

Perspective

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Establishing a Consumer Panel to Inform Health Technology Assessment Processes and Policy: impact and insights from Singapore's experience

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Abstract

Patient involvement in health technology assessment (HTA) at the organizational level remains relatively underreported in Asia. In 2022, Singapore's Agency for Care Effectiveness (ACE) established a Consumer Panel to provide strategic advice on strengthening patient participation in HTA processes and policy development. The Panel comprises representatives from local patient organizations, collectively covering a range of health conditions and bringing extensive lived experience within Singapore's healthcare system. This *Perspective* outlines ACE's approach to forming the Panel and highlights its contributions during the inaugural term, including co-developing patient involvement processes, supporting health literacy efforts, and fostering collaboration between ACE and patient communities. Panel members' reflections on their role and future directions for advancing patient partnership in HTA are also discussed. Beyond improving the quality and relevance of ACE's work, the Consumer Panel's achievements provide a valuable example for health authorities in other countries seeking to meaningfully involve patients at the organizational level.

Introduction

The Agency for Care Effectiveness (ACE) is Singapore's national health technology assessment (HTA) and clinical guidelines agency within the Ministry of Health (MOH). It conducts technical evaluations of health technologies to inform funding recommendations made by MOH advisory committees and develops clinical guidelines and educational resources to support evidence-based care. In 2021, ACE established a dedicated workstream – Consumer Engagement and Education (CEE) – to support patient involvement across its work programs. The CEE team encourages patients, caregivers, and patient organizations to suggest HTA topics, share lived experiences to inform evaluations, and co-develop plain language resources to improve health literacy. These efforts aim to improve the quality and relevance of ACE's work, ensuring it reflects the values, needs, and preferences of those directly impacted by healthcare decisions (1,2).

Recognizing the value of involving patients beyond HTAs, a Consumer Panel was established in 2022 to provide strategic advice to ACE and its technical committees. This panel represents the collective voice of Singapore's patients and caregivers guiding engagement initiatives, supporting process improvements, and strengthening the incorporation of patient perspectives in ACE's work.

Involving patients at the organizational level within HTA agencies includes co-developing feasible and relevant processes, designing appropriate communication and evaluation frameworks, and contributing to strategic planning (3–5). Globally, HTA agencies have implemented a range of mechanisms to encourage such involvement, including patient representation on HTA governance boards, participation in standing committees, and project-specific collaborations with patient groups (6). Several countries have also established dedicated Patient and Public Involvement (PPI) advisory bodies to provide advice on procedural development and capacity building (6–9). These entities vary in composition and scope, reflecting the specific contexts and priorities of their respective health systems.

While patient involvement in HTA is well-established in many countries outside Asia, it remains limited within the region, with Taiwan among the few jurisdictions with formalized structures in place (10). This *Perspective* article explores the early impact of the ACE Consumer Panel, serving as a case study of how patient involvement can be systematically integrated into the organizational practices of HTA agencies and other health authorities.

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Establishing the ACE Consumer Panel

The composition and terms of reference (TOR) of established PPI groups in overseas HTA and government agencies were reviewed to determine which responsibilities assigned to these groups were applicable to the ACE Consumer Panel and which additional responsibilities were required locally. Organizational websites and social media platforms were then searched to identify potential candidates who held senior appointments in local patient organizations and voluntary groups. Given the limited number of prominent patient advocates in Singapore, many candidates were already known to the CEE team. Each candidate was assessed against core competencies (Box 1) pre-defined by the CEE team, considering their employment history, skillset, expertise in patient advocacy, and level of influence among patient communities. Particular attention was given to candidates with strong communication skills, and a proven track record of tangible influence on health-related initiatives.

Twenty candidates were contacted to determine their interest in becoming Panel members. Individuals who did not respond ($n = 3$) or declined the proposed appointment ($n = 2$) were excluded. The CEE team documented candidates' relevant past and current appointments and memberships to ensure transparency about organizational affiliations and potential financial and nonfinancial conflicts of interest (COIs), recognizing that patient organizations often receive private funding or have industry relationships through their patient support activities. All disclosed COIs were assessed through established ACE governance procedures. As an advisory body, the Panel was not required to vote or make formal decisions about specific health technologies.

A final list of fifteen candidates was presented to the MOH Director-General of Health who appointed two Co-Chairs and thirteen members to the Panel for an initial two-year term from April 2022 to March 2024. The Panel comprised leaders from different patient organizations with various backgrounds, including patients, caregivers, doctors, physiotherapists, dieticians, and healthcare administrators. Collectively, their organizations represented a wide range of health conditions, including autoimmune disorders, cancer, cardiovascular disease, diabetes, gastrointestinal diseases, kidney and musculoskeletal conditions, rare disorders, and respiratory illnesses. The Panel's TOR and members' profiles were published on the ACE website to promote transparency and accountability (11).

Box 1. Core competencies required for ACE Consumer Panel members.

Candidates for the ACE Consumer Panel were expected to demonstrate all of the following competencies:

- **Extensive lived experience** with the Singapore healthcare system, including navigating care pathways as a patient, caregiver, or advocate;
- **Capacity to reflect on and share personal experiences** in a constructive and solution-oriented manner that contributes meaningfully to discussions;
- **Awareness of the experiences and perspectives of other healthcare consumers** within their specific disease area or community;
- **Familiarity with the challenges** commonly faced by patients;
- **Ability to contribute independent views** that are not bound to personal or organizational agendas;
- **Strong interpersonal and teamwork skills** with a demonstrated ability to collaborate respectfully and productively in a group setting; and
- **Genuine interest in empowering patients and caregivers** to meaningfully contribute to HTAs and ACE's broader initiatives.

Facilitating Engagement Through Meetings and Communication

ACE's approach to engaging the Panel proactively addressed common barriers and enablers to participation to empower all members to contribute to discussions (12–15). Members shared insights based on their lived experiences within Singapore's healthcare system and multiethnic society, drawing from their cultural, relational, medical, and healthcare navigation knowledge (3;16). Facilitated dialogue and targeted prompts from the CEE team supported deliberations, helping members balance personal viewpoints with the needs of the wider patient community, including the perspectives of diverse cultural groups and populations who may be marginalized or underrepresented.

The first Panel meeting was held virtually in June 2022 with MOH senior leadership in attendance, which signaled institutional support for patient involvement. Subsequent hybrid (virtual and in-person) meetings were convened twice a year to allow members to engage face-to-face where possible, while accommodating those with health conditions, caregiving responsibilities, or other commitments that might limit physical attendance.

Before each meeting, agendas were finalized with the Co-Chairs, pre-reading materials were circulated in advance, and members were asked to declare COIs related to agenda items that could reasonably be seen to influence, or be influenced by, participation in the Panel. Examples of declared COIs included paid employment, grants, funding to attend conferences, and participation in clinical trials, which were discussed with the Co-Chairs and reviewed under ACE's governance processes to ensure appropriate mitigation.

Meetings typically included updates on CEE-led initiatives and discussions co-facilitated by the Co-Chairs and CEE team. Although input into individual HTA evaluations was outside the Panel's remit, the meetings provided a valuable platform for members to improve their understanding of HTA processes and ACE's work. Members participated constructively and consistently demonstrated strong partnership synergy, achieving consensus on key discussions despite representing a wide range of experiences. Following each meeting, minutes were circulated via email.

To ensure that Panel members remained connected between meetings, the CEE team developed *CEE Updates* – a periodic resource highlighting ACE's recent patient involvement activities and published educational materials (17). Members were also invited to provide written input into projects from other ACE workstreams or participate in HTA training opportunities (18;19). To acknowledge the Panel's contributions, ACE hosted an appreciation dinner after the final meeting of the term, offering members and ACE staff a chance to connect and strengthen their partnership.

Impact of the Consumer Panel

When the Panel was first established, involving patients in HTA was new in Singapore and there were no existing processes in place. The Panel worked closely with the CEE team to build partnerships with local patient organizations and co-create processes that would support meaningful patient involvement in ACE's work. By adapting international best practices to Singapore's unique healthcare context and considering cultural values, local healthcare priorities, and diverse patient experiences, they developed processes that were relevant, practical, and met patients' needs. This collaborative effort

led to the development of ACE's *Process and Methods Guide for Patient Involvement* (1), along with supporting factsheets and a patient glossary (19).

Throughout the Panel's first term (April 2022 to March 2024), the CEE team documented their contributions by recording meeting attendance, active involvement in co-development processes, and key inputs across ACE's work. Members championed patient-centered approaches, advised on priority setting, and played an integral role

in developing plain language materials designed to improve health literacy (Table 1).

Panel members' perspectives

At the end of the Panel's first term, a Likert-scale survey with open-ended questions (see [Supplementary Material](#)) was conducted to evaluate members' satisfaction with their engagement with ACE,

Table 1. Contributions and impact made by the ACE Consumer Panel during their first term

Panel's contributions	Impact on ACE's work
Co-developed ACE's <i>Process and Methods Guide for Patient Involvement</i> , supporting factsheets and patient glossary and ensured that the content of all documents was patient-centric and relevant to Singapore's context.	Established formal processes for patient involvement in HTA in Singapore (first published in January 2023). These resources are regularly updated based on patient feedback to remain responsive and relevant to patients, caregivers, and the public.
Participated as panelists at a targeted briefing session on ACE's new patient involvement processes in February 2023 and provided first-hand perspectives of being involved in ACE's patient involvement opportunities. The session was attended by 156 representatives from patient organizations, industry, and academia.	Improved the public's understanding of ACE's patient involvement processes and facilitated valuable networking opportunities between patient organizations and ACE staff, fostering collaborative partnerships and a shared purpose.
Provided input on the CEE team's workplan priorities to address gaps and better meet patients' information needs.	The strategic input provided by the Panel ensured that ACE's work meets the needs of patients, caregivers, and the public. This led to several new initiatives being implemented by ACE in 2023: <ul style="list-style-type: none"> • Expanded the scope of patient input beyond pharmaceuticals to include evaluations of gene therapies and wearable or self-operated medical devices. • Co-developed patient education aids with patient organizations and clinicians to support the adoption of ACE Clinical Guidelines and provide patients with clear, accessible information on different health conditions, treatment options, medical tests, and self-management tips. • Delivered interactive HTA training workshops for patients to build understanding and encourage more meaningful contributions to ACE's HTAs. • Implemented the first annual call for topics, inviting patients and caregivers to contribute to the topic prioritization process and suggest health technologies for ACE to evaluate for funding consideration.
Attended and provided feedback on ACE's interactive HTA training workshops for patients.	Recommended topics to address the specific learning needs of local patients and caregivers interested in HTA, and advised on the format of future workshops to enhance accessibility and improve patient participation in ACE's work. Their input directly informed the co-development of a series of short, self-paced HTA learning modules for patients and the public, with the first module published in April 2024 (18).
Regularly advised on the design and dissemination strategies of ACE's educational resources, highlighting the need to accommodate varying levels of health literacy among patients.	Ensured that ACE's infographics and educational resources for patients are accessible, useful, easy to understand and visually appealing to readers (19).
Provided cultural insights and recommendations for ACE's patient involvement processes, including identifying language barriers, highlighting cultural nuances, and suggesting ways to improve accessibility of information for diverse ethnic communities in Singapore.	Encouraged the development of a Chinese-language patient survey to capture lived experiences in Chinese and broaden the diversity of patient input informing ACE's technical evaluations.
Suggested approaches to evaluate and optimize the reach of ACE's educational resources.	Encouraged the CEE team to monitor viewing and download metrics for data-driven insights on the usage and impact of ACE's educational resources, and to leverage social media and HealthHub – a widely used digital platform and mobile application for patients and caregivers to access healthcare information, services and personal health records in Singapore – to broaden outreach.
Shared patient educational resources with their members, facilitated connections between ACE and other patient and voluntary organizations, and invited ACE to participate in their events.	Expanded the reach of ACE's resources, encouraged broader patient involvement in ACE's work, and enhanced the CEE team's visibility and credibility. This facilitated meaningful engagement with patients and helped the CEE team maintain an up-to-date, comprehensive database of patient organizations, including new groups, ensuring ACE stays connected to the evolving patient advocacy landscape.
Frequently contributed testimonials for ACE's social media posts and newsletters, and shared ACE's social media posts with patient communities.	Raised public awareness of ACE and the value of patient involvement in HTA and encouraged the use of clinically effective and cost-effective health technologies. This also helped to build trust and credibility for ACE's work among patients and caregivers in Singapore.

ACE: Agency for Care Effectiveness; CEE: Consumer Engagement and Education; HTA: health technology assessment.

identify areas for improvement, and gather feedback on their role within the Panel. The survey, developed with reference to the Public and Patient Engagement Evaluation Tool (PPEET; (20;21)), consisted of seventeen statements to assess members' agreement levels and open-ended prompts to capture the reasoning behind their responses. Three questions were also included at the end of the survey to allow members to provide more detailed qualitative feedback on their experiences and aspirations.

Eleven of the fifteen members completed the survey (73.3 percent response rate). All respondents agreed or strongly agreed that they understood the Panel's purpose and their role. Additionally, all members reported that participating in the Panel enhanced their understanding of ACE, HTA, and the importance of patient involvement in healthcare decision making (Box 2).

All members found the meeting frequency and support provided by ACE was appropriate, particularly valuing the pre-reading materials and hybrid meeting format. While nine members agreed or strongly agreed that the Panel reflected a diverse range of patient groups and perspectives, two members suggested expanding representation, reflecting a shared value of inclusiveness in the engagement process.

Ten members agreed that the meetings addressed a wide range of important topics and that they could share their views openly. This openness fostered trust, with most members expressing confidence that ACE considered their input when shaping processes and policies. They also felt that ACE's patient involvement initiatives met their expectations and helped raise public awareness of HTA and ACE's work.

Survey responses highlighted two key areas for improvement. First, a clearer feedback loop was suggested to understand how patient input influences ACE's work. Second, some members expressed interest in extending their involvement beyond the Panel's scope to influence decision making in other divisions of MOH. When asked about their aspirations for the Panel, some members hoped it would continue to be a catalyst for meaningful patient engagement and inspire similar initiatives in other organizations (Box 3).

All members felt that participating on the Panel was a good use of their time. They valued the collaborative environment, opportunities to contribute to ACE's objectives, and the personal growth it enabled. Several members reported enhanced effectiveness in their roles within their patient organizations, citing a deeper understanding of HTA and improved advocacy skills. Member K praised the Panel's authenticity: *"Inclusion and diversity. No engagement was tokenistic. Probably the most impactful committee I'm on."*

Box 2. Sample responses from members about benefits of being on the Panel.

"The many discussions allow me to value the depth of ACE's work. Please continue with the regular meetings and discussions." (Member C)

"It has been very eye opening for me and the sharing by the other members has also led me to think more thoroughly regarding patient issues." (Member H)

Box 3. Sample responses from members about their aspirations for the Panel.

"More organizations can learn of the good work of ACE and even have their own CEE team." (Member F)

"Continue to act as a catalyst for patient engagement, enabling them [patients] to contribute meaningfully to ACE's work. This collaborative approach will lead to a deeper understanding of health technologies and their impact, ultimately resulting in better informed patients empowered to make the best decisions for their health." (Member J)

Moving forward with the Panel

The Panel's feedback reinforced that trust, open communication, capacity building, and flexible engagement approaches are crucial for sustaining relationships and fostering meaningful patient involvement at the organizational level (14;22). The partnership between ACE and the Panel has set a strong foundation for future progress in patient involvement, fostering a collaborative environment where they can work together effectively and adapt to evolving needs.

In April 2024, the Panel commenced its second term (ending in March 2026) with an expanded membership of eighteen, including eleven reappointed members and seven new representatives from additional patient organizations and marginalized communities, enhancing its inclusivity and representativeness.

Looking ahead, the Panel aims to foster a more impactful and collaborative approach to patient involvement in HTA. As healthcare systems adapt to technological advances, meaningful engagement will be essential for sustainable person-centered care. This will require ongoing investment in education, skills-building, and feedback mechanisms to cultivate trust and empower patients and caregivers to contribute effectively (Box 4).

The Panel's success has inspired similar patient involvement initiatives in other healthcare disciplines in Singapore, such as clinical research (23), reflecting a growing recognition of the value of structured patient engagement. As these efforts mature, evaluating their impact on health outcomes and developing best practices for Asia will be essential. With patient involvement still nascent across much of the region, Singapore is well-placed to lead the development of culturally relevant and effective models.

Conclusion

The ACE Consumer Panel is the first long-standing engagement of patients by MOH to shape healthcare decision making. Its contributions have meaningfully informed ACE's work and serve as a model for patient involvement at the organizational level. The Panel's early experiences offer valuable insights to guide future patient engagement approaches that can more effectively inform healthcare policy and practice in Singapore. ACE will continue to evaluate the Panel's impact, ensuring that it remains a trusted platform for the collective patient voice to guide future patient involvement strategies. Through ongoing collaboration and reflection, ACE and the Panel are well-positioned to advance patient-centered HTA processes in Singapore and the wider region.

Box 4. Consumer Panel Co-Chairs' future aspirations for patient involvement.

"ACE has been at the forefront of championing patient involvement in HTA... Looking ahead, the vision for patient involvement in Singapore is one of increased inclusivity and impact. By creating more accessible platforms for participation, we can build a healthcare ecosystem where every patient feels heard and valued. This collaborative approach is key to driving sustainable and equitable healthcare advancements." (Adjunct Professor Lau Tang Ching, Co-Chair, ACE Consumer Panel)

"Patient narratives humanize data, offer a localized perspective, and also inspire others within the community to speak up, fostering a more engaged, inclusive, and transparent healthcare system. I envision that equitable health access in the future will require patient engagement to be a cornerstone of all processes but particularly in HTA. This will require building strong partnerships with patient advocacy groups, ensuring consistent feedback mechanisms, and nurturing a culture of trust and collaboration." (Dr Ritu Jain, Co-Chair, ACE Consumer Panel)

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