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Synergising Development of Guidelines and Appropriate and Value-Based Care (AVBC) Indicators for Congestive Heart Failure (CHF): A Multi-Pronged, Patient-Centred Approach

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Introduction

Background

Burden: Singapore's CHF-related 365-day readmission rates are comparable to the worst-performing OECD (Organisation for Economic Co-operation and Development) country in 2022 (Figure 1).

Costs: Direct CHF-related healthcare costs have been rising by 7.9% annually. Hospital admissions account for most costs for CHF care in the public sector, with primary care contributing minimally (Figure 2).

Figure 1. 365-day CHF-related readmission (2022)

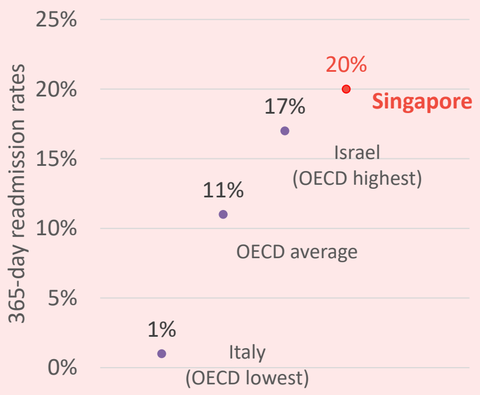

Figure 1: This data is produced using methodology employed by the OECD and age- and sex-adjusted to the 2015 OECD reference population.

Figure 2. Crude cost attributed to CHF care (2012-2022)

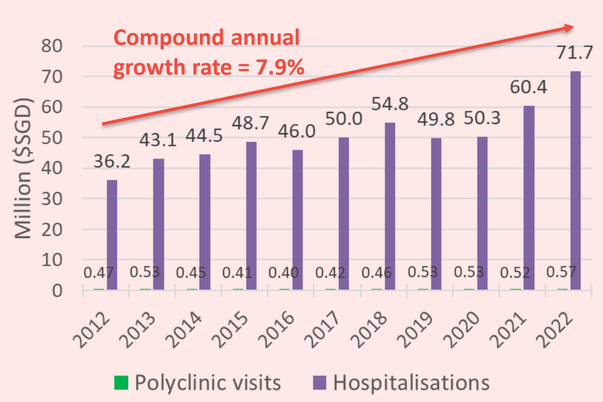

Figure 2: Crude total cost of CHF-related hospitalisations was derived using the national database on total public hospital bill tagged to a primary ICD-10 code of I500, I501, or I509.

These findings **highlight the need for a holistic, system-level approach**, which examines the entire CHF patient journey, to uncover low-value practices and areas where patient outcomes can be optimised.

Objectives

Therefore, this novel 3-year CHF AVBC project (running till 2027) aims to go beyond the usual guideline process, which typically focuses on narrow topic scope, by:

1) Identifying areas of low-value care and deviations from guideline-directed standards of care

2) Developing national CHF AVBC recommendations and indicators through a multi-pronged approach

Methods

ACE is conducting a situational analysis comprising 4 parts:

Completed

1) **Appraisal of 11 international guidelines** using AGREE-II instrument to identify practice gaps from guideline-directed standards.

Completed

2) Semi-structured **interviews with 5 cardiologists and 3 primary care physicians** to explore perspectives of CHF care and identify systemic gaps.

Ongoing

3) Convening of a **multidisciplinary workgroup** with 17 experts from cardiology, internal medicine, primary care, pharmacy and nursing to prioritise focus areas.

Pending

4) Semi-structured **interviews with 8-12 patients with CHF** to co-develop a journey map capturing healthcare service touchpoints, lived experiences, and outcomes that matter to patients.

Results

Together, these findings formed the basis for prioritising local needs and setting the direction for developing AVBC recommendations, indicators, and implementation tools.

Guideline Appraisal

Breakdown of 11 guidelines by continent: North America (5), Europe (4), Asia (2)

Strong recommendations were found across various stages of the patient care journey.

Prevention
- Healthy lifestyle habits
- Control of cardiovascular risk factors
- Use of SGLT2 inhibitors in type 2 diabetes and/or chronic kidney disease

Diagnosis
- Clinical history and physical exam
- ECG, chest X-ray
- Echocardiography
- Natriuretic peptides

Chronic Care
- Multidisciplinary care or disease management program
- Patient education and support to facilitate self-care
- Cardiac rehabilitation
- Quadruple therapy for HF with reduced ejection fraction (EF)
- Usage of SGLT2 inhibitors in HF with preserved or mildly reduced EF
- Diuretics for fluid overload

Care Escalation
- Assessment and triage of acute heart failure
- Intravenous loop diuretics

Palliative Care
- Timely referral
- Supportive care in the community

Thematic Analysis of Clinician Interviews

Five Emergent Themes from Interviews with Cardiologists and Primary Care Physicians

- Rising burden of CHF needing multicomponent care
- Specialist-centric, with limited primary care input
- Suboptimal guideline-directed medical therapy (GDMT)
- Care fragmentation, lack of system readiness
- Additional needs for holistic care (cardiac rehab & palliative care)

Multidisciplinary Workgroup Prioritisation

Guideline-directed care standards and interview insights informed **6 local priorities**:

1) Focus on CHF prevention
2) **Enable primary and community care**
3) **Address readmissions**
4) **Manage decompensations at home**
5) Develop an end-of-life strategy
6) Develop a person-centred performance framework

*Ranked as **top 3** by the Workgroup*

8 focus areas identified in the top 3 priorities
- Multidisciplinary team care
- Self-care and patient education
- Role of patient-reported outcomes
- Timely diagnosis of CHF
- GDMT initiation and optimisation
- Exercise training and cardiac rehabilitation
- Management of decompensation
- Post-discharge follow-up

Discussion

Key Deliverables

A novel aspect of this work is the concurrent development of system-level recommendations and indicators. In the next phase, end-to-end patient journey insights will inform and strengthen this work, culminating in four key outputs.

1) AVBC Recommendations
To guide system-level CHF care and reduce practice variations at clinical, institution and national levels.

2) ACE Clinical Guideline (ACG) Recommendations
To guide primary care physicians with diagnosing and managing CHF.

3) Care Indicators
To establish measurable benchmarks to assess quality, consistency, cost and outcomes of CHF care.

4) Process & Method Toolkit
To provide practical tools for implementation and enable replicability across institutions.

Next Steps

- Anchor AVBC priorities to lived experiences through patient interviews;
- Align recommendations with national Value-Driven Care (VDC) efforts for wider uptake; and
- Develop and validate system-level indicators to monitor outcomes.

Conclusion: This project illustrates how AVBC – an evolution of Singapore's VDC approach – can drive system-level recommendations to reduce unwarranted practice variation and low-value care. While patient voices will be embedded in the next phase, the methodology offers a replicable model for chronic disease care transformation.