al, 2025	Hospital-at-home care in Singapore: A qualitative exploration of health system partners' state of readiness, and policy and implementation strategies essential to support scale-up	- Three key themes identified: i. Readiness to Scale – Stakeholder motivation and capacity. ii. Implementation Strategies – Training, collaboration, and operational refinements. iii. Policy Strategies – Financial sustainability, governance, and regulation. MIC@Home as a Solution: Seen as viable for acute bed shortages with high scalability potential. Critical Enablers: Stakeholder buy-in, organizational alignment, partnerships, adequate manpower, and standardized guidelines/data to prove safety and effectiveness. Sustainability Needs: Adjusted regulations, clear minimum care standards, and strategies to engage clinicians, patients, and caregivers for long-term success.
Goh et al, 2025	Hospital-at-home care in Singapore: distilling policy and implementation strategies essential to support scale-up using Policy Labs.	- The priorities that would aid in upscaling MIC@Home in Singapore included (1) policy redesign: optimize manpower, shift stakeholder mindsets, enhance third-party providers, and integrate mainstream financing options to support effective implementation; (2) guidelines and clinical operations: emphasize innovative IT solutions for triage, quality-focused training programs, operational efficiency through standardized protocols, nationalized logistics, and collaboration across MIC@Home clusters; (3) leadership and governance: advocate a clear mandate to establish professional societies for accreditation and create a balanced governance structure that addresses MIC@Home's unique complexities.
Ko et al, 2025	Hybrid Hospital-at-Home Program in Singapore: Ethnographic Study	- This study aims to explore the experiences of patients and caregivers receiving acute care through a combination of remote consultations and in-person visits within a hybrid HaH program in Singapore - A total of three key themes, supported by 12 subthemes, were identified: (1) positive experiences of remote and home visits—participants expressed feelings of comfort, convenience, safety, and a sense of empowerment; (2) patient-provider dynamics—this theme highlighted the importance of in-person visits while noting challenges such as technology usability, complex medical communication, and difficulties in building rapport; and (3) complexities of the home as a care setting—participants reported environmental limitations, hidden financial burdens, the

		need for advance scheduling, perceived safety risks, and role confusion among caregivers
Cheng et al, 2025	The Value of Remote Vitals Signs Monitoring in Detecting Clinical Deterioration in Patients in Hospital-at-Home Programmes or Post-Acute Medical Patients in the Community: A systematic review	• Study Objective: Evaluate the effectiveness of remote vital signs monitoring (VSM) for patients in HaH or post-acute settings. • Readmission Impact: Remote VSM showed limited benefit in reducing 60-day readmissions, as symptoms often appear before vital sign changes. • Mortality Benefit: VSM significantly reduced 30-day mortality, likely acting as a safety net for patients who delay seeking care. • Clinical Insight: Even in hospitals, vital sign changes often go unnoticed until critical stages, reinforcing the role of VSM as an early-warning support.
Lee et al, 2025	Mobile inpatient care at home: a pilot programme for paediatric patients with atopic dermatitis in Singapore	• This pilot study was performed to evaluate the impact of MIC@Home on clinical outcomes, cost, resource utilization and quality of life (QoL) compared with conventional inpatient care for children with atopic dermatitis (AD) flares. • Patients in the intervention group were in hospital for a significantly shorter duration, thus saving approximately 34 bed days, and had a lower mean number of nursing hours. • The mean gross hospital bill was significantly lower in this group compared with the control arm (928.84 GBP vs. 3120.85 GBP). • Overall, the outcome of this pilot study is in favour of MIC@Home as an alternative to conventional hospitalization for paediatric patients requiring inpatient treatment for AD, if adequate caregiver support is available
Tay et al, 2025	Development of Competency Framework for Nurses in Hospital-at-Home in Singapore	• A proposed competency framework that will serve as an important playbook for hospitals in equipping HaH nurses with the necessary tools, resources and knowledge to ensure the standard of care for HaH patients • The six-step model for developing competency framework was applied and a Delphi process was then employed to ensure the validity of the framework by seeking feedback and consensus from a panel of experts from both clinical and nursing backgrounds. A
Ho et al, 2025	Pioneering Enterprise Risk Management in a New Model of Home-Based Acute Healthcare	• A comprehensive three-tiered risk governance structure and framework encompassing 12 risk domains (Strategic, Clinical, Education, Research, Human Capital, Financial, Operations, Information Technology, Technology, Hazard, Legal & Regulatory and Reputation.)

		- Initial implementation identified and categorized 48 distinct risks using standardized likelihood-impact matrices, highlighting unique challenges specific to home-based care delivery. - Key risk management strategies include stakeholder engagement, continuous education through mechanisms such as Morbidity and Mortality rounds, and robust incident reporting systems
Tay et al, 2025	Exploring Use of Closed-Loop Insulin (CLS) Delivery System for HaH: A Meta-analysis of Randomized Controlled Trials on Closed-Loop Insulin Delivery System in Type 2 Diabetes	- To explore the use of CLS for optimal glucose management in HaH - Meta-analysis results show a significantly longer proportion of time within target glucose range in the intervention group, measuring a mean difference of 21.15 (95%CI, 17.33, 24.96). - CLS showed efficacy in managing blood glucose in T2DM, regardless of their current medical conditions, pre-existing comorbidities, meals, or activity levels. There is potential CLS to be used for the remote monitoring and active titration of insulin for patients under HaH. However, as included studies had small sample sizes, more high quality RCTs, on larger sample sizes are warranted to ascertain its efficacy.
Ong et al, 2025	Extending Hospital-at-Home to nursing homes: findings from a novel care model in Singapore	- Prospective study of outcomes of 349 and 16 patients enrolled in the Hospital-at-Home and Hospital-at-Nursing Home (HaNH) respectively. 16 HaNH enrollments were completed (3 AA and 13 ESD cases). Pneumonia (56.3%) and urinary tract infections (18.8%) were the most common diagnoses. - Median LOS was 3 days. Comparisons with a non-institutionalized HaH cohort ($n = 349$) had a higher risk of escalation to the actual hospital facility. HaNH patients had increased vulnerability, with higher post-discharge mortality and emergency visits. - There is huge potential for HaNH to support goal-concordant care, particularly for patients with advanced illness who may benefit from acute symptom management in a familiar setting without the distress of hospital transfer - Conclusion: While HaNH may alleviate hospital bed shortages, the higher risk of escalation of HaNH patients to an actual hospital facility highlights the need for careful patient selection and tight clinical partnerships with nursing home care teams to provide robust clinical support.

Others: Letters to Editors and Review articles		
Lim SM, 2022	Editorial: Treating patients at home: A novel solution for old problems	• Low Patient Acceptance: About 72% of patients declined enrolment in HaH programmes, likely due to unfamiliarity with the model. Acceptance improves when safety, timely interventions, and adequate resourcing are assured. • Knowledge Gaps: Limited awareness among patients, caregivers, and healthcare staff hinders HaH adoption. Education and clear referral pathways are critical, along with positioning HaH as a hospital-operated service for better trust. • Role of Technology: Telemedicine and wearables can enhance confidence in HaH by replicating hospital-level monitoring and communication. However, barriers like digital literacy and access remain for certain populations. • Funding & Sustainability: Success depends on embedding HaH into national healthcare frameworks with proper funding models. Countries that treat HaH as an acute inpatient alternative and resource it accordingly have achieved better uptake.
Liew et al, 2022	Letter to Editor: COVID-19 Infected Kidney Transplant Patients Outpatient Management—A Single-center Experience With a Hospital-at-home Program	• 62 kidney transplant recipients with COVID-19 infection were triaged by video consult and laboratory tests were enrolled into HaH. • Fifty-three (85.5%) completed home recovery without complications, whereas 9 (14.5%) patients required inpatient hospitalization for monoclonal antibody infusion (n = 3), evaluation of fever (n = 3), and miscellaneous medical issues (n = 3). • One hospitalized patient progressed to COVID-19 pneumonia requiring mechanical ventilation. • Patients hospitalized were more likely of Malay ethnicity (P = 0.02), anaemic (11.4 versus 13.4 g/ dL, P < 0.05) or had a lower estimated glomerular filtration rate (39.8 versus 62.9 mL/min/1.73m², P < 0.05). No deaths were observed.
Liu et al, 2022	Opinion: Healthcare Transformation in Singapore with Artificial Intelligence	• Chronic Disease Management: AI tools can support better management of chronic conditions, such as controlling blood glucose in diabetes. • Digital Health Coaching: AI-powered chatbots provide virtual assistance, helping patients manage their conditions at home and answer basic health queries. • Enhanced Diagnosis: AI improves accuracy and efficiency in disease detection (e.g., cancer) by processing large volumes of clinical data, including labs, vital signs, and imaging. • Empowering Patients & Care Quality: AI-based approaches enable individuals to take charge of their health while improving accessibility and quality of care.

		• Healthcare Datathons: These events serve as testbeds for AI-driven clinical research, fostering collaboration between healthcare professionals and data scientists to validate ideas and prototype solutions, promoting cultural transformation in healthcare.
Ko et al, 2023	Editorials: COVID-19 Therapeutics Can Be Safely Administered at Home	• Study Overview: First reported protocol for home-based intravenous sotrovimab infusion in 30 high-risk COVID-19 patients under a Hospital-at-Home model. • Patient Profile: Ages 21–93 years (mean 57), 80% immunocompromised, 20% unvaccinated or partially vaccinated. • Safety Outcomes: No severe infusion reactions; 5 patients had mild reactions (e.g., weakness, rash), and 1 hospitalization occurred for unrelated hyponatremia. • Operational Benefits: Home infusion reduces exposure risk, avoids building dedicated infusion centers, and scales rapidly during COVID-19 surges using existing HaH infrastructure. • Implications: Demonstrates feasibility and safety of home-administered monoclonal antibody therapy; further research needed on complication rates, manpower, and cost-effectiveness compared to hospital or infusion center delivery.
Ko et al, 2023	Research Letter: Continuous Vital Signs Monitoring in Patients Hospitalized at Home: Burden or Benefit?	• Remote vitals sign monitoring system can be an integral component of HaH care: • First, the use of remote vital signs monitoring systems is feasible for use in the HaH setting as all our patients were able to engage with it. • Second, continuous monitoring creates a high alert burden with low rates of deterioration detection. All deterioration episodes in our study would have been picked up by a staff member or by means of patient symptoms. • Third, intermittent self-measured vital signs have good compliance rates. Finally, threshold-based automated alerts, instead of having a dedicated staff member to supervise a dashboard round-the-clock, can be used to maximize efficiency of HaH on-calls. • Continuous monitoring in home care can trigger excessive alerts due to patient activity; it should be reserved for high-risk patients, with individualized or liberalized alert thresholds, and used as an adjunct to patient education and regular clinical reviews rather than a standalone solution.
Chang et al, 2023	Letter to Editorial: Hospital-at-home as a first-line strategy for kidney transplant recipients with coronavirus disease 2019 infection	• Patient Cohort & Care Setting: 177 kidney transplant recipients (KTRs) with COVID-19 were managed at home over 2486 bed days; 67.2% were directly onboarded to the HaH program, while others transitioned from hospital care. • Therapeutic Administration: 134 KTRs received antivirals or monoclonal antibodies (e.g., remdesivir, sotrovimab), with 65%

		administered at home. Infusion-related adverse events were mild and self-limiting. • Clinical Outcomes: 13% required hospital transfer—5.1% for severe pneumonia (2.8% ICU admission). No deaths occurred; oxygenation/ICU needs were low and comparable to non-KTR cohorts. • Risk Predictors: Late presentation and ISARIC-4C score >9 predicted oxygen requirement; obesity was strongly associated with ICU admission (OR 7.0). • HaH can serve as a first-line strategy for stable KTRs with COVID-19, enabling safe therapeutic administration and immunosuppressant management, supported by risk stratification (e.g., obesity, late presentation, ISARIC-4C >9), patient education, early symptom reporting, and clear escalation protocols.
Lai et al, 2024	Editorials: Time to shift the research agenda for Hospital at Home from effectiveness to implementation	• Scalability Knowledge Gap: There is limited scale despite evidence for HaH's effectiveness. Moving beyond pilot phases lacks empirical guidance; current literature on scaling HaH relies mainly on expert opinion, highlighting the need for research on effective expansion strategies. • Referral Challenges: Effectiveness of strategies like teaching sessions is unclear; systemic approaches (e.g., integrating HaH into medical curricula, structured incentives) and tailored solutions for different referrer groups need exploration. • Patient & Caregiver Acceptance: Acceptance varies by staff attitude, caregiver support, and cultural norms; addressing these nuances through targeted implementation strategies and public awareness campaigns is essential. • Sustainability & Technology: Scaling HaH requires addressing operational costs beyond RCT estimates and leveraging advanced technologies (remote monitoring, communication systems, logistics) to enhance efficiency and long-term viability. • Future HaH research should shift from proving clinical and cost-effectiveness to developing and testing strategies for adoption, scalability, and sustainability—focusing on stakeholder engagement, patient/caregiver involvement, and process optimization across healthcare systems
Wong et al, 2024	Distilling lessons from home hospital implementation: a narrative scoping review	• Success factors identified from the scoping review of HaH programs includes: i. Patient & Caregiver Factors: - Home environment must be suitable (adequate lighting, lifting equipment) - Patients generally prefer receiving care and end-of-life services at home - Strong caregiver support is essential, including 24/7 access to advice and emotional support ii. Healthcare Provider & System Factors:

		- Multidisciplinary care teams are critical (physicians, nurses, therapists working together) - Round-the-clock accessibility and rapid response capabilities are necessary - Healthcare staff need proper training in clinical skills, psychology, and system navigation - Clear eligibility criteria and referral pathways prevent inappropriate admissions - Good communication within teams and with patients prevents errors and improves satisfaction - Technology aids medication management and remote monitoring • The review concludes that Singapore is well-positioned to adopt HaH because it already has many key elements in place: multidisciplinary care teams, electronic health record systems, strong community networks, and relevant pilot programs already running. However, barriers include financing models (lack of subsidies for home-based care) and potential physician shortage for house calls.
Ko et al, 2025	Methods: Barriers and facilitators to scale-up of hospital-at-home: an observational cohort study protocol	• A study protocol (not completed results) for evaluating the scale-up of NUHS@Home, from a 3-bed pilot to 50-100 virtual beds over 23 months (May 2022-April 2024). It is a retrospective observational cohort study designed to identify barriers and facilitators to successful scale-up. • Four priority areas for scale-Up: - Development of new clinical pathways to generate demand - Recruitment and training of staff for home-based inpatient care - Optimization of internal workflows for safety and efficiency - Advocacy for sustainable healthcare financing • Key Measure outcomes: - Implementation: Volume (pt. admission + bed days per mth), operational efficiency (BOR) and adoption rates - Clinical: unplanned hospital returns, 30-day readmission, mortality rates, patient safety incidents - Contextual factors: funding sources, institution leadership, external partnership, organisation structure, staffing levels, training programs, infrastructure and technology systems • This protocol provides a systematic, theory-driven approach to understanding what makes large-scale HaH implementation succeed or fail.
Ko & Kee, 2025	Commentary: Hospital-At-Home for Respiratory Diseases—Opportunities and Challenges	• Evidence for Respiratory HaH: (i) COPD Exacerbations: - Most well-studied respiratory condition for HaH - Using DECAF score for patient selection shows cost savings with no acute deaths - Lower mortality trend compared to traditional hospital care

		(ii) Pneumonia: - Mild to moderately severe cases (assessed by CURB-65 scoring) can be safely managed at home - Requires daily nursing assessment, pulse oximetry monitoring, and early IV-to-oral antibiotic switch (iii) General Respiratory Conditions: - 38% lower costs for home care vs. hospital - Fewer lab tests, imaging studies, and specialist consultations - No difference in readmissions or mortality • Three Key Barriers for Asian Adoption: i. Geographic & System Diversity: Need for tailored models balancing rural/urban needs, island geographies, and existing care pathways ii. Healthcare Financing: HaH costs must match traditional hospital subsidies/insurance to avoid financial barriers for patients (Singapore and Taiwan introduced policy shifts in 2024 to address this) iii. Cultural Considerations: Multi-generational households common in Asia—family caregivers should be engaged as partners and stakeholders • Three Priority Research/Innovation Areas: i. Technology advancement: Non-invasive ventilation, continuous monitoring, remote auscultation, point-of-care ultrasound, mobile chest radiography ii. Adapting for rural/resource-limited settings iii. Addressing home environment factors: Mitigating issues like smoking exposure and overcrowding that may counteract HaH benefits • Respiratory HaH represents a significant opportunity for Asia given the massive burden of respiratory hospitalizations. The model is patient-centered, scalable, and demonstrated resilience during COVID-19 surges, positioning it as crucial for both routine care and pandemic preparedness.
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Overseas Publications		
Ref	Publication Title	Summary
Shepperd et al., 2016	Admission avoidance hospital at home (Review)	- To determine the effectiveness and cost of managing patients with admission avoidance hospital at home compared with inpatient 16 randomised controlled trials reviewed: 3 trials were patients recruited with COPD, 2 trials on stroke, 6 trials on acute medical condition who were mainly elderly and remaining trials were a mix of conditions. - Admission avoidance hospital at home probably makes little or no difference on mortality at six months' follow-up (risk ratio (RR) 0.77, 95% confidence interval (CI) 0.60 to 0.99; P = 0.04; moderate-certainty evidence), little or no difference on the likelihood of being transferred (or readmitted) to hospital (RR 0.98, 95% CI 0.77 to 1.23; P = 0.84 moderate-certainty evidence) May reduce the likelihood of living in residential care at six months' follow-up (RR 0.35, 95% CI 0.22 to 0.57; P < 0.0001, low-certainty evidence). Satisfaction with healthcare received may be improved with admission avoidance hospital at home (low-certainty evidence); few studies reported the effect on caregivers. - When the costs of informal care were excluded, admission avoidance hospital at home may be less expensive than admission to an acute hospital ward (low-certainty evidence) - There was variation in the reduction of hospital length of stay, estimates ranged from a mean difference of -8.09 days (95% CI -14.34 to -1.85) in a trial recruiting older people with varied health problems, to a mean increase of 15.90 days (95% CI 8.10 to 23.70) in a study that recruited patients recovering from a stroke. - Admission avoidance hospital at home, with the option of transfer to hospital, may provide an effective alternative to inpatient care for a select group of elderly patients requiring hospital admission.
Gonçalves-Bradley et al, 2017	Early discharge hospital at home (Review)	- To determine the effectiveness and cost of managing patients with early discharge hospital at home compared with inpatient hospital care 32 trials reviewed: 17 trials by hospital outreach services, 11 trials by community-based services, 4 trials co-ordinated by a hospital based stroke team/physician in conjunction with community-based services

(1) Studies recruiting people recovering from **stroke**:

- Early discharge hospital at home probably **makes little or no difference to mortality** at three to six months (risk ratio (RR) 0.92, 95% CI 0.57 to 1.48, moderate-certainty evidence) and **may make little or no difference to the risk of hospital readmission** (RR 1.09, 95% CI 0.71 to 1.66, low-certainty evidence).
- Hospital at home **may lower the risk of living in institutional setting** at six months (RR 0.63, 96% CI 0.40 to 0.98; low-certainty evidence) and might **slightly improve patient satisfaction** (N = 795, low-certainty evidence).
- Hospital at home probably **reduces hospital length of stay**, as moderate-certainty evidence found that people assigned to hospital at home are discharged from the intervention about **seven days earlier than people receiving inpatient care** (95% CI 10.19 to 3.17 days earlier). It is uncertain whether hospital at home has an effect on cost (very low-certainty evidence).

(2) Studies recruiting people with a **mix of medical conditions**:

- Early discharge hospital at home probably **makes little or no difference to mortality** (RR 1.07, 95% CI 0.76 to 1.49; moderate-certainty evidence).
- The intervention **probably increases the risk of hospital readmission in a mix of medical conditions**, although the **results are also compatible with no difference** and a relatively large increase in the risk of readmission (RR 1.25, 95% CI 0.98 to 1.58, moderate-certainty evidence).
- Early discharge hospital at home **may decrease the risk of readmission for people with COPD** (RR 0.86, 95% CI 0.66 to 1.13, low-certainty evidence).
- Hospital at home **may lower the risk of living in an institutional setting** (RR 0.69, 0.48 to 0.99; low-certainty evidence). The intervention might **slightly improve patient satisfaction** (N = 900, low-certainty evidence).
- The effect of early discharge hospital at home on hospital length of stay for older patients with a mix of conditions ranged from **a reduction of 20 days to a reduction of less than half a day** (moderate-certainty evidence, N = 767). It is uncertain whether hospital at home has an effect on cost (very low-certainty evidence).

(3) Studies recruiting people undergoing **elective surgery**:

- Three studies **did not report higher rates of mortality** with hospital at home compared with inpatient care (data not pooled, low-certainty evidence; mainly orthopaedic surgery).
- Hospital at home may lead to **little or no difference in readmission to hospital for people who were mainly**

		recovering from orthopaedic surgery (N = 1229, low-certainty evidence). We could not establish the effects of hospital at home on the risk of living in institutional care, due to a lack of data. - The intervention might slightly improve patient satisfaction (N = 1229, low-certainty evidence). People recovering from orthopaedic surgery allocated to early discharge hospital at home were discharged from the intervention on average four days earlier than people allocated to usual inpatient care (4.44 days earlier, 95% CI 6.37 to 2.51 days earlier, moderate-certainty evidence). - It is uncertain whether hospital at home has an effect on cost (very low-certainty evidence). - Despite increasing interest in the potential of early discharge hospital at home services as a less expensive alternative to inpatient care, this review provides insufficient evidence of economic benefit (through a reduction in hospital length of stay) or improved health outcomes.
Wallis et al, 2024	Factors influencing the implementation of early discharge hospital at home and admission avoidance hospital at home: a qualitative evidence synthesis (Review)	52 qualitative studies exploring implantation of HaH services (13 early discharge, 16 admission avoidance, 5 combined services) across 13 countries. 4 themes identified: (1) development of stakeholder relationships and systems prior to implementation, (2) processes, resources and skills required for safe and effective implementation, (3) acceptability and caregiver impacts, and (4) sustainability of services. - Refer to page 4 to 7 in paper for summary of qualitative findings of each themes - Implementing Admission Avoidance and Early Discharge HaH services requires early development of policies, stakeholder engagement, effective admission processes, early communication and a skilled workforce to safely and early implement person-centred HaH, achieve acceptance by staff who refer patients to these services and ensure sustainability.
Jeppesen et al, 2012	Hospital at home for acute exacerbations of chronic obstructive pulmonary disease (Review)	- To evaluate the efficacy of hospital at home compared to hospital inpatient care in acute exacerbations of COPD. 8 trials with 870 patients were included in the review and showed a significant reduction in readmission rates for hospital at home compared with hospital inpatient care of acute exacerbations of COPD (risk ratio (RR) 0.76; 95% CI from 0.59 to 0.99; P=0.04). Selected patients presenting to hospital emergency departments with acute exacerbations of COPD can be safely and successfully treated at home with support

		from respiratory nurses. HaH may be advantageous with respect to readmission rates in these patients. • Treatment of acute exacerbation of COPD in hospital at home also show a trend towards reduced mortality rate when compared with conventional inpatient treatment, but these results did not reach statistical significance (RR 0.65, 95% CI 0.40 to 1.04, P = 0.07). • For health-related quality of life, lung function (FEV1) and direct costs, the quality of the available evidence is in general too weak to make firm conclusions.
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