

# Perspectives from Healthcare Providers and Hospital Executives on Strategies toward a Future Hospital



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## 1. Background

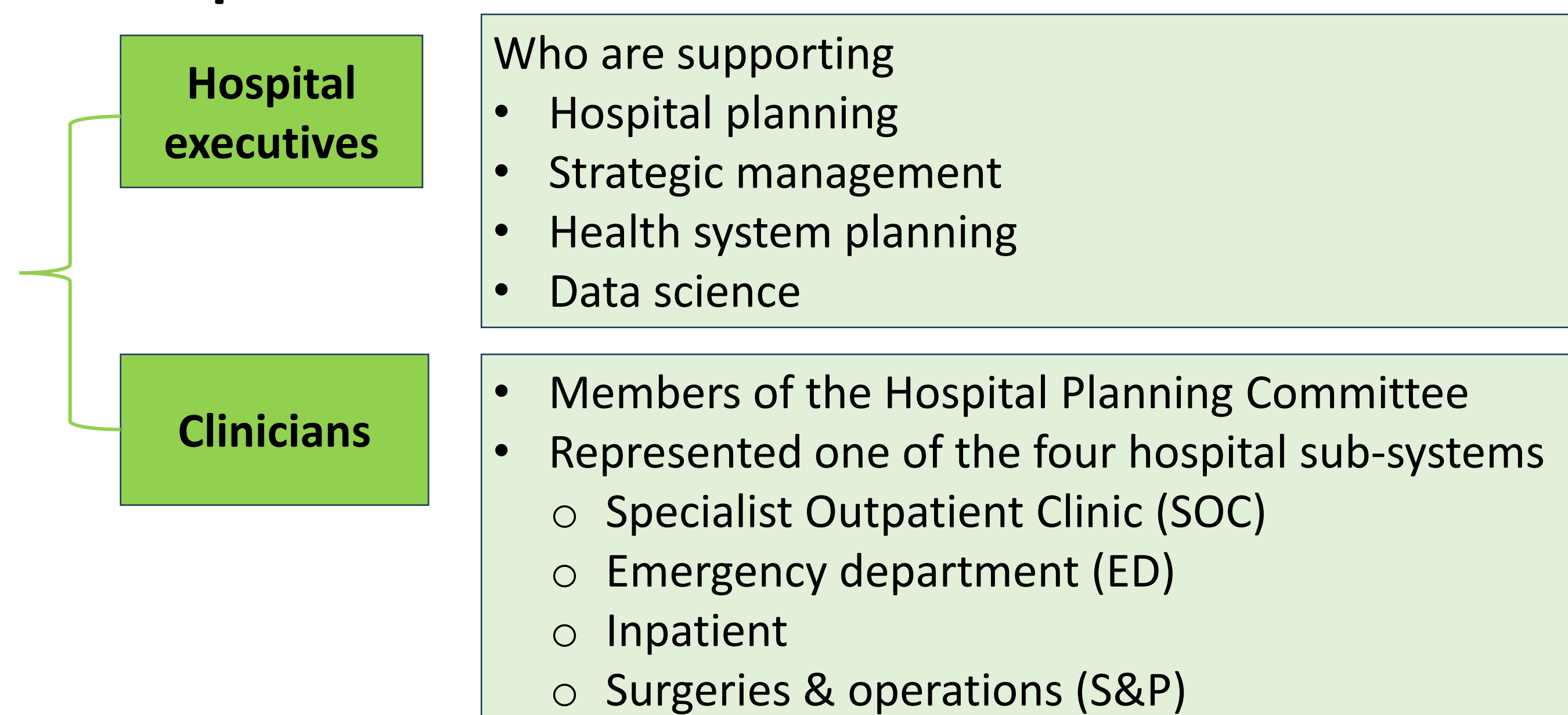
- Hospital design has evolved in recent decades in response to societal, architectural, and technological factors.
- The planned expansion of a new-generation general hospital in Singapore in the 2030s offers a chance to strategically realign care provision with evolving health service demands.
- Adopting a systems thinking approach is imperative to understand the interdependent variables inherent in hospital design.

## 2. Objectives

- We aimed to gather insights from hospital executives and clinicians into key drivers and leverage points for transformation in the Hospital of the Future using collaborative modeling.

## 3. Methods

- **Study setting:** This modeling process was conducted in the largest general hospital in Singapore.
- **Participants:**



- **Data Collection:** During the modeling process, qualitative data were gathered through ten iterative focus group workshops from September 2023 to March 2024.

## 4. Results

- 20 participants attended the focus group discussions
- A total of 9 themes were identified, including 5 potential interventions in the 4 hospital sub-systems, 2 themes on factors, and 2 general drivers of resource use.

### 4.1 Emergency Department (ED)

<b>Theme 1 Right-siting patients away from ED (intervention)</b>	<p><b>Increase uptake of GP First</b></p> <ul style="list-style-type: none"> <li>• There is a need for public education to encourage individuals to seek care from GP first.</li> </ul> <p><b>Reduce avoidable admissions</b></p> <ul style="list-style-type: none"> <li>• Preventing the deterioration of health conditions, especially for “diabetes, hypertension, asthma, COPD, and flu”, by providing a multidisciplinary intervention</li> <li>• A bizarre referral path in the ED: <b>Primary Care → ED → SOC</b></li> </ul>
<b>Theme 2 Reasons for frequent use of the ED (factor)</b>	<p><b>“Frequent Flyers”</b> have posed a huge burden to the ED</p> <p>Reasons: 1. the presence of multiple underlying comorbidities; 2. social factors such as alcohol abuse or the presence of psychosomatic symptoms (main contributor)</p>

### 4.2 Specialist Outpatient Clinic (SOC)

<b>Theme 3-5 Right-siting patient from SOC</b>	<p><b>To Primary care</b></p> <ul style="list-style-type: none"> <li>• Through the collaboration between SOC and primary care</li> <li>• Challenges:                     <ul style="list-style-type: none"> <li>○ An easy transition between tertiary care and primary care is required</li> <li>○ Seamless communication between primary care and tertiary care is lacking</li> </ul> </li> </ul> <p><b>To the community</b></p> <ul style="list-style-type: none"> <li>• A doctor highlighted, “The whole idea is to keep them in a healthier life within the community”.</li> </ul> <p><b>To telehealth</b></p> <ul style="list-style-type: none"> <li>• One participant suggested replacing brief follow-up consultations with teleconsultations.</li> <li>• “Not every single patient needs to always be followed up (physically). To a point where we say okay, telehealth from now on, there must be a way to make it more fluid.”</li> </ul>
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### 4.3 Inpatient

<b>Theme 6 Reasons for prolonged length of stay (factor)</b>	<ul style="list-style-type: none"> <li>• One participant commented that long-term stayers had consumed a significant proportion of the total bed capacity, “accounting for 20% of the total bed days.”</li> <li>• There are various reasons leading to prolonging the LOS, including waiting for lab or radiology time, turnaround time for tests, waiting for intervention, etc.</li> </ul>
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### 4.4 Surgeries & operations (S&P)

<b>Theme 7 Improving pre- and post-surgical care (intervention)</b>	<ul style="list-style-type: none"> <li>• One doctor suggested providing pre- and post-surgical care, including physiotherapy, rehabilitation, and nutrition to enhance recovery after surgery.</li> <li>• “All those really play a big part in the before and after recovery. It can shorten the amount of time.”</li> </ul>
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### 4.5 General drivers of resource use

<b>Theme 8 The use of Artificial Intelligence (driver)</b>	<ul style="list-style-type: none"> <li>• One participant suggested using machine learning to help patients plan an efficient route plan in the hospital.</li> </ul>
<b>Theme 9 Alternative care models (driver)</b>	<ul style="list-style-type: none"> <li>• ED doctors suggested consolidating teleconsultations (including SOC and ED) into a centralized telehealth center with SGH, equipped with the necessary infrastructure and support.</li> </ul>

## 5. Conclusion

- This study presents insights from hospital executives and clinicians on the key drivers affecting hospital planning and leverage points for future hospitals.
- The themes all point to the goal keeping patients out of the hospital as much as possible to keep the hospital sustainable from the resource point of view.
- The key drivers and leverage points for hospital redesign identified from this study would contribute to capacity planning and transition to the future mode of operations.

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