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Review

# Comparative review of selected health technology assessment agencies: Features and insights for health technology assessment development and improvement

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ABSTRACT

Health technology assessment (HTA) is increasingly used to guide coverage and pricing decisions, but many countries lack formal HTA agencies or rely on fragmented processes. This study aims to compare institutional and procedural features of selected HTA agencies and to derive policy options for establishing, institutionalising, or reforming HTA in diverse health systems. Using the World Health Organization (WHO)'s five-component institutionalisation framework, researchers completed a comparative narrative review of ten HTA systems. Thirty-five structural and procedural elements were extracted and synthesised into five analytical modules covering governance, assessment methods, institutional roles, lifecycle integration, and stakeholder engagement to enable structured cross-country comparison. HTA functions, authority, and processes varied widely. Independent agencies undertook broader mandates, whereas ministry-based units were more closely linked to reimbursement and policy implementation. Assessment relied on hybrid internal-external evidence review models, followed by formal appraisal or deliberation in all systems. Binding coverage outcomes were observed in England, France, Germany, and Brazil, although the legal force and implementation pathway differed across agencies. Pricing negotiation arrangements differed but were commonly linked to appraisal outputs. Horizon scanning, early scientific advice, and disinvestment mechanisms were unevenly implemented, while few systems employed lifecycle-oriented practices. HTA systems differ widely in governance, scope, and authority, and these differences shape their influence on pricing and reimbursement policies. Strengthening statutory integration,

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analytical capacity, and transparent engagement, especially where HTA is emergent or fragmented, is essential for legitimacy and sustainability. This study offers transferable options for settings without formal HTA agencies and may guide reforms towards sustainable and equitable health system goals.

## 1. Introduction

Health technology assessment (HTA) is now integral to evidence-informed decision-making and efficient resource allocation.[1] As countries pursue universal health coverage under fiscal constraints, HTA supports strategic purchasing by assessing the clinical, economic, and societal value of health technologies.[2] Over the past three decades, diverse HTA institutions have emerged, shaped by national priorities, governance arrangements, and technical capacity.[3,4] Established bodies have refined mature methodologies, while newer systems adapt these models to local context.[5]

These institutions assess, generate, and appraise evidence to guide funding, pricing, and coverage decisions.[1] Despite their global diffusion, they differ markedly in mandate, governance, funding, and policy influence.[6–8] Procedures and methods also vary, with some systems focusing on detailed evaluation of individual technologies and others linking assessments more directly to benefit-package design or reimbursement decisions.[6,9] Such institutional differences affect how evidence is produced, appraised, and integrated into policy, with implications for transparency, stakeholder engagement, and methodological rigour.[10]

Yet existing comparative work has focused mainly on high-income settings or on technical methods, with less attention to governance and lifecycle dimensions, particularly in middle-income contexts.[8,11] Although institutional arrangements vary widely, procedural practices and standards for appraisal and stakeholder involvement are becoming more aligned globally. These principles still require adaptation to national contexts, and lessons from international experience remain essential for strengthening HTA systems and enhancing policy relevance.

In many high-income settings, a single national HTA programme systematically evaluates health technologies and guides coverage or pricing decisions. The United States lacks a single national HTA programme, relying on fragmented, payer-specific processes with variable transparency and methods.[12] Some countries also operate hybrid systems, in which the national-level HTA is applied selectively to technologies with substantial expected budget impact, while other coverage decisions remain with or are delegated to individual payers, as in the Netherlands.[13] Recent policy debates and expert initiatives have reconsidered how HTA-related functions might inform drug pricing, coverage, and benefit design in the United States, yet no coherent institutional model has been implemented.[12] This context further illustrates the need for comparative, system-level benchmarks to guide countries as they shape and strengthen their HTA arrangements.

Against this background, this comparative review examines ten selected HTA agencies across ten jurisdictions, develops a five-module framework for describing their institutional and procedural features, and derives insights to inform the development, institutionalisation, and improvement of HTA in diverse health systems.

## 2. Methods

### 2.1. Study design

We conducted a comparative narrative review of ten HTA systems examining governance structures, processes, and institutional features. Referencing the World Health Organization (WHO)'s five components framework for HTA institutionalisation i) mandate establishment, ii) legal foundation, iii) institutional arrangements, iv) procedural mechanisms for assessment and appraisal, and v) monitoring and evaluation, we designed a five-module analytical framework incorporating 35 structural and procedural elements to capture the end-to-end HTA process.[4,14] These elements were operationalised as comparative items for this review, informed in part by the WHO survey domains, and refined through review of official agency documents, procedural guidance, legislative and regulatory materials, and comparative HTA literature. Table S1 illustrates the mapping of modules and comparative elements. The modules include: i) HTA structure, governance, and institutional functions; ii) assessment scope and methodology; iii) institutional roles in topic selection, and assessment and appraisal; iv) integration of HTA into coverage, pricing, and lifecycle management; and v) stakeholder engagement and external collaboration. This modular structure enables systematic comparison and helps readers navigate how HTA systems operate across governance, assessment, and decision-making contexts.

The ten agencies were selected to capture variation in HTA institutionalisation, geographic distribution, and economic settings where well-established processes and publicly available documentation permit systematic comparison. Selection was guided by observable institutional features and the availability of sufficient public documentation for structured cross-jurisdictional comparison. The WHO HTA and Health Benefit Package Survey (2020–2021)[15] and the published cross-country synthesis by Mirelman et al.[4] provided a global context for country-level HTA institutionalisation and informed the broader comparative framing of this review. The sample included National Institute for Health and Care Excellence (NICE) in the United Kingdom, the Scottish Medicines Consortium (SMC) in Scotland, the Pharmaceutical Benefits Advisory Committee (PBAC) in Australia, the Canada's Drug Agency (CDA; formerly the Canadian Agency for Drugs and Technologies in Health prior to May 2024), the German HTA arrangement involving the Institute for Quality and Efficiency in Health Care (IQWiG) and the Federal Joint Committee (G-BA), the Haute Autorité de Santé (HAS) in France, the National Committee for Health Technology Incorporation into the Unified Health System (CONITEC) in Brazil, the Agency for Care Effectiveness (ACE) in Singapore, and the Malaysian Health Technology Assessment Section (MaHTAS).[4] In China, we focused on the National Healthcare Security Administration (NHSA), where HTA-related evidence is used in the National Reimbursement Drug List (NRDL) adjustment process, while broader HTA-related activities are also undertaken by multiple academic and government-affiliated bodies, including institutions within the National Health Commission.[2,16] Jurisdictions were selected to illustrate diverse governance arrangements and context-specific adaptation of HTA within publicly funded health systems.

Several jurisdictions host more than one HTA body. For example, Australia separates responsibilities between PBAC and the Medical Services Advisory Committee.[17] In this review, we focused on agencies with a central role in collective coverage and pricing decisions for pharmaceutical products, where such a role exists.

### 2.2. Data sources and search strategy

Primary data were extracted from official HTA agency websites, which provided the most recent information on governance, procedures, and mandates as of May 2026 (Supplementary data). These were complemented by the WHO HTA and Health Benefit Package Survey (2020–2021),[4] technical manuals, procedural guidance, government documents, and peer-reviewed literature.[2,4,18–21] Structured searches covered PubMed, Scopus, Google Scholar, and grey literature. Following screening for relevance and credibility using predefined criteria, a second study team member and co-author, Effie Ka Yue Cheung,

cross-checked key steps in source identification, screening, and data extraction. Discrepancies were resolved through discussion and, where needed, adjudication by the senior authors. Supplementary data detail the search strategies, eligibility time frames, and screening and validation procedures.

### 2.3. Data extraction and analysis

We mapped 35 data elements to the five WHO institutionalisation components and reorganised the elements into five thematic modules. A structured extraction template was developed in Microsoft Excel, adapted from the WHO framework, to capture governance, procedural, and methodological features across jurisdictions. All data were independently verified by other co-authors, with discrepancies resolved through consensus and reference to primary sources (Supplementary data).

## 3. Results

### 3.1. Overall patterns across the HTA agencies

Across the ten systems, HTA arrangements cluster around five interrelated components (Table 1). Together, these components describe a shared HTA pathway from early dialogue and topic selection to implementation, monitoring, and possible disinvestment (Fig. 1) and align with pre-assessment, assessment and appraisal, and post-decision stages (Fig. 2). Fig. 3 shows that core assessment and funding-related functions are generally well institutionalised across the ten systems, while topic selection, regulatory alignment, and procurement-related functions are more variable or less developed.

### 3.2. Module 1: HTA structure, governance, and functions

HTA bodies differ in institutional form (Table S2). NICE, HAS, IQWiG, and CDA are separate statutory or arm's-length agencies. PBAC and SMC are expert advisory committees to the government. CONITEC, ACE and MaHTAS are units embedded in ministries of health or national health authorities. In China, the NHSA centres the reviewed arrangements through the NRDL adjustment process.

NICE, SMC, PBAC, HAS, CONITEC, and the German IQWiG/G-BA arrangement have explicit legal mandates and all report to a ministry of health, a national health service, or a statutory insurance body. HTA-based decisions are binding on payers in England and Germany. In France and Brazil, recommendations become binding after endorsement. Agencies are formally advisory in many other systems, but still strongly shape coverage and pricing.

Separate agencies (NICE, HAS, IQWiG, and CDA) tend to have more full-time staff, embedded units (CONITEC, ACE, and MaHTAS) are smaller, and committee-based bodies (PBAC and SMC) are more reliant on part-time experts. Functional breadth varies but commonly includes economic evaluation, clinical guideline development, budgeting support, pricing and reimbursement, benefit package design, while procurement-related roles are generally limited or indirect and are mainly connected to reimbursement listing, price negotiation, or volume-based purchasing.

### 3.3. Module 2: assessment scope and methodology

HTA agencies differ in technology scope and depth of appraisal (Fig. S1). HAS and CONITEC assess a broad range of technologies, including medicines, vaccines, devices, diagnostics, procedures, digital health, and selected public health interventions. NICE also has a broad scope, although routine vaccine appraisal is only partially covered. The German IQWiG/G-BA arrangement has broad but more pathway-specific coverage. CDA extends beyond pharmaceuticals, PBAC focuses on medicines and vaccines, and SMC focuses mainly on prescription medicines. ACE and MaHTAS are expanding beyond initial or predominant medicines-focused portfolios. In China, the use of HTA-related evidence is expanding within the NHSA-led NRDL drug reimbursement process, although the scope reviewed in this study remained centred on pharmaceuticals. A frequent pattern is to begin with pharmaceuticals and broaden the scope over time.

Assessment programmes range from a single stream for drugs to multiple programmes for different technology types, with primary programmes and outputs summarised in Table S3. Timelines and annual assessment volumes also vary widely (Table S4). PBAC, SMC, ACE, and MaHTAS generally run shorter, more standardised cycles, while NICE, CDA, the German IQWiG/G-BA arrangement and the NRDL adjustment process in China undertake longer and more resource-intensive evaluations. Annual volumes ranged from a few dozen to 1000 assessments. Most agencies maintain rapid review pathways, although these are less evident in PBAC.

Recommendation structures fall into decision-oriented models that issue positive, conditional, or negative guidance and value-rating models that grade added clinical benefit and link this to reimbursement and price. Most agencies reviewed do not use an explicit cost-effectiveness threshold. Where agencies use thresholds, these serve mainly as flexible reference points rather than fixed cut-offs, with final deliberations also incorporating clinical benefit, unmet need, equity, budget impact, and feasibility.

### 3.4. Module 3: institutional roles in topic selection and assessment and appraisal

Across systems, new drug evaluations follow a broadly similar pathway (Fig. 1). After early dialogue in some jurisdictions, nominated topics are checked for eligibility and scoped, followed by evidence assessment and committee appraisal, final coverage and pricing decisions, and later review.

In a few settings, including the United Kingdom, Australia, and Canada, parallel regulatory-HTA review is well established, Malaysia uses it occasionally, while it is absent in others (Table S5). Most assessments are initiated by manufacturers, while a smaller group of systems also accepts topics from ministries, payers, or clinicians. Only a few agencies, including NICE, ACE, and MaHTAS, apply formal topic prioritisation with explicit criteria on clinical importance, budget impact, equity, national priorities, feasibility, and horizon-scanning signals.

Evidence assessment commonly combined in-house review with external academic or expert input, although the extent, tasks, and engagement mechanisms varied across agencies. Evidence reviewed within the NHSA-led NRDL process in China involves multidisciplinary expert assessment and pharmacoeconomic evaluation. External or academic teams support evidence review, model reanalysis, methodological advice, or contextual evidence generation (Tables S5 and S6). Engagement mechanisms vary across systems (Table S5). Several agencies routinely undertake independent reanalysis or *de novo* studies, whereas others, including SMC, CDA, IQWiG/G-BA, and HAS, generally start from manufacturer-submitted dossiers and supplement these with internal critique, external expert review, or model validation where applicable. Outputs are structured evidence reports summarising clinical, economic, and contextual findings.

Appraisal is carried out by standing experts or multidisciplinary committees that interpret assessment results in light of local policy and budgets. In most systems, these committees advise a ministry, national health service, or statutory payer; in a few (e.g., G-BA and NHSA), the payer body itself acts as the appraisal and decision-making forum. Final coverage decisions and reimbursement conditions are usually endorsed by national or, in federal systems, subnational authorities.

### 3.5. Module 4: institutional integration of HTA into coverage, pricing, and lifecycle management

HTA is increasingly organised as a lifecycle process, linking early identification, assessment, adoption, monitoring, and possible disinvestment. This relies on horizon scanning, early scientific advice, use of real-world evidence, and periodic reassessment.[22]

**Table 1**
Institutional design dimensions and summary categories for health technology assessment (HTA) systems.

| Module number | Dimension | Category options |
|---|---|---|
| Module 1: structure, governance, and functions | Type of organisation | Arm's-length statutory agency; expert advisory committee; scientific or non-profit institute; and HTA unit or centre within the government or payer |
| | Legal mandate for HTA | Statutory or explicit legal basis; no explicit legal mandate |
| | Reporting authority | Ministry or department of health; social insurance or payer body; and mixed health authorities (national and sub-national) |
| | Status of HTA outputs | Legally binding; advisory (may become binding after approval); and advisory only |
| | Core funding source | Public government budget; public social or health insurance funds; mixed public funding; and no private core funding |
| | Institutional capacity | Small HTA unit; medium-sized agency; large agency; and capacity supplemented by external academic or assessment networks |
| | Transparency of HTA reports | Full public access; partial or limited public access |
| | HTA functions supported | Economic evaluations; clinical practice guidelines; planning and budgeting support; pricing and reimbursement negotiations; quality of care indicators; pay for performance objectives; benefit package design; public procurement of medicines; and protocols for public health programmes |
| Module 2: assessment scope and methodology | Assessment scope | Drugs; vaccines; devices; diagnostics; procedures; digital health; and public health |
| | Assessment volume | Reported number of assessments per year |
| | Assessment timelines | Defined assessment timelines and target durations |
| | Rapid review option | Rapid review pathway available; no rapid review pathway |
| | Types of recommendations | Multi-level recommendation categories; binary recommendation structure |
| | Cost-effectiveness threshold | Explicit reference cost-effectiveness threshold; no explicit or fixed threshold; and context-specific GDP-linked threshold |
| | Core evaluation focus | Clinical and economic evaluation; clinical benefit and added value; and multidimensional evaluation (clinical, economic, budget impact, equity, and feasibility) |
| | Key decision criteria | Clinical effectiveness and safety; incremental costs and cost effectiveness; budget impact and affordability; disease severity and unmet need; patient values and quality of evidence; and system impact and feasibility |
| Module 3: institutional roles in topic selection, and assessment and appraisal | Parallel review with regulatory drug approval | No parallel review; systematic parallel review; and selective or occasional parallel review |
| | Assessment initiation/dossier submission | Manufacturer-led submission; government or payer-initiated topics; and mixed submission pathways (manufacturers and public entities) |
| | Topic selection | Formal topic selection and prioritisation; eligibility screening only; mandatory assessment without topic selection; and policy-driven topic filtering |
| | Prioritisation criteria | Clinical importance; budget impact; inequities in access; alignment with national priorities; feasibility of evaluation; new evidence or horizon scanning signals; and system impact and health gain |
| | In-house assessment | Primarily in-house assessment; mixed in-house and external assessment; and primarily external assessment |
| | Independent evidence generation by the HTA agency | Independent evidence generation present; independent evidence generation absent |
| | Academic involvement in assessment | Regular or structured academic involvement; occasional, optional or ad hoc academic involvement; and no formal external academic involvement |
| | External assessment teams | Academic evaluation centres or consortia; external expert reviewers; national HTA academic networks; and ad hoc external collaborators |
| | Type of external commissioning | Long-term framework agreements; project-based contracts or tenders; internal appointments of external experts; and network-based collaboration |
| | Internal assessment teams | Dedicated technical or scientific teams; committee-based technical review; and HTA units within ministries or payer agencies |
| | Appraisal committee | Standing multidisciplinary appraisal committees; plenary or subcommittee structures; and advisory expert panels |
| | Final approval decision maker | Ministry or department of health; national health service or payer organisation; social insurance decision-making body; and sub-national health authorities |
| Module 4: integration into coverage, pricing, and lifecycle management | Formal horizon scanning process | Dedicated horizon scanning system; no formal horizon scanning |
| | Early scientific advice | Formal early scientific advice programme; informal or ad hoc pre-submission dialogue; and no early scientific advice |
| | Disinvestment/delisting process | Structured reassessment and delisting process; case-triggered delisting; reassessment without a formal delisting framework; and no formal disinvestment process |
| | Pricing schemes and supporting indicators | Patient access schemes and managed entry agreements; value-based pricing mechanisms; rating of added benefit or clinical value; and price regulation linked to HTA outcomes |
| | Authority in price negotiation | Ministry or department of health; national health service or payer organisation; and statutory health insurance bodies or negotiation alliances |
| | Procurement role | Central or national procurement role; shared national and sub-national procurement; and limited or no direct procurement role |
| Module 5: stakeholders across all stages | Stakeholder groups in HTA | HTA agencies; government and policymakers; payers and insurers; healthcare professionals; academia and independent experts; patients and patient groups; and industry and sponsors |

GDP: gross domestic product.

Formal horizon scanning functions are operated by CDA, SMC, HAS, CONITEC-linked units, ACE, MaHTAS, and by the National Institute for Health and Care Research (NIHR) Innovation Observatory to support NICE. NICE, CDA, PBAC, IQWiG/G-BA, and HAS provide structured early scientific advice or pre-submission consultation mechanisms (Table S7).

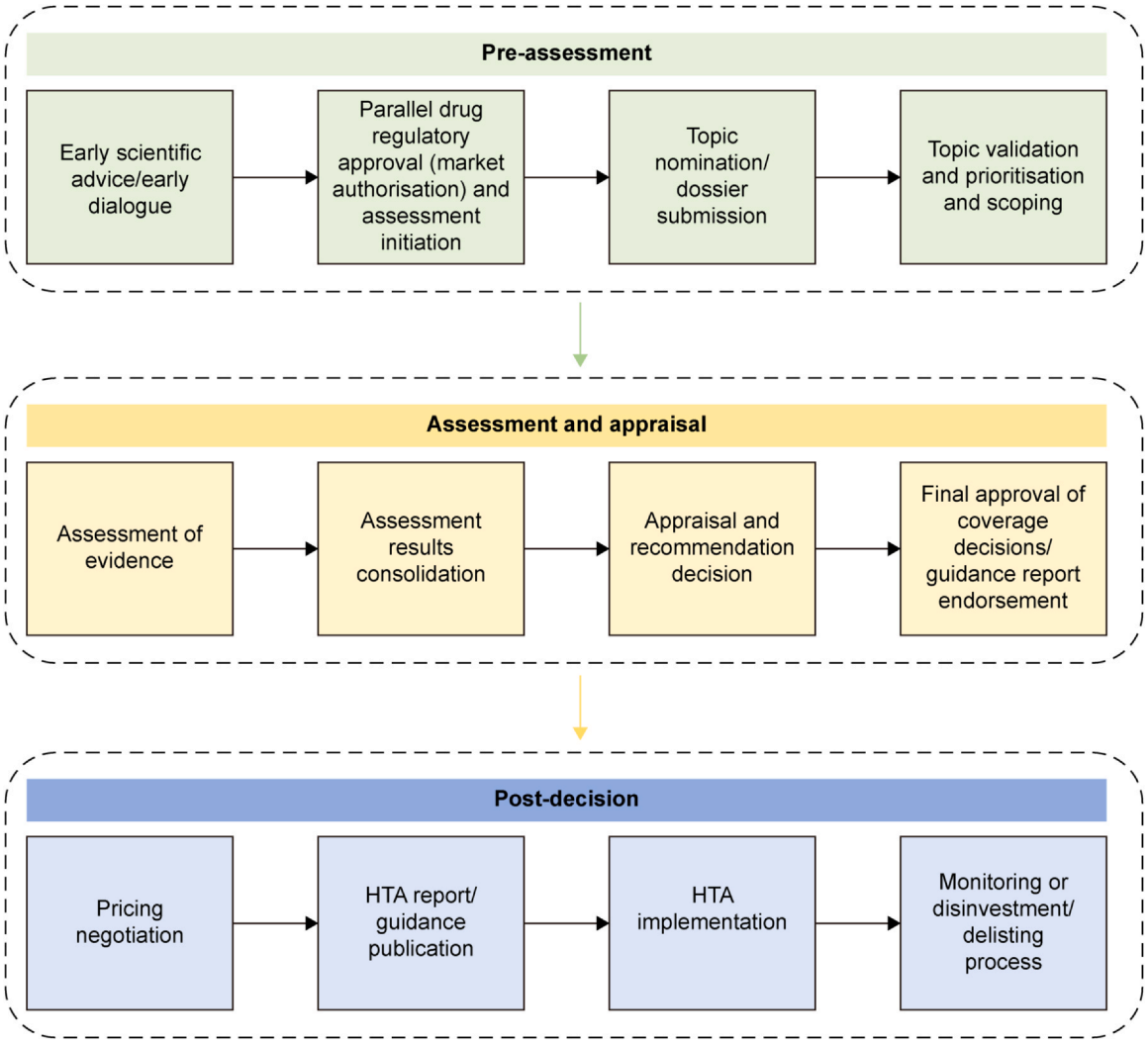


**Fig. 1.** Sequential health technology assessment (HTA) workflow from pre-assessment to post-decision, showing main procedural stages from early dialogue to monitoring and possible disinvestment.

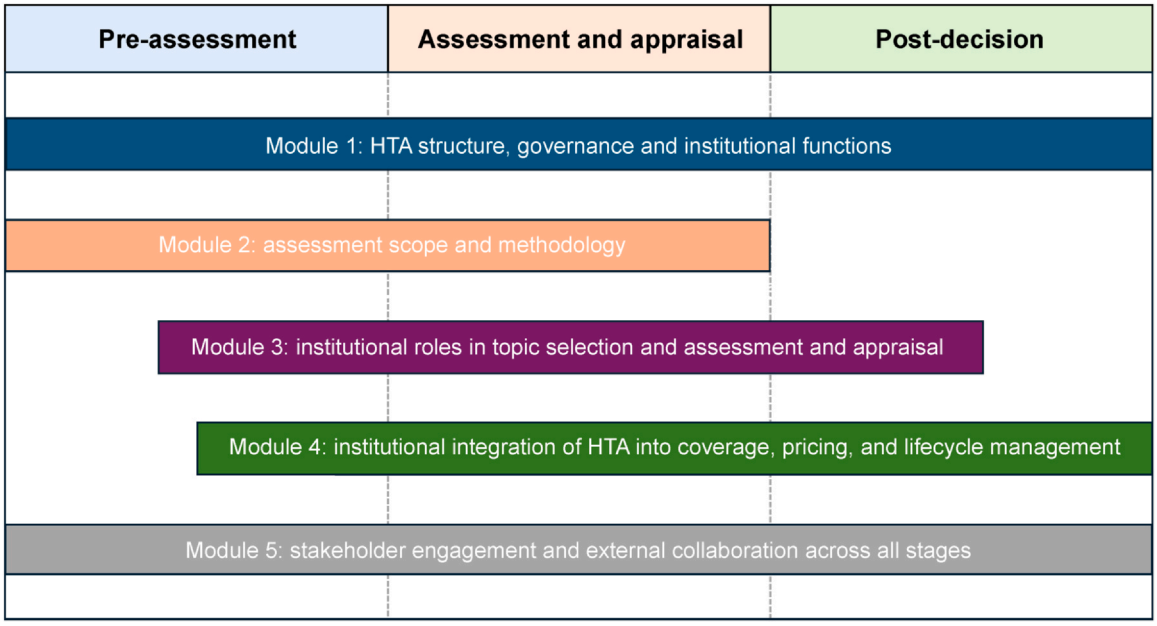


**Fig. 2.** Institutional design modules for health technology assessment (HTA) mapped onto pre-assessment, assessment and appraisal, and post-decision stages.

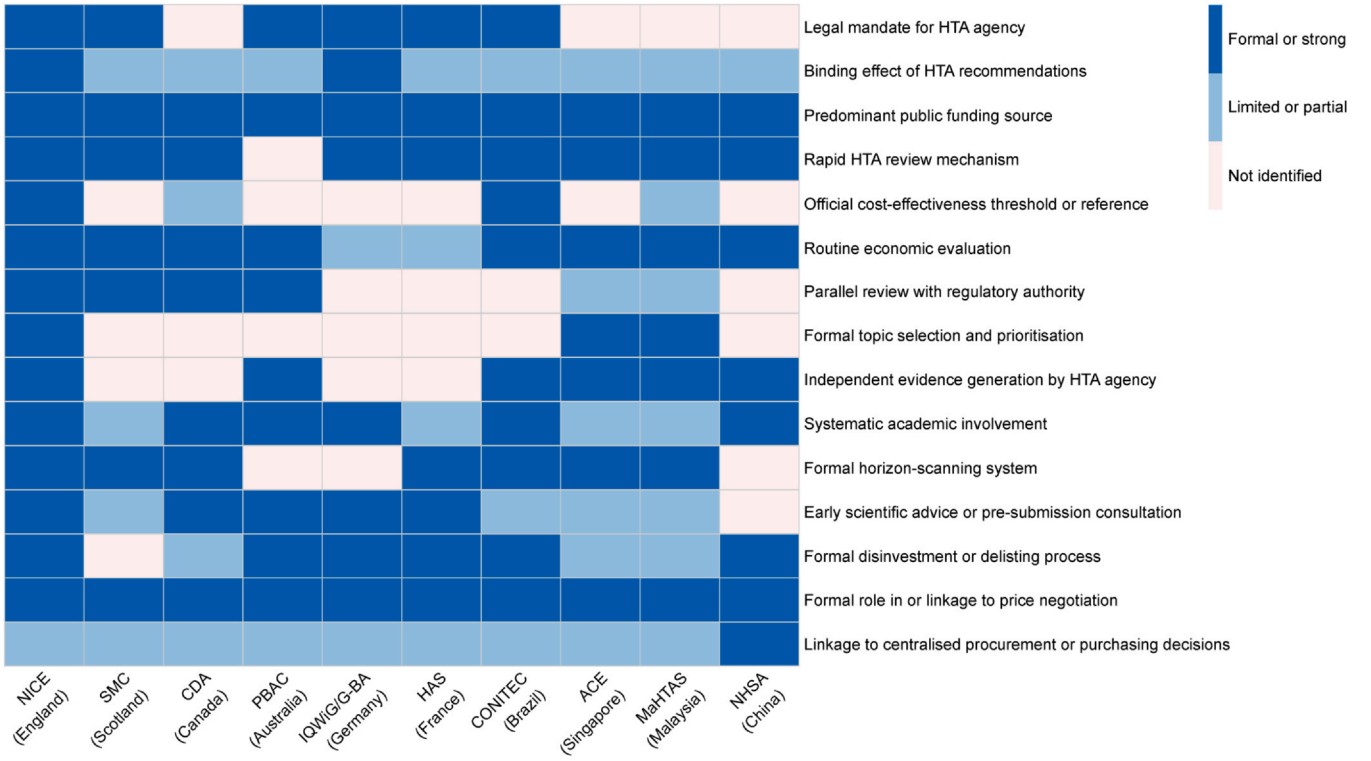


**Fig. 3.** Intensity of institutionalisation of key health technology assessment (HTA) system functions across ten selected agencies. NICE: National Institute for Health and Care Excellence; SMC: Scottish Medicines Consortium; CDA: Canada's Drug Agency; PBAC: Pharmaceutical Benefits Advisory Committee; IQWiG: Institute for Quality and Efficiency in Health Care; G-BA: Federal Joint Committee; HAS: Haute Autorité de Santé; CONITEC: National Committee for Health Technology Incorporation into the Unified Health System; ACE: Agency for Care Effectiveness; MaHTAS: Malaysian Health Technology Assessment Section; NHSA: national healthcare security administration.

Formal post-listing review mechanisms include guidance review or withdrawal (NICE), delisting or modification of listings under the Pharmaceutical Benefits Scheme (PBS), reassessment of reimbursement status (HAS), reassessment or prescribing restriction/exclusion (G-BA), disinvestment or exclusion of technologies (CONITEC), and renewal or removal from the reimbursement list (China NRDL), typically in response to emerging evidence, safety concerns, or changes in clinical or economic value.

Across jurisdictions, HTA plays a central role in post-approval pricing. Positive or conditional recommendations commonly trigger price negotiations, managed entry agreements, or value-based adjustments, and inform centralised or mixed procurement models that reflect each system's broader financing and governance arrangements.

### 3.6. Module 5: stakeholder engagement

Across agencies, HTA bodies generally lead assessment and support appraisal or dissemination, while governments, payers, or statutory bodies retain primary responsibility for selection, reimbursement, pricing, or implementation decisions. Patients, clinicians, academic experts, and industry sponsors usually contribute through submissions, hearings, consultations, or advisory input rather than formal voting roles (Fig. S2).

Links with regulators are strongest where early advice or parallel review structures exist. In these settings, HTA agencies and medicines regulators coordinate scientific advice and, in some cases, align timelines for regulatory approval and reimbursement decisions (Table S8[16,21,23–26]). Other systems rely on looser collaboration, with more informal exchanges or early dialogue still in development.

## 4. Discussion

This review found substantial variation across the selected jurisdictions in the institutional organisation, procedural design, and policy integration of HTA systems, particularly in formal authority, the allocation of assessment and appraisal responsibilities, and the extent to which HTA was linked to coverage, pricing, reassessment, and other post-listing processes. These findings suggest that HTA ranges from an advisory evidence review function to a more direct role in healthcare decision-making.

### 4.1. Institutional arrangements and governance

The comparative results suggest that institutional architecture is an important feature of how HTA is organised and linked to decision-making. Agencies established as separate entities often show greater procedural separation from ministries, whereas HTA units embedded in ministries or national health authorities tend to operate with closer alignment to ministerial or payer priorities. Hybrid arrangements, in which technical assessment is institutionally separated from final political or payer endorsement, reflect different ways of balancing technical independence and public accountability across health systems.[9] In this context, HTA governance can also be understood within the broader literature on public-sector delegation, institutional autonomy, and accountability, where greater autonomy may strengthen technical credibility but also raise questions about democratic legitimacy.[27] These findings expand on prior comparative studies that described national differences primarily in technical standards, by adding a broader examination of governance structures, levels of procedural transparency, and the policy authority of HTA recommendations.[3]

### 4.2. Appraisal, deliberation, and value frameworks

Although evidence generation and appraisal remain anchored in clinical and economic evaluation, many agencies increasingly consider ethical, social, organisational, legal, and contextual dimensions of value.[28] In Europe, the HTA Core Model, developed within the European Network for Health Technology Assessment (EUnetHTA), supports this in part by providing a structured multidimensional framework for HTA.[29] Subsequent commission-supported methodological cooperation fostered convergence through shared guidance, collaborative assessment practices, and cross-country learning, although uptake has varied across jurisdictions.[30] These broader value frameworks reflect appraisal practice across systems, where committees interpret clinical, economic, and contextual evidence in light of wider policy, professional, and patient considerations. HTA has long combined comparative clinical assessment, economic evaluation, and committee-based deliberation, with assessment in many systems focusing substantially on relative clinical effectiveness compared with current standards of care. HTA appraisal and clinical guideline development share important features such as evidence synthesis coupled with structured deliberation.[31] These patterns suggest that variation in HTA recommendation-making not only informs methodological choices but also the institutional arrangements through which evidence is interpreted and applied in decision-making.

### 4.3. Lifecycle integration and procedural innovation

The integration of horizon scanning, early scientific engagement, and reassessment processes illustrates a growing shift from static appraisal toward continuous evaluation across the technology lifecycle.[22,32] Several mature agencies, including NICE and HAS, have developed lifecycle-oriented mechanisms that connect early evidence-generation activities with later reassessment in order to reduce uncertainty and support more efficient resource allocation.[22] The persistence of gaps in structured disinvestment, however, signals a critical weakness in many systems, particularly in emerging economies.[33] Addressing these gaps will be critical for emerging HTA systems to fully realise the benefits of continuous evaluation and strengthen the link between evidence generation, resource allocation, and benefit-package management.[34]

### 4.4. Stakeholder engagement and public legitimacy

Stakeholder engagement and transparency are widely recognised as central to the legitimacy of HTA.[35,36] Although multi-stakeholder participation, including patients, clinicians, policymakers, and industry, is rising, implementation varies markedly across settings. Recent studies identified important differences in the extent, timing, and influence of patient and public involvement, as well as persistent practical and institutional barriers such as limited capacity, inconsistent procedures, and variable uptake of patient input.[37–40] Agencies in the United Kingdom, France, Germany, Canada, and Brazil (via CONITEC's public consultation) have established structured mechanisms that enhance trust and align decisions with societal values. In contrast, Malaysia and China show limited or selective participation, with fewer formalised opportunities for stakeholder input. Engagement mechanisms alone do not ensure influence; meaningful impact requires well-defined and transparent processes and genuine integration of stakeholder input.[36] Strengthening transparent, substantive engagement remains essential for accountable and credible HTA policy.

### 4.5. HTA as a mechanism for health system stewardship

A critical finding is the central and expanding role of HTA in pricing, reimbursement, and negotiation processes across all the reviewed jurisdictions. This transformation marks a shift from analytical evaluation to strategic stewardship of health system value, ensuring that innovation aligns with efficiency and fiscal responsibility.[41] Despite this progress, integration of HTA recommendations into binding policy decisions varies; a reflection of the differences in institutional authority, accountability, and policy integration.[35,42] Sustaining this transformative role requires continuous reinforcement of institutional authority, methodological rigour, and policy integration to ensure that HTA remains a credible and effective pillar of evidence-informed health system governance.[9]

### 4.6. Good practices and cross-agency collaboration in HTA

The comparative framework applied in this study aligns with the domains outlined in the International Society for Pharmacoeconomics and Outcomes Research (ISPOR) HTA Council Good Practices Recommendations, which include institutional governance, transparent assessment, contextualisation, implementation, and monitoring.[43] Viewing the analysis through these lens indicates that national HTA systems, although developed to address their own policy and health-system contexts, are progressively aligning with internationally recognised features of good practice such as early scientific advice, structured stakeholder engagement, and explicit appraisal and decision-making procedures. Interpreting the findings in relation to these principles extends the contribution of this comparison beyond descriptive mapping by illustrating differences in both institutional maturity and adherence to good-practice standards.

Cross-jurisdiction collaboration is also a growing driver of methodological alignment and capacity strengthening. In Europe, the European Union (EU) HTA Regulation has been described as a move towards a more harmonised HTA framework, introducing joint clinical assessments, joint scientific consultations, and closer cooperation among EU member states.[44] Regional collaboration also continues through networks such as HTAsiaLink, which support peer learning, capacity building, and shared methodological development across jurisdictions.[45]

This analysis underscores the ongoing challenges of strengthening HTA systems, especially in settings with limited resources. Rapid advances in digital, genomic, and artificial intelligence (AI)-based technologies heighten methodological demands, while gaps in data, regulatory alignment, and technical capacity constrain effective HTA institutionalisation. Priority areas include adaptable frameworks, greater use of real-world evidence, and evaluation of HTA impact on outcomes and equity. Policymakers should invest in capacity building, support greater methodological standardisation where appropriate, embed transparent processes, and expand international collaboration to support sustainable and equitable health system development.[46]

### 4.7. Implications for low- and middle-income countries

For low- and middle-income countries, the findings suggest HTA is often more practical when introduced through incremental, decision-linked arrangements embedded in ministries of health or payer institutions.[14] Early implementation is commonly more feasible when focused on pharmaceuticals or other high-budget-impact technologies, using explicit topic selection and relatively simple assessment approaches that match data and analytical capacity.[3] Regional networks and academic partnerships may strengthen technical capacity and support institutional development, particularly where local HTA expertise remains limited.[21,45] However, the transferability of models from higher-income settings remains constrained by weak routine data systems, fragmented financing arrangements, and broader political and institutional context, all of which can affect the production, acceptance, and implementation of HTA recommendations.

### 4.8. Limitations

This study relies primarily on publicly available data from official agency websites, technical manuals, and published literature, which may not reflect the most recent or nuanced developments in

institutional practice, especially in jurisdictions where transparency is limited. The selection of ten jurisdictions, while designed to capture a range of HTA maturity, does not encompass all global contexts, particularly low-income countries. Differences in data granularity, reporting standards, and language barriers may also introduce inconsistencies in cross-jurisdiction comparisons. In rapidly evolving policy environments, institutional arrangements may change over time, and the characterisation presented here reflects publicly available information identified during the study period.

## 5. Conclusion

This study demonstrates substantial variation in how HTA systems are governed, structured, and integrated into health policy processes. Institutional design, degree of independence, and procedural transparency determine the breadth of their roles within decision-making frameworks. Using the WHO institutionalisation framework, this comparative analysis advances understanding of the relationship between governance arrangements and the maturity of HTA systems, providing evidence to support efforts aimed at strengthening institutional capacity, methodological consistency, and transparency in evidence-informed health policy. These comparative lessons also serve as a practical reference for governments and stakeholders seeking to establish or expand HTA functions within their health systems.

## CRediT authorship contribution statement

**Zonglin Dai:** Writing – review & editing, Writing – original draft, Software, Resources, Project administration, Methodology, Investigation, Funding acquisition, Formal analysis, Data curation, Conceptualization. **Effie Ka Yue Cheung:** Writing – review & editing, Project administration, Methodology, Investigation, Formal analysis, Data curation, Conceptualization. **Ting Wang:** Writing – review & editing, Validation, Methodology, Investigation. **David Makram Bishai:** Writing – review & editing, Validation. **Lei Si:** Writing – review & editing, Validation. **Benjamin Hon Kei Yip:** Validation, Writing – review & editing. **Yingyao Chen:** Writing – review & editing, Validation. **Ian Chi Kei Wong:** Writing – review & editing, Validation. **Andrew J. Mirelman:** Writing – review & editing, Validation. **Manuel Antonio Espinoza:** Writing – review & editing, Validation, Supervision, Resources, Project administration, Conceptualization. **Xue Li:** Writing – review & editing, Visualization, Validation, Supervision, Resources, Project administration, Funding acquisition, Conceptualization.

## Declaration of competing interest

The author, Ian Chi Kei Wong, is the founder and director of Advanced Data Analytics for Medical Science Limited (ADAMS), Hong Kong, China. ADAMS is listed as one of his affiliations in this article but was not involved in the conduct, analysis, interpretation, or reporting of this study and had no influence on the study findings. The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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## Appendix A. Supporting information

Supplementary data associated with this article can be found in the online version at doi:10.1016/j.pharp.2026.06.007.

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