

Optimizing the design, operation and evaluation of Scientific Advisory Bodies and Expert Panels in pandemic and interpandemic contexts: a Rapid Review

Summary

This evidence synthesis is being conducted using a phased rapid review approach to examine Scientific Advisory Bodies and Expert Panels (SABs/Eps). This report presents findings from Phase 1, which examines the contexts in which advisory systems operate and the institutional arrangements through which SABs/EPs are structured and governed, including mandates, governance models, institutional positioning, membership composition and expertise, conflict-of-interest management, and equity considerations. Subsequent phases will examine advisory processes, outputs, and evaluation approaches.

What is the context of this review?

The COVID-19 pandemic highlighted the critical role of SABs/EPs in supporting evidence-informed decision-making, while exposing challenges in coordination, governance, transparency, communication, and policy integration. Effective advisory systems require preparedness structures, clear mandates, trusted communication channels, and adaptable expert networks across pandemic and interpandemic periods.

In this context, the Public Health Agency of Canada (PHAC) commissioned this rapid review to understand how SABs/EPs can be strengthened to support pandemic preparedness, health emergency response, and the integration of science advice into decision-making.

What question is being addressed?

How can SABs/EPs be designed and governed to strengthen the integration of science advice into decision-making and improve their impact, legitimacy, and evaluability across Canada and other OECD countries?

How was the review done?

Evidence from PubMed, Embase, and Health Systems Evidence was synthesized using a structured analytical framework (last search: April 2026). Phase 1 examined governance and institutional design features of SABs/EPs, including mandates, membership, conflict-of-interest management, and cross-cutting dimensions such as equity, transparency, and adaptability. Additional domains will be addressed in subsequent phases.

What did we find?

The 104 included reports comprised 54 primary studies, 6 evidence syntheses, and 44 policy analyses, case studies, and expert reports.

104

reports included from
3,636 records identified

31

studies focused
specifically on NITAGs¹

>50%

of studies addressed
COVID-19 advisory
processes

0*

studies examined AI-
enabled
SABs/EPs

Studies spanned all six WHO regions and included high, middle-, and low-income settings.

***AI-enabled advisory systems remain a major evidence gap:** Only one study discussed future AI integration within advisory systems.

¹ National Immunization Technical Advisory Groups



Governance models and policy influence:

Most SABs/EPs used hybrid or embedded governance arrangements, while fully independent models were uncommon

Hybrid	Embedded	Independent	Combination
36.5%	28.8%	~13%	~ 21%
Combined independent expertise with government integration	Fully situated within government structures	Institutionally autonomous advisory bodies	Integrated two or more governance arrangements



Key lessons across governance arrangements

Stronger legal foundations were frequently described as important for policy influence and decision-making authority.

Hybrid models linking academia and government were commonly associated with trust, policy uptake, institutional independence, and closer interaction with policymakers.

Embedded structures were frequently described as facilitating interaction with decision-makers, while also raising concerns about political influence.

Politicized, fragmented, or weakly institutionalized advisory systems were frequently described as limiting policy impact and implementation capacity.



Institutional design features:



Membership composition

62.5% of bodies were multidisciplinary

Biomedical expertise dominated most SABs/EPs, while social sciences, ethics, and community perspectives were less represented.

Flexible membership structures (permanent + ad hoc experts) were commonly linked to crisis adaptability.



Mandates & roles

65% % of SABs/EPs combined strategic and technical mandates.

Most focused on policy formulation, with fewer addressing implementation or evaluation.

Permanent advisory structures were more common than ad hoc COVID-19 committees.



Conflict of interest (COI)

COI management was widely recognized as important for independence and trust.

Disclosure and recusal procedures were the most commonly reported approaches.

Gaps in transparency and enforcement were frequently identified.



Equity, diversity & inclusion



Equity was widely recognized as important for legitimacy and societal relevance.

Equity considerations were inconsistently operationalized across advisory systems.

Limited representation of patients, civil society, and equity-deserving populations was commonly reported.



Transparency and crisis adaptability

 Transparency	 Crisis adaptability
Transparency was widely described as important for legitimacy and public trust.	Pre-existing advisory structures and secretariats were commonly described as enabling faster crisis responses.
Common gaps included closed-door deliberations, opaque appointments, and restricted public access to records.	Several Latin American NITAGs were reported as sidelined or overwhelmed during COVID-19.
Transparent advisory processes were frequently associated with greater policy uptake and legitimacy.	Crisis adaptability was frequently linked to sustained pre-pandemic institutional investment.



How confident are we in these findings?

Methodological quality was assessed using AMSTAR II and JBI appraisal tools. Most primary studies were of moderate to high quality, while many reviews scored lower given the predominance of rapid and scoping review designs in this field.