

ACCELERATING EVIDENCE GENERATION IN APAC: A SEQUENCED MIXED-METHODS BEHAVIORAL EVIDENCE FRAMEWORK USING SMART STUDY DESIGNS

Why Smart Sequencing Outperforms an RWE-First Approach - Demonstrated on Multi-Country Antibiotic Use in Odontogenic Infections

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Background

Launch and lifecycle decisions in APAC must be taken against heterogeneous data maturity and fragmented claims and EMR infrastructure, where traditional real-world evidence alone typically needs **12-24 months** from protocol to interpretable output - longer than the decision windows it is meant to serve [1-3].

Timing is not the only constraint. Even mature claims and EMR data capture the prescription, not the reasoning behind it. Prescribing is driven by clinical heuristics, diagnostic uncertainty and perceived patient expectation, leaving the decision-relevant signal in an intention-behaviour gap that secondary data and self-report cannot reveal alone [7,8]. Capturing it calls for methods that observe behaviour directly: vignettes, which track real behaviour closely (**r up to 0.90**) [9], and the RAND/UCLA method, which quantifies expert judgement as appropriateness criteria [10,11].

ODI antibiotic use is where those methods earn their place. Among the most common reasons for urgent dental care, ODIs are routinely treated with empiric broad-spectrum antibiotics, started without microbiological confirmation and continued in place of definitive source control [5,6] - in a region where bacterial AMR was linked to an estimated **0.39-1.41 million deaths** in 2019 [4]. It takes a different shape in each market - out-of-pocket private dentistry through universal coverage, uneven diagnostic microbiology, differing data maturity - yet **Indonesia, Malaysia and Thailand** alike carry a high ODI burden and an active national AMR action plan [1-4].

Study objectives

- Primary.** To demonstrate a sequenced mixed-methods behavioural framework - literature review and social listening, a KAP survey with embedded vignettes, patient voice-of-customer interviews and a RAND/UCLA panel - delivering decision-relevant evidence in APAC in about six months.
- Characterise clinician knowledge, attitudes and practice in ODI antibiotic use across Indonesia, Malaysia and Thailand.
 - Quantify elicited decisions using standardised vignettes and identify drivers of non-concordant choices.
 - Build expert consensus on appropriate ODI management and characterise the intention-behaviour gap.
 - Quantify time and cost efficiency versus an RWE-first approach [3].

Methods

- Phase 1 - Hypothesis generation.** Targeted literature review and structured social listening framed the behavioural hypotheses and the content of the survey, vignettes and statement set. This keeps fieldwork focused on the behaviours that actually drive prescribing [10,12].
- Phase 2 - Behavioural core.** A structured KAP survey with four embedded standardised vignettes, administered to the same clinician sample. Asking both in one instrument is what makes the gap between stated intention and elicited decisions measurable [8,9].
- Phase 3 - Patient perspective.** Semi-structured voice-of-customer interviews with patients and caregivers with recent ODI treatment experience across the three markets. This shows the demand-side pressure behind clinician deviation [7,13].
- Phase 4 - Consensus.** A regional panel rated 39 ODI statements over two rounds separated by moderated discussion, classifying each as appropriate, uncertain or inappropriate and recording the level of agreement. This sets the expert benchmark for judging observed behaviour [10,11].

Phases 1-3 ran largely in parallel and fed directly into the Phase 4 panel, which is what compresses total delivery to **about six months**.

Figure 1. Sequenced four-phase evidence framework

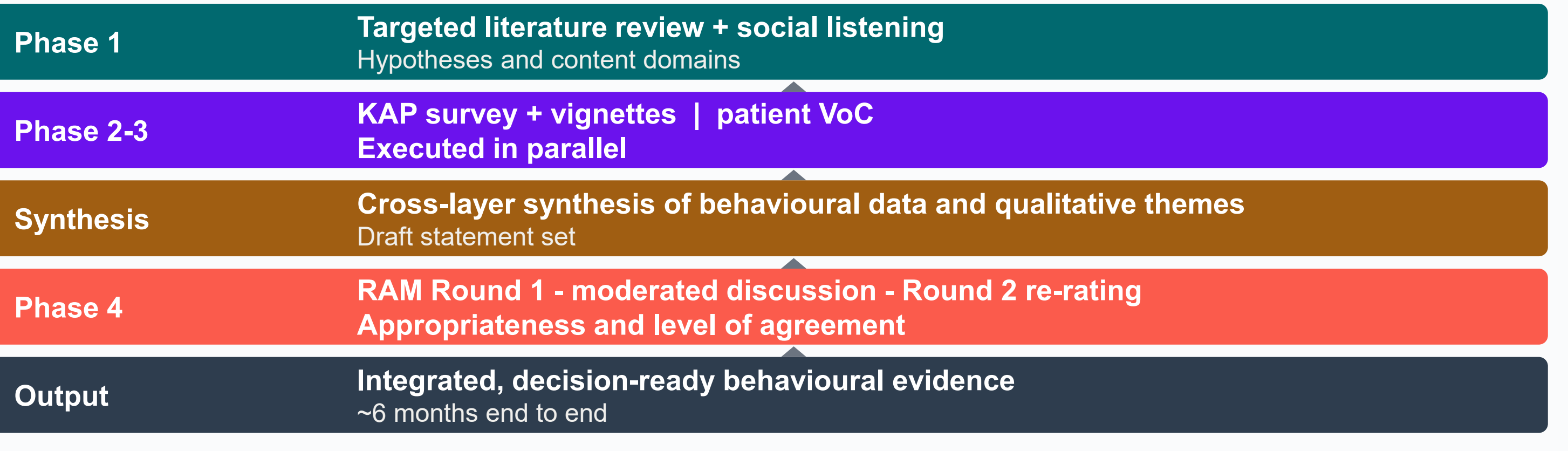


Table 1. Study population and expert panel

Evidence stream	Sample	Detail
Clinician KAP survey with vignettes	132	Indonesia 48, Malaysia 42, Thailand 42
Patient and caregiver interviews	24	Recent ODI treatment experience
RAM expert panel	15	5 per country; 39 statements rated

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Abbreviations

AMR, antimicrobial resistance; APAC, Asia-Pacific; EMR, electronic medical record; HEOR, health economics and outcomes research; HTA, health technology assessment; KAP, knowledge-attitude-practice; ODI, odontogenic infection; RAM, RAND/UCLA Appropriateness Method; RWE, real-world evidence; TLR, targeted literature review; USD, United States dollar; V1-V4, vignettes 1-4; VoC, voice of customer.

Results

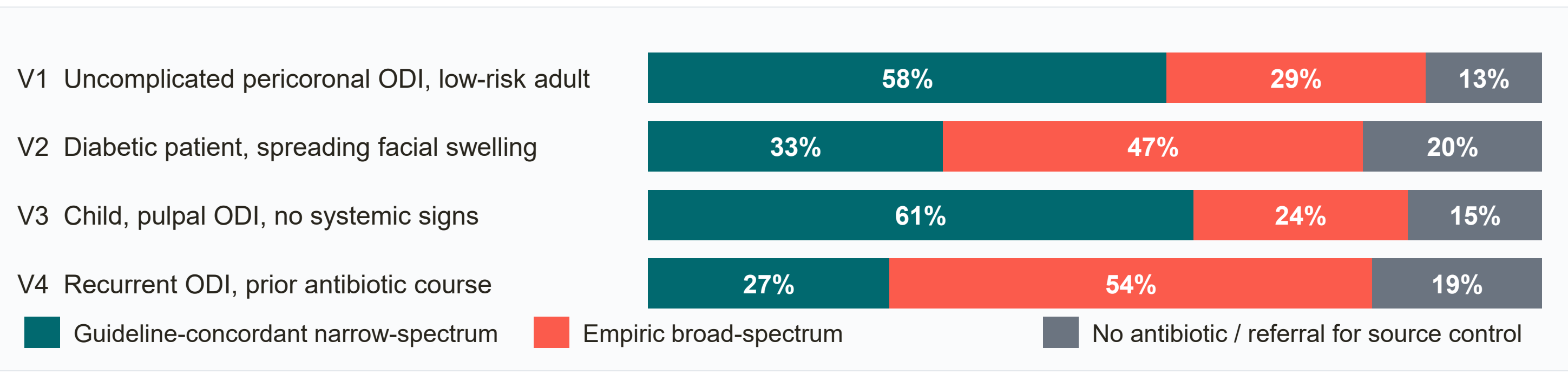
Informed by the Phase 1 TLR and social listening, a KAP questionnaire was developed and administered to **132 clinicians** across the three markets. Stewardship support was near-universal (**82%**), yet only **58%** identified a narrow-spectrum first-line agent and **41%** source control.

Table 2. Phase 2 – KAP survey- what clinicians say they do (n=132)

Knowledge or attitude item	Indonesia	Malaysia	Thailand	Pooled
Agrees stewardship is important to own practice	81%	85%	79%	82%
Correctly identifies narrow-spectrum first-line agent	54%	64%	57%	58%
Correctly identifies source control as primary step	38%	48%	38%	41%
Routinely awaits microbiological confirmation	31%	38%	33%	34%
Prescribes antibiotics for pain alone	35%	24%	31%	30%

These stated positions were then tested against standardised case decisions, since endorsement in principle need not carry into prescribing.

Figure 2. Phase 2 - what the same clinicians decide on standardised cases (n=132)



Statement-level comparison of KAP responses with the corresponding vignette decisions (Figure 3A) shows endorsement falling away at the decision point (**82% vs 58% in V1; 34% vs 27% in V4**), widening as case risk rises.

Figure 3A. Stated vs elicited, by statement

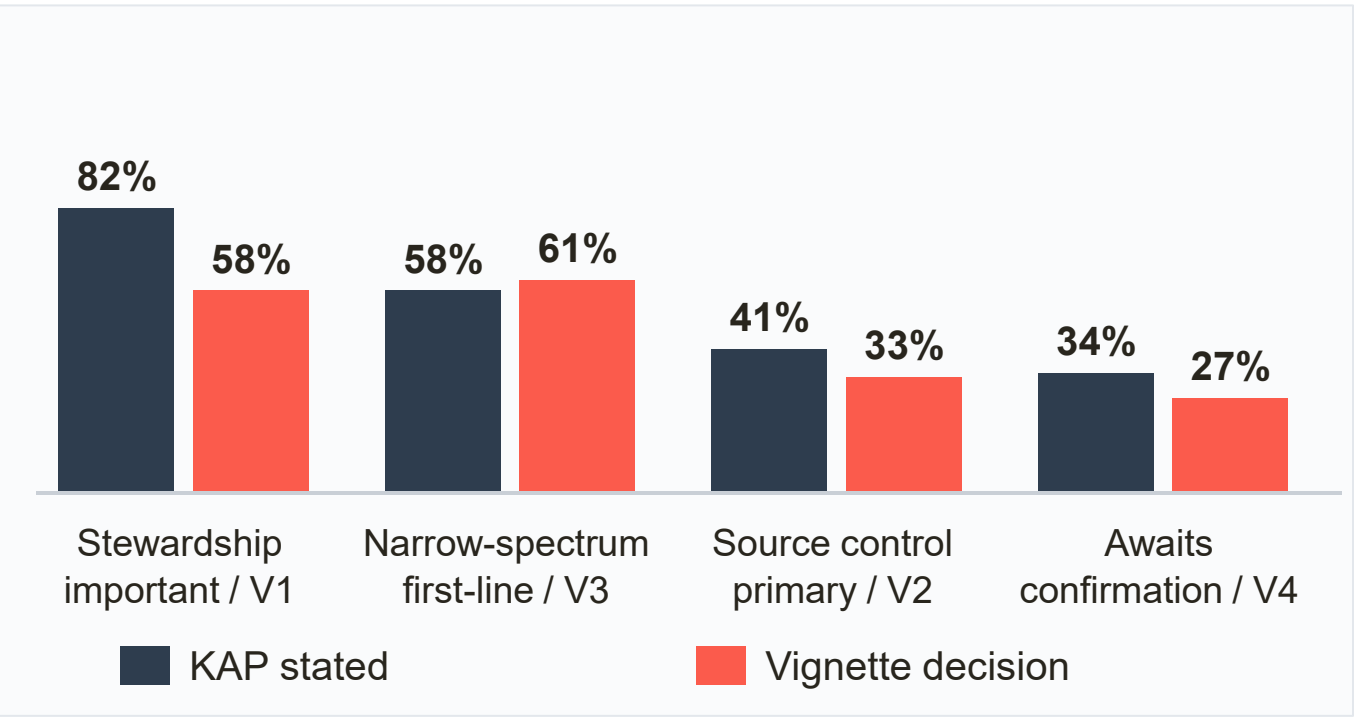
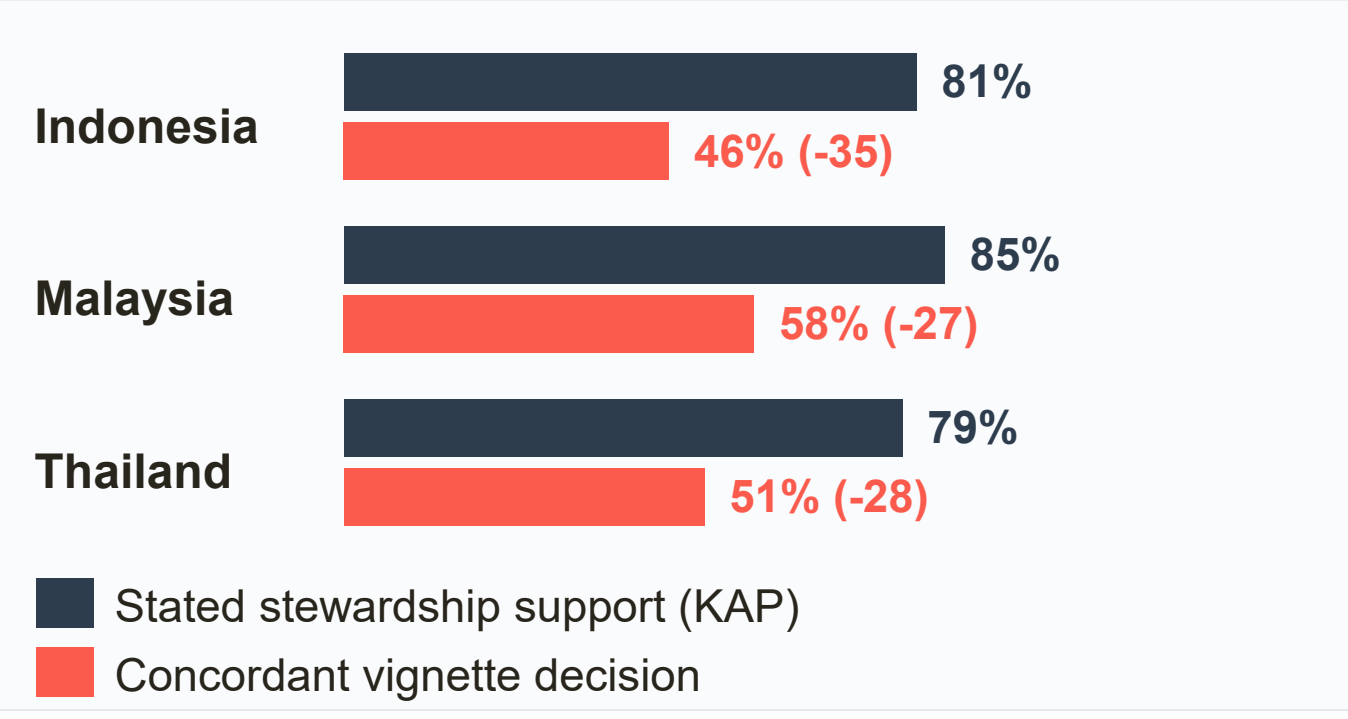


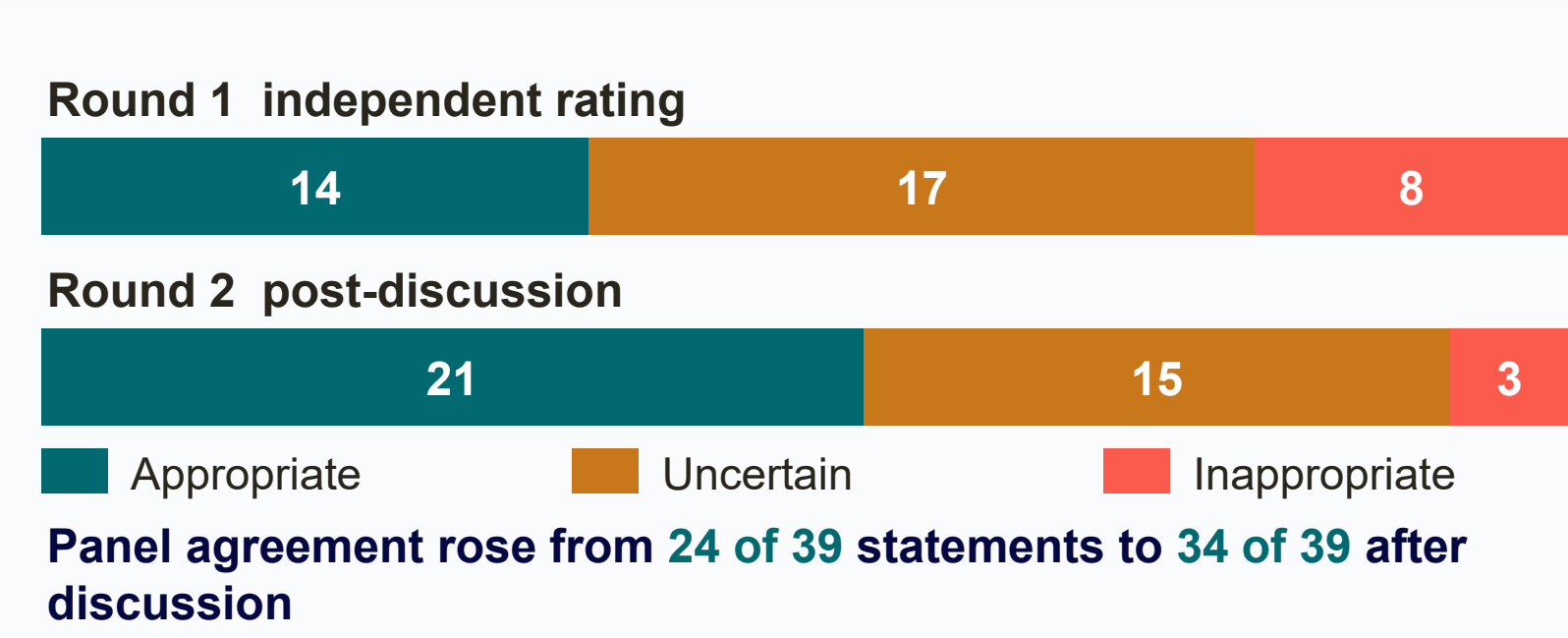
Figure 3B. Stated versus elicited, by country



Phase 3 - Patient perspective

A prescription was equated with being taken seriously, and relief was expected before the **48-72 hour** drainage window. This pressure for visible action is the same force that pulled stated stewardship support (**82%**) down to **58%** at the decision point in Phase 2.

Figure 4. Phase 4 - panel ratings by round



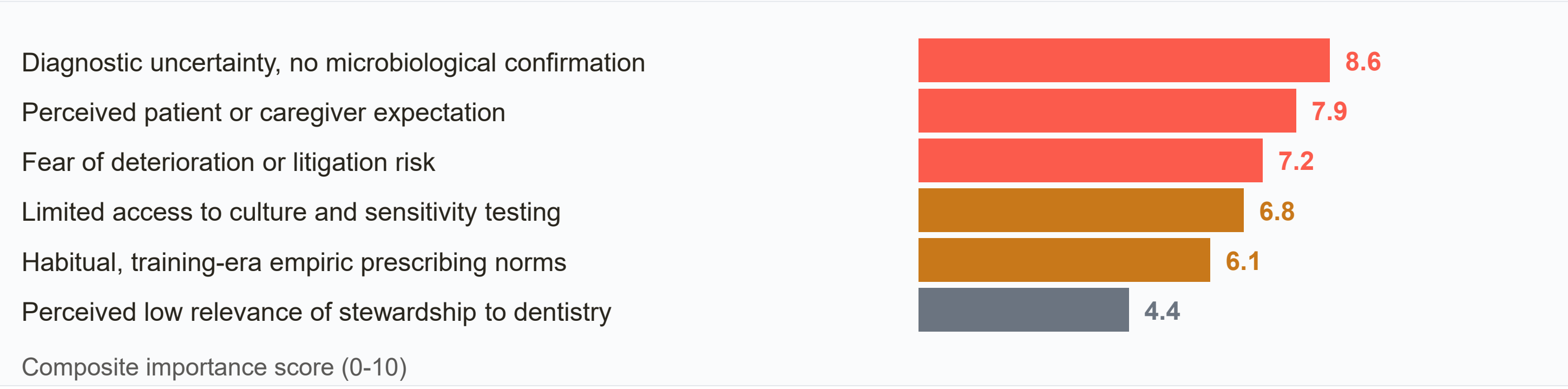
Phases 1-3 show where practice drifts; phase 4 sets the standard for judging it. Rating 39 statements twice, the panel moved appropriate from 14 to 21 and inappropriate from 8 to 3, agreement rising from 62% to 87% - a defensible benchmark for the Phase 2 statements.

Table 3. Phase 4 - selected panel statements after Round 2

ODI clinical statement	Median	Classification	Panel agreement
Narrow-spectrum penicillin, uncomplicated localised ODI	8	Appropriate	Agreement
Source control alone, no systemic signs	8	Appropriate	Agreement
Broad-spectrum agent first-line, uncomplicated ODI	3	Inappropriate	Agreement
Empiric therapy without confirmation, recurrent ODI	5	Uncertain	Disagreement

Consensus was firm where the literature is firm; disagreement persists for recurrent cases treated without confirmation - genuine uncertainty, so drivers were ranked next.

Figure 5. Why deviation happens - ranked drivers



The top three drivers are situational - diagnostic uncertainty, patient expectation, fear of deterioration (**8.6, 7.9, 7.2**) - so more guidance alone would not close the gap.

Conclusions

- Four sequenced phases - social listening, a paired KAP-vignette survey, patient interviews and a RAND/UCLA panel - delivered decision-ready evidence in **about six months**.
- Stated stewardship support (**82%**) coexisted with concordant decisions of **33% and 27%** in higher-risk vignettes, a **27-35 point gap** visible only because both were measured.
- The panel benchmark separated settled inappropriate practice from genuine uncertainty, with agreement rising from **62% to 87%** of **39 statements**.
- Because leading drivers are situational, diagnostic access and decision support should precede further guideline dissemination; the design saves **about a year and USD 0.5m**.

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