

# The association of ESMO-Magnitude of Clinical Benefit Scale scores and subsidy decisions of targeted therapies for solid tumours in Singapore

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## Introduction

- Influx of newer therapies and rising drug prices have prompted value-driven decision-making worldwide.
- The Magnitude of Clinical Benefit Scale (MCBS) from the European Society for Medical Oncology (ESMO) serves as a useful tool for evaluating the value of cancer medicines.
- In Sep 2022, the Ministry of Health, Singapore introduced the Cancer Drug List (CDL). As of April 2023, approximately 340 drug-indications were listed on the CDL, including chemotherapy, hormone and targeted therapies. Of these, clinically and cost-effective treatments were funded by both Government subsidies and MediShield Life, a health insurance scheme (Figure 1).
- This study examines the association between ESMO-MCBS scores and subsidy decisions of targeted therapies for solid tumours in Singapore.

## Methods

- Indication specific targeted therapies for solid tumours listed on the national CDL by April 2023 were included. The scores were retrospectively obtained from ESMO website and if scores were not publicly available, ESMO-MCBS assessments were independently conducted.
- Based on ESMO-MCBS, drug-indication pairs with a score of 4-5 or B-A were categorised as “substantial magnitude of clinical benefit” (Figure 2).
- The relationship between ESMO-MCBS and subsidy decisions were investigated descriptively and by using logistic regression.

## Results

- 129 indications from 20 different types of solid tumours on the CDL were identified (Table 1).
- ESMO-MCBS scores were obtained for 128 out of 129 drug-indication pairs of which 70 indications were subsidised.
  - No score was available for nivolumab for advanced hepatocellular carcinoma as the trial did not provide results that corresponded to an evaluable benefit based on the ESMO-MCBS scale.
- 63% of the subsidised indications had ESMO-MCBS scores of 4-5 or B-A which were higher than the percentage observed for the non-subsidised indications ( $p=0.005$ )(Figure 3).
- Of the 34% of drug-indications that had high ESMO-MCBS scores but not subsidised, 70% were unlikely cost-effective while the remaining 30% had uncertain long term clinical benefit.
- Drug-indication pairs with ESMO-MCBS scores of 4-5 or B-A significantly predicted positive subsidy decisions (odds ratio 3.22 [1.55,6.65],  $p=0.0013$ ).

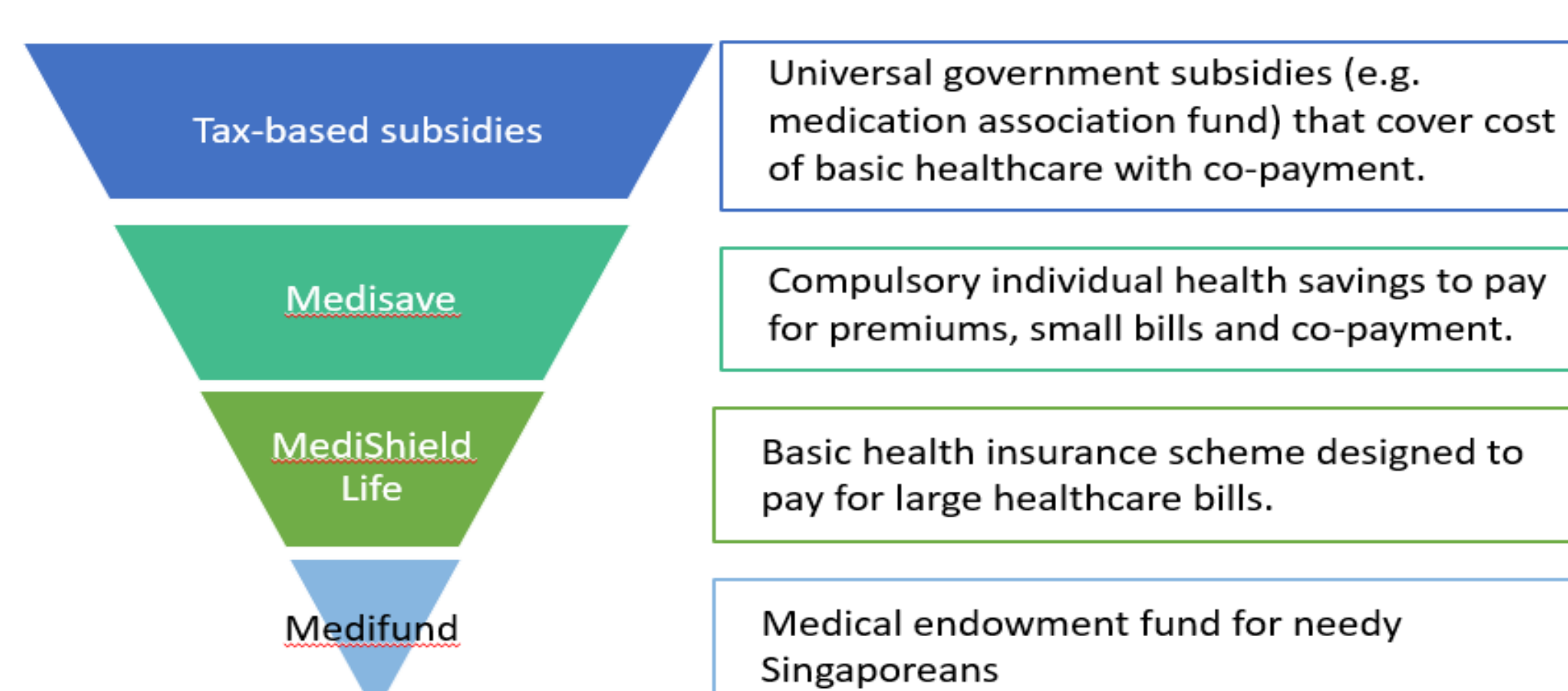


Figure 1: Singapore's healthcare financing scheme

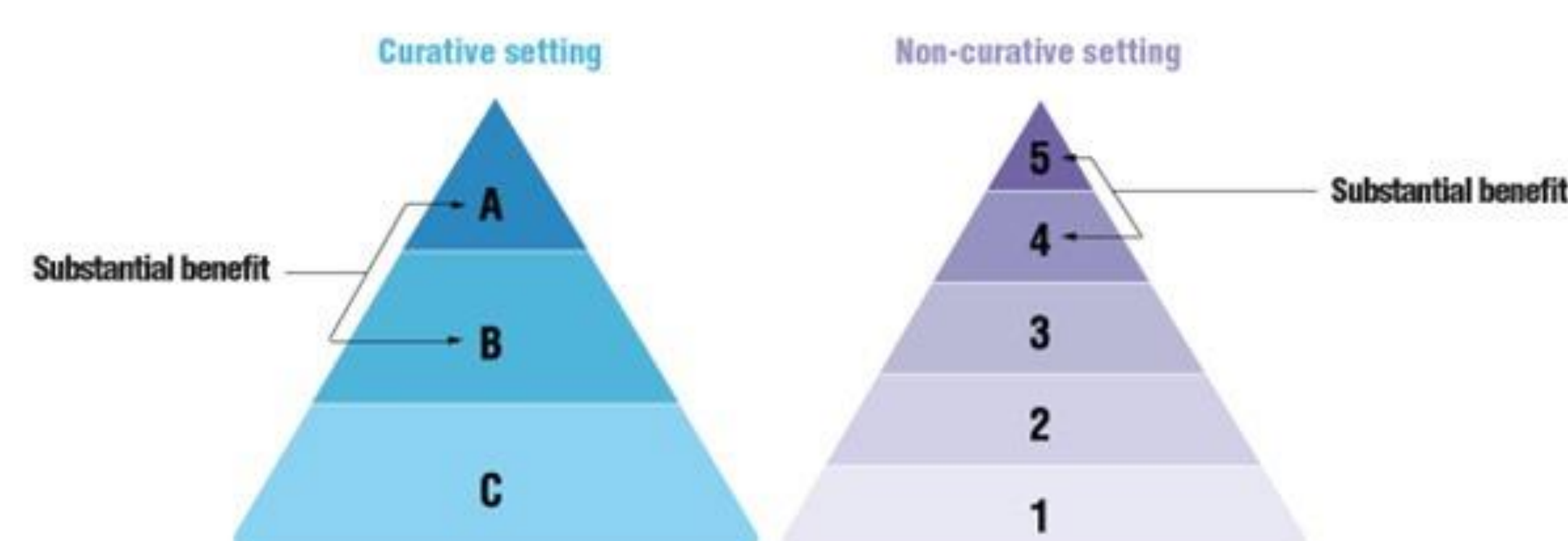


Figure 2: ESMO-MCBS scores in the curative and non-curative setting

Table 1: Types of solid tumours included on the CDL

Types of solid tumors	No. of indications listed on the CDL
Bladder cancer	7
Breast cancer	24
Colorectal cancer	7
Endometrial cancer	1
Head and Neck cancer	3
Liver cancer	8
Lung cancer	26
Merkel cell cancer	2
Multicentric Castleman's disease	1
Neuroendocrine cancer	3
Ovarian cancer	6
Pancreatic cancer	1
Prostate cancer	1
Renal cancer	11
Sarcoma	3
Skin cancer	10
Thoracic cancer	1
Thyroid cancer	2
Tumour agnostic	3
Upper gastrointestinal cancer	9
<b>Total</b>	<b>129</b>

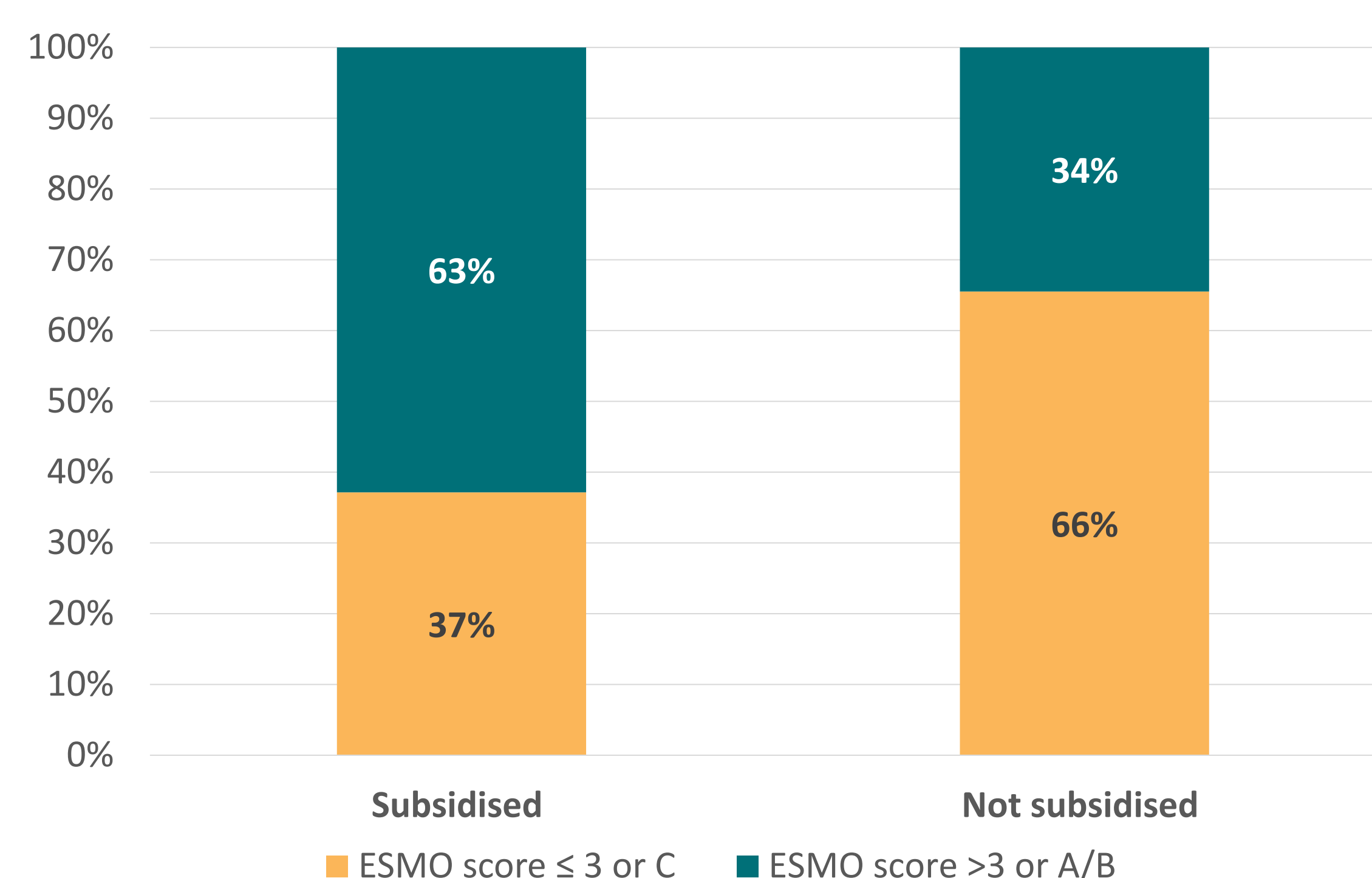


Figure 3: Distribution of ESMO-MCBS scores in the evaluated drug-indication pairs for solid tumours and subsidy decision on the cancer drug list.

## Discussion

- As ESMO-MCBS is a tool to assess clinical benefit, treatment costs are absent from the framework and a high ESMO-MCBS score does not imply high value (dependent on price).
- Subsidy decisions in Singapore consider various factors including clinical need, cost effectiveness and budget impact to the healthcare system.

## Conclusion

An association was observed between subsidy decision of cancer drugs and that of the ESMO-MCBS scores. ESMO-MCBS has the potential to guide the allocation of limited resources towards providing effective and affordable cancer care in Singapore.