

Measuring Real-World Impact of Subsidy Decision on Sleep Tests Utilisation for the Diagnosis of Obstructive Sleep Apnoea

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1 BACKGROUND

- Lab-based polysomnography (PSG), for diagnosing obstructive sleep apnoea (OSA), is a subsidised inpatient service in Singapore’s public healthcare institutions.
- The Agency for Care Effectiveness evaluated the alternative, home sleep test (HST), which is cheaper and can be prescribed in the outpatient setting.
- HST was listed as a subsidised service in May 2019 based on clinical- and cost-effectiveness assessment.
- This study aims to assess the impact of subsidy decision on sleep tests utilisation.

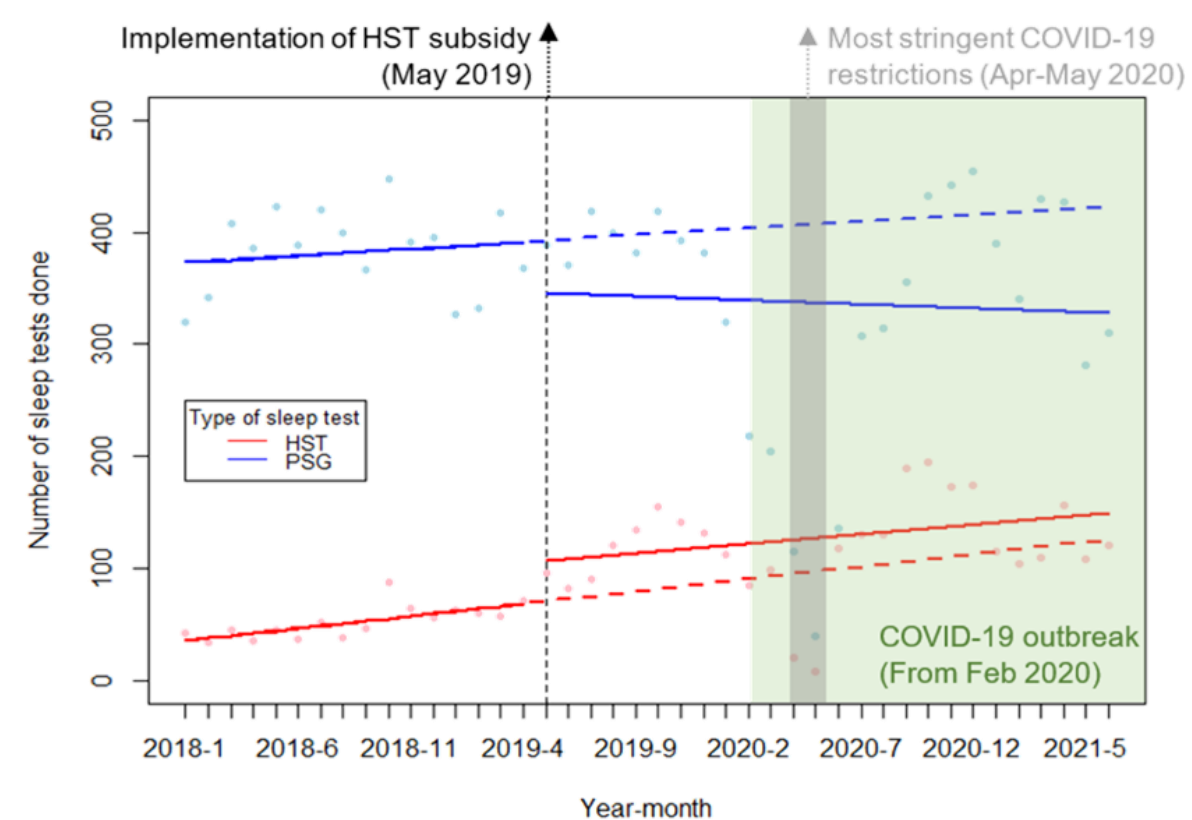
2 METHODS

- We conducted an interrupted time series (ITS) analysis using sleep tests utilisation data submitted by public healthcare institutions from January 2018 to June 2021.
- Segmented regression models were used to assess the degree of level change (LC) and

trend change (TC) of HST and PSG.

- Autocorrelation was tested and corrected by including an autoregressive or moving average term in the models.
- Data points during Singapore’s most stringent COVID-19 restrictions were modelled as “wild” points to account for drastic reduction of elective procedures.

Figure 1. Monthly trend of sleep tests from January 2018 to June 2021



Solid lines: Modelled trends pre- and post-intervention
Dotted line: Expected trend if pre-intervention trend continues

3 RESULTS & DISCUSSION

- The use of HST increased from 12% of all sleep tests pre-subsidy to 26% post-subsidy.
- There was considerable fluctuation in the utilisation of sleep tests in the two years post-subsidy implementation (Figure 1).
 - In the first six months, there was steep increase in HST utilisation.
 - During the COVID-19 outbreak, we observed a drastic drop in both HST and PSG utilisation, especially during April to May 2020.
 - This was followed by a rebound, likely driven by pent-up demand for the procedure and possibly changes in physicians’ and patients’ attitude towards PSG which required hospitalisation.
 - In 2021, sleep tests utilisation continued to vary, with fewer tests performed during periods of stricter COVID-19 restrictions.
- Nevertheless, ITS showed subsidy implementation led to significant level change in HST utilisation [LC 36.1(95% CI: 15.1 - 57.2); TC -0.5 (95% CI: -2.3 - 1.4)].
- There was also a trend towards reduction in PSG, though this did not reach statistical significance [LC -44.3 (95% CI: -126.6 - 38.2); TC -2.0 (95% CI: -11.6 - 7.7)].

4 CONCLUSION

- Extension of subsidy to HST appeared to have improved accessibility of sleep tests for OSA diagnosis in Singapore.
- Furthermore, total cost savings to the healthcare system in 10 years is projected to be in the range of SGD9 million to SGD14 million due to the lower cost of HST than PSG.