Team Data Miners
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Objectives:
▪ Lower direct costs for urban citizens with access to healthcare
▪ Pursuit of the ASEAN Economic and Socio-Cultural Community Blueprints 2025

AFFORDABLE SURGICAL COSTS
Agenda

1. Introduction
2. Findings & Analysis
3. Recommendations
4. Action plan (Timeline)
5. References
6. Appendices
When health is absent, wisdom cannot reveal itself, art cannot manifest, strength cannot fight, wealth becomes useless, and intelligence cannot be applied.

Herophilus
FINDINGS AND ANALYSIS
The financial impacts of high direct costs for surgeries

64% of families in a survey reported declining household income when a member was hospitalized.

(Schecter & Adhikari 2015).

Figure 1. Population share (%) at risk of incurring catastrophic and impoverishing expenditure for surgeries in ASEAN (2017)

Adapted from World Bank (2019)
The importance of government spending on healthcare

Figure 2. The correlation between government spending on healthcare and catastrophic surgical expenditure in ASEAN (2016)

Inverse correlation found:

Healthcare budget in total government spending ↑ 1%

The number of citizens who might suffer catastrophic surgical expenses ↓ 5.65%

Self-generated; data from World Bank (2019)
RECOMMENDATIONS
Figure 3. Dominant religions in ASEAN

The government and religious associations collaborate to transform 1-2 top hospitals per country into free hospitals that support patients’ spiritual dimension.

**Existing model:** Sri Sathya Sai Institute of Higher Medical Sciences in India.

Almost all countries in ASEAN have a dominant religion.

Adapted from EENI Business School & HA University (n.d.)

REC. 1: Free, religion-supported hospitals in big cities
Every room has the same utilities, the only difference is the number of patients per room.

- 1 patient per room, who pays
- 2 patients per room, each pays
- 3-5 patients per room, each pays
- 6-10 patients per room, each pays
- >10 patients per room, each pays

The amount of money needed to maintain the room's facilities.
The extra money paid by patients who want more personal space.
Patients without financial strength can pay this much less than the requisite amount.

CREATING EQUALITY
Affordable costs & Luxury needs

ASEAN Socio-Cultural Blueprint 2025
B.3 Promotion and Protection of Human Rights
Promote universal health coverage

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REC. 3: EHR (Electronic Health Records) amongst hospitals

Upload medical records to Cloud Database

Regional EHR

Reducing

Enhance

ASEAN Economic Blueprint 2025

C.7. Healthcare
Promote e-healthcare services
Common technical documents across the region
ACTION PLAN & TIMELINE
Action plan and Timeline

2020

- **RELIGION-SUPPORTED HOSPITALS**
  - Staff training
  - Building facilities & resources
  - Establish a socio-cultural department

2025

- **Apply for the Planetree accreditation** to increase credibility and exposure

2030

- **STANDARDIZED HOSPITAL ROOMS**
  - Market research
  - Room reconstruction
  - Resource re-allocation

- **EHR (GOVERNMENT LEVEL)**
  - Training
  - Understanding EHR
  - Select EHR
  - Adoption process
  - Learning from experiences
  - Transfer

- **EHR (HOSPITAL LEVEL)**
  - Certificated Health IT
  - Security and privacy
  - Diagnoses and updates
  - Preventive healthcare system
  - Long-term post-acute care

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## Action plan and Timeline

<table>
<thead>
<tr>
<th>Year</th>
<th>RELIGION-SUPPORTED HOSPITALS</th>
<th>STANDARDIZED HOSPITAL ROOMS</th>
<th>EHR (GOVERNMENT LEVEL)</th>
<th>EHR (HOSPITAL LEVEL)</th>
</tr>
</thead>
</table>
| 2020 | • Staff training
• Building facilities & resources
• Establish A socio-cultural department | • Market research
• Room reconstruction
• Resource re-allocation | • Training
• Understanding EHR
• Select EHR
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• Learning from experiences
• Transfer | • Certificated Health IT
• Security and privacy
• Diagnoses and updates
• Preventive healthcare system
• Long-term post-acute care |
| 2025 | • Apply for the Planetree accreditation to increase credibility and exposure | • Re-allocation plan: identify hospital-specific management strategies for extra earnings from “luxury” rooms | | |
| 2030 | | | | |
Action plan and Timeline

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2030

**RELIGION-SUPPORTED HOSPITALS**
- Re-allocation plan: identify hospital-specific management strategies for extra earnings from “luxury” rooms
REFERENCES AND APPENDICES
References

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Appendix 1.

Figure: Government spending on healthcare (as % of total government spending) in ASEAN (2016)

Adapted from World Bank (2019)
Appendix 2.

Regression Outcome: Public spending on health (as % of G) and Population at risk of catastrophic expenditure

```
[Workspace loaded from ~/.RData]
> ExpMod <- lm(log(Correl_page_2$Catastrophic) ~ Correl_page_2$'Public spending on Health (as % of G)'
> summary(ExpMod)

Call:
lm(formula = log(Correl_page_2$Catastrophic) ~ Correl_page_2$'Public spending on Health (as % of G)'

Residuals:
   Min     1Q Median     3Q    Max
-0.43576  0.02962 -0.10905 -0.37222  0.72807

Coefficients:  Estimate Std. Error t value Pr(>|t|)
(Intercept)       5.49090   0.52174     10.524 0.000461 ***
Correl_page_2$'Public spending on Health (as % of G)' -0.31824   0.05636    -5.646 0.004845 **
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 1

Residual standard error: 0.4735 on 4 degrees of freedom
Multiple R-squared: 0.8885, Adjusted R-squared: 0.8607
F-statistic: 31.88 on 1 and 4 DF,  p-value: 0.004845
```
Figure: Top 3 countries for EHR adoption (2013)

Norway 98%
Netherlands 98%
United Kingdom 97%

Adapted from Becker’s Hospital Review (2013)