

Right Technology, Right Time? Assessing the Horizon Scanning Approach to Medical Technology Foresight to Support Adoption in Singapore

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Introduction

In 2020, Agency for Care Effectiveness (ACE) established its horizon scanning (HS) function to identify and assess emerging innovative medical technologies (MedTechs) anticipated to enter Singapore's market within the next two to three years. This supports healthcare system planning and organisational readiness.

This review evaluates the HS system's relevance by analysing regulatory approval and health technology assessment (HTA) status of MedTechs identified through HS.

Methods

A descriptive analysis of MedTechs identified between 2020 and 2025 was conducted. The proportions subsequently prioritised for HS assessment, obtained local regulatory registration and completed HTA subsidy evaluation were assessed (Figure 1).

Horizon Scanning

Number of MedTechs identified

- MedTechs identified through HS between 2020 and 2025 that meets the following criteria:
 - Non-implant MedTechs:** Only non-implant MedTechs were included given the adoption barriers they generally face, creating a need for early planning compared to implants
 - Local disease priorities:** cancer, cardiovascular disease, diabetes and kidney disease, stroke and neurological disorder, and musculoskeletal disease
 - Innovativeness:** Proxies of innovation includes United States Food and Drug Administration (FDA) breakthrough device designation or *de novo* clearance
 - Market readiness:** FDA approval include 510(k) clearance, *De novo* or PMA approvals

Number of MedTechs prioritised for HS assessment

- High impact MedTechs prioritised for assessment based on key criteria that includes disease burden, benefit, organisational impact and cost

Local Regulatory Approval

Number of MedTechs approved by the Health Sciences Authority (HSA)

Health Technology Assessment

Number of MedTechs completed health technology assessment (HTA) for subsidy evaluation

Figure 1: Descriptive analysis of technologies progressing from horizon scanning to regulatory approval and HTA.

Conclusion

- ACE's HS system functions effectively to provide early intelligence, with lead times that supports early awareness and broader healthcare system readiness.
- Strengthening stakeholder collaboration can further enhance the HS system capability to capture locally relevant innovations and ensure that the right technologies are assessed at the right time.

Results

- Of 123 MedTechs identified, 28% were prioritised for HS assessment and 16% obtained local registration. Among those with local registration, 30% completed HTA evaluation (Figure 2).
- The average lead time between regulatory approval in the US (i.e. US Food and Drug Administration) and Singapore (i.e. Health Sciences Authority) registration was 2.45 years (range: 1 to 4 years).

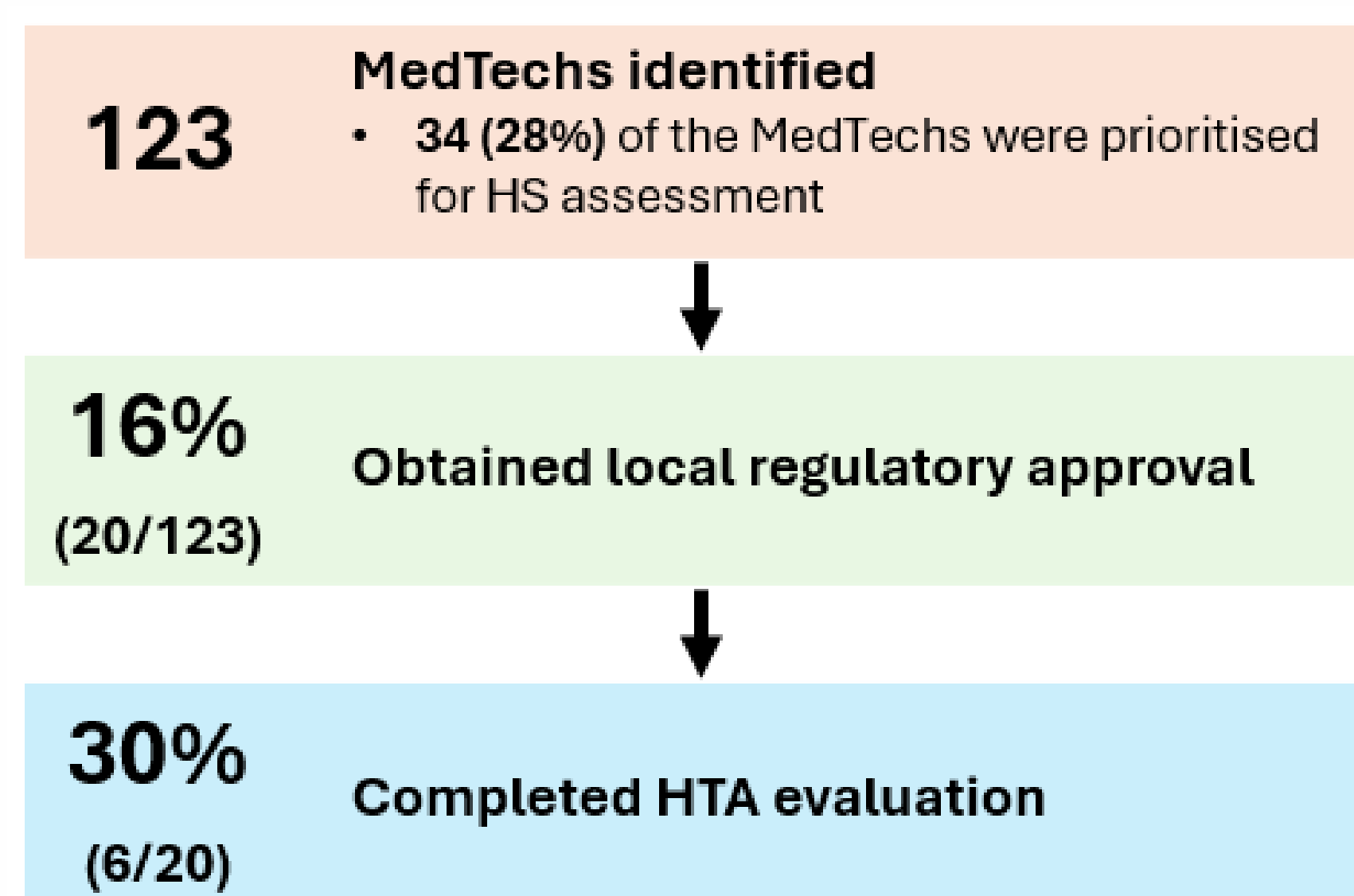


Figure 2: Proportions of MedTechs identified, prioritised for HS assessment, progressed to local regulatory approval and HTA subsidy evaluation.

Note:

- 12% (4/34) of HS-assessed MedTechs were eventually registered with HSA. Of which, 25% (1/4) completed HTA evaluation.

Discussion

- The average lead time demonstrates the HS system's capacity to support, allowing sufficient time for early planning.
- The local regulatory approval and HTA completion rates observed are anticipated, as HS captures emerging early-stage MedTechs from international sources, not all of which may enter the local system or meet the prioritisation threshold for HTA evaluation.
- Future efforts will focus on prioritising locally-relevant MedTechs through closer collaboration with clinicians, research and innovation offices, and innovation centres.