

Video capsule endoscopy

for diagnosing obscure gastrointestinal bleeding

Technology Guidance from the MOH Medical Technology Advisory Committee (MTAC)

Guidance recommendation

The Ministry of Health's MTAC has recommended:

✓ Video capsule endoscopy (VCE) as a diagnostic modality for patients with suspected obscure gastrointestinal bleeding (OGIB), in the absence of known or recognised contraindications, after upper and lower GI sources of bleeding have been excluded with negative oesophagogastroduodenoscopy (OGD) and colonoscopy.

VCE should not be used in patients who require immediate intervention, including those with massive haemodynamically unstable bleeding.

Subsidy status

VCE is subsidised for eligible patients when used in line with the abovementioned indication.

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Factors considered to inform the recommendations for subsidy

Technology evaluation

- 1.1 The MOH MTAC ("the Committee") considered the evidence presented for the technology evaluation of video capsule endoscopy (VCE) for obscure gastrointestinal bleeding (OGIB). The evaluation was conducted in consultation with clinical experts from the public healthcare institutions (PHIs). Available clinical and economic evidence for VCE was considered in line with the registered indication.
- 1.2 The evidence was used to inform the Committee's deliberations around five core decision-making criteria:
 - Clinical need of patients and nature of the condition;
 - Clinical effectiveness and safety of the technology;
 - Cost-effectiveness (value for money) the incremental benefit and cost of the technology compared to existing alternatives;
 - Estimated annual technology cost and the number of patients likely to benefit from the technology; and
 - Organisational feasibility, which covers the potential impact of adopting technology, especially barriers for diffusion.
- 1.3 Additional factors such as ethical or social issues related to the adoption of technology may also be part of the Committee's deliberations.

Clinical need

- 2.1 OGIB refers to bleeding of unknown origin in the gastrointestinal tract that is persistent or recurrent after a negative oesophagogastroduodenoscopy (OGD) and/or colonoscopy.
- 2.2 The Committee noted that existing modalities for diagnosing OGIB are invasive, unable to visualise the entire small bowel mucosa, often require additional skilled personnel, and/or have long procedure times.
- 2.3 VCE bridges the gap between existing modalities for complete and better visualisation, reducing invasiveness with potential to improve the diagnostic yield for other tests.



Overall benefit of the technology

- 3.1 Many technologies may be used in the diagnostic pathway and there is no single reference technology used for evaluating OGIB. In line with local clinical practice, comparators used in the evaluation were:
 - Small bowel radiographic imaging;
 - Balloon-assisted enteroscopy (BAE);
 - Push enteroscopy (PE); and
 - Surgery.
- 3.2 The Committee acknowledged several issues with the evidence base. This included the lack of a single valid reference standard, low to very low level or quality evidence, and poor adverse event reporting.
- 3.3 The Committee noted that, compared to the alternatives, limited evidence suggests VCE generally demonstrated a good safety profile because of its noninvasive nature and ease of use. A major complication of VCE is capsule retention (generally low, at 1.2% to 2.1%) with higher risk in patients with gastrointestinal strictures.
- 3.4 The Committee noted VCE has similar or higher sensitivity but lower specificity when compared with other modalities. Complete visualisation of the small bowel mucosa is possible in 70% to 100% of VCE cases.
- 3.5 VCE demonstrated differential impact on therapeutic management depending on the treatment population and comparative modalities. VCE had higher treatment initiation than PE, and lower hospital re-admissions than small bowel radiographic imaging. However, in patients with massive haemodynamically unstable bleeding, other modalities offering immediate intervention such as double balloon enteroscopy (DBE) were more appropriate than VCE.
- 3.6 VCE had similar or lower rebleeding risks when compared with alternatives. VCE is a suitable triage for more aggressive management; lower rebleeding rates were observed in patients after initial negative VCE.
- 3.7 VCE was found to have good patient acceptability, with lower pain or discomfort, less burdensome bowel preparation, and higher patient tolerability. The main reported source of discomfort was swallowing the capsule.



Cost-effectiveness

- 4.1 The Committee considered the cost-effectiveness of VCE for OGIB. The Committee noted that no local economic evaluation was available to assess the cost-effectiveness of VCE for OGIB. Published economic studies indicated VCE (alone or with DBE) can be a cost-effective or cost-minimising option, particularly when visual diagnosis of the small bowel is adequate.
- 4.2 Limited economic evidence indicates that where treatment or definitive diagnosis is necessary, a strategy starting with DBE is preferred.

Estimated annual technology cost

5.1 The Committee estimated the annual cost of providing the service to be between SG\$1 million and SG\$3 million, based on a projection that about 200 people with OGIB in Singapore would benefit from Government subsidy for VCE.

Organisational feasibility

6.1 The Committee agreed there were no major feasibility issues identified with using VCE, given the low VCE caseload and its potential to save resources when compared with alternatives.

Additional considerations

7.1 The Committee acknowledged several clinical guidelines indicate VCE is a suitable diagnostic modality for small bowel examination in patients with suspected OGIB after negative endoscopic examinations, excluding upper and lower gastrointestinal (GI) bleeding sources.

Recommendation

- 8.1 Based on available evidence, the Committee recommends:
 - VCE as a diagnostic modality for eligible patients with suspected OGIB, in the absence of known or recognised contraindications, after upper and lower GI sources of bleeding have been excluded with negative oesophagogastroduodenoscopy (OGD) and colonoscopy; and
 - VCE should not be used in patients who require immediate intervention, including those with massive haemodynamically unstable bleeding.



About the Agency

The Agency for Care Effectiveness (ACE) is the national health technology assessment agency in Singapore residing within the Ministry of Health. It conducts evaluations to inform the subsidy of treatments, and produces guidance on the appropriate use of treatments for public hospitals and institutions in Singapore. When using the guidance, the responsibility for making decisions appropriate to the circumstances of the individual patient remains with the healthcare professional.

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