Updated International Patient Decision Aid Standards (IPDAS version 5.0): modified Delphi, evidence informed consensus process

Robert J Volk,[1] Krystina B Lewis,[2] Maureen Smith,[3] Meg Carley,[4] Michael J Barry,[5] Hilary L Bekker,[6] Martin Härter,[7] Tammy Hoffmann,[8] Kirsten McCaffery,[9] Michael Pignone,[10] Karina Dahl Steffensen,[11,12] Karen Sepucha,[13] Rachel Thompson,[14] Lyndal Trevena,[15] Trudy van der Weijden,[16] Holly O Witteman,[17] Dawn Stacey[2,18]

For numbered affiliations see end of the article

Correspondence to: R J Volk bvolk@mdanderson.org; (ORCID 0000-0001-8811-5854)

Additional material is published online only. To view please visit the journal online.

Cite this as: *BMJ* 2026;393:e088116 http://dx.doi.org/10.1136/bmj-2025-088116

Accepted: 10 April 2026

Patient decision aids (PDAs) are evidence informed tools designed to support patients in the process of making decisions about their health. The International Patient Decision Aid Standards (IPDAS) Collaboration last updated the standards in 2013 and the evidence about patient decision aids has expanded substantially. In this article, we report on an update to IPDAS that used a modified Delphi process with two rounds of voting to reach consensus on evidence informed changes to the criteria. The 202 participants were from 26 countries, and included patients/consumers, policy makers, researchers, and clinician researchers. IPDAS 5.0 includes seven qualifying criteria (necessary to be a patient decision aid), 10 essential criteria (necessary to reduce biased decisions), and 54 enhancing criteria (additional criteria that might improve the quality of a patient decision aid). The updated standards reflect the IPDAS Collaboration's founding goal of providing high quality patient decision aids for patients that minimise potential biases in the decisions made about potential healthcare options.

SUMMARY POINTS

- Patient decision aids are evidence informed tools for supporting patients in making decisions about their health
- Poorly designed patient decision aids can lead to biased decisions that do not align with the patients' values and preferences
- The International Patient Decision Aid Standards (IPDAS) provide guidance on the development, content, evaluation, and implementation of patient decision aids
- This update to the standards involved a modified Delphi process with 202 participants from 26 countries, and included patients/consumers, policy makers, researchers, and clinician researchers
- IPDAS version 5.0 has updates to the qualifying, essential, and enhancing criteria that reflect the evolving evidence about patient decision aids
- The updated standards provide developers and users of patient decision aids with clear, feasible guidance on assessing their quality

The International Patient Decision Aid Standards (IPDAS) Collaboration is an international, voluntary group of over 100 researchers, clinicians, and other interested parties with a shared interest in improving the quality and effectiveness of patient decision aids (PDAs) through an evidence informed framework to guide their development, content, evaluation, implementation, and reporting.[1] The IPDAS Collaboration was founded in 2003 to ensure that PDAs were of high quality and minimised the potential to bias patients towards choosing healthcare options (fig 1).[2] PDAs are tools designed to prepare patients to make decisions or for patients and their clinicians to use together in the consultation.[3] They are informed by evidence from decision science about factors that can enhance or bias people's decision making when making difficult decisions.[4] At a minimum, PDAs describe the health condition, explicitly state the decision faced by the patient, provide information about the options, including benefits and harms of all options, and help patients clarify what is important to them in making a choice.

The IPDAS Collaboration released the original IPDAS checklist in 2006 following an extensive review of the evidence about PDAs and consensus voting process.[5] This first version of the standards included 74 criteria from 12 broad domains. Recognising that the original IPDAS checklist was overly long, a minimum set of standards were proposed (IPDAS 4.0) that separated the criteria into three categories: defining, certifying (minimising biased decisions), and quality criteria in 2013.[6] The IPDAS Collaboration updated the evidence base for the original 12 broad domains in 2021 into 11 domains (balanced presentation and information on options were merged).[7-19] The internet delivery domain was subsumed under a broader domain focusing on implementation of PDAs (supplement table 1A provides a description of the domains). The most recent Cochrane systematic review (with trials

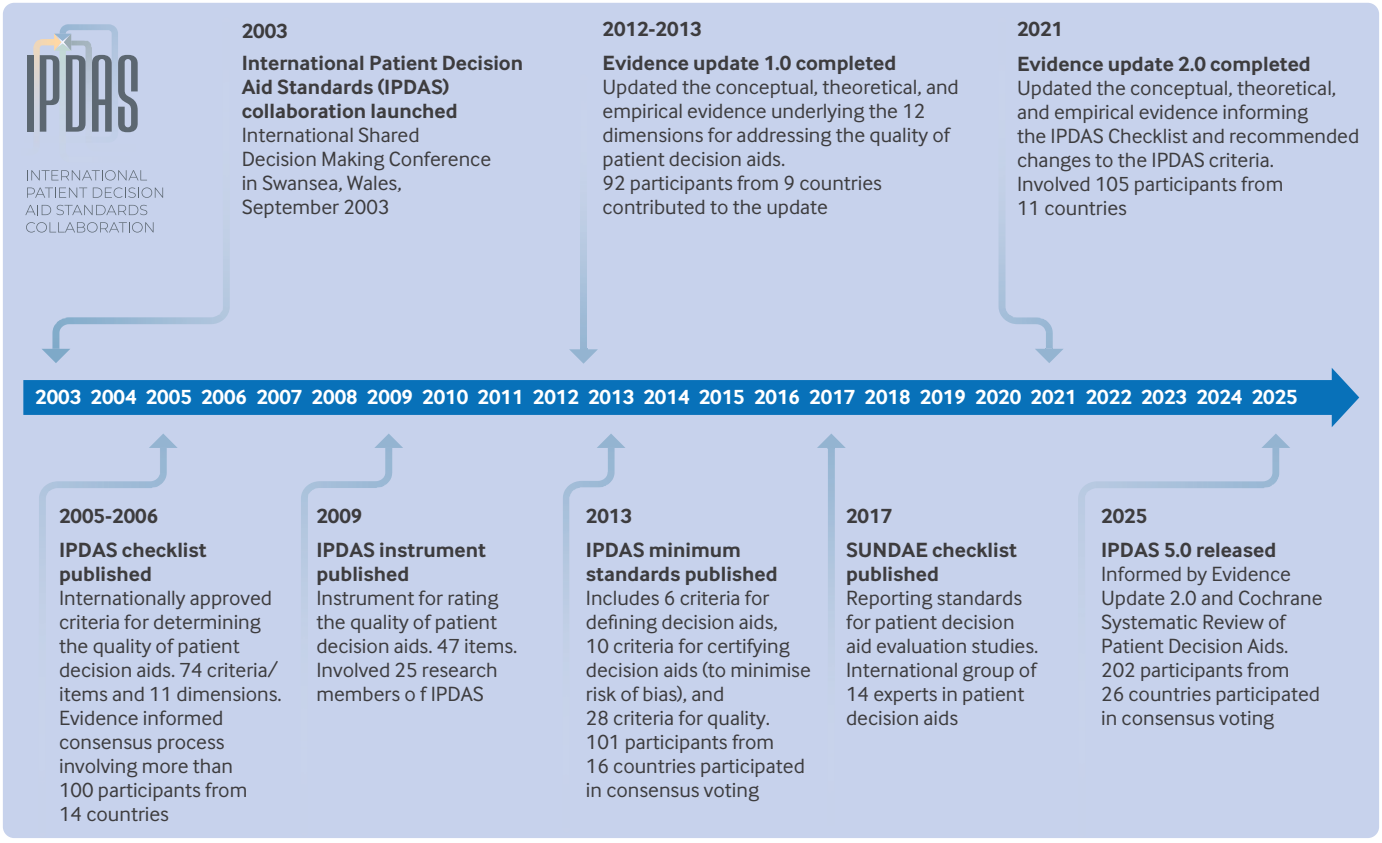

Fig 1 | International Patient Decision Aid Standards (IPDAS) Collaboration timeline of activities and products

published up to March 2022) included 209 randomised trials comparing PDAs to usual care.[3] The review found high certainty evidence that PDAs improve patients' knowledge and accuracy of risk perceptions, and reduce decisional conflict and the proportion of patients who defer decision making authority to their clinicians. There was moderate certainty evidence that PDAs increase congruence between informed values and the choices patients make about their care. An exploratory network meta-analysis found that specific attributes of PDAs (eg, probabilities of outcomes, co-development with patients) were associated with greater knowledge gains among users.[20]

With stronger evidence emerging about the impact of PDAs on patient outcomes and clearer guidance on how best to design and evaluate them, the IPDAS steering committee initiated this study to reach consensus on updated, evidence informed changes to the standards. More specifically, we sought to determine agreement from key groups of knowledge users about new important criteria, revisions to current criteria, removal of outdated criteria, and to assess the potential for any new or revised criteria to minimise biased decisions. A modified Delphi approach was used to engage a broad, international group of knowledge users in an equitable and accessible manner, ensuring that all participants could contribute meaningfully regardless of geographical location.

Methods

Updating the standards followed an iterative process combining evidence reviews with voting by key knowledge users and experts to finalise the changes to IPDAS (fig 2). We defined knowledge users as people who can apply research evidence to develop or evaluate PDAs, people who can integrate PDAs into health policies, or users of PDAs to support making informed decisions about the healthcare options. The modified Delphi process used online voting by knowledge users about the importances of new or changed criteria and voting on the potential for harmful bias in making decisions if a criterion was not present or of poor quality. (See supplement file 1B for additional information about the voting process.) This report was prepared following the Accurate Consensus Reporting Document (ACCORD) guideline.[21] The study protocol was approved by the IPDAS Steering Committee, and not publicly registered.

Ethics approval

The Ottawa Health Science Network's research ethics board (20220107-01H) and the University of Ottawa's research ethics board (H-03-22-7991) approved the study. All participants received the consent form at the beginning of the survey and completing the survey indicated implied consent to participate.

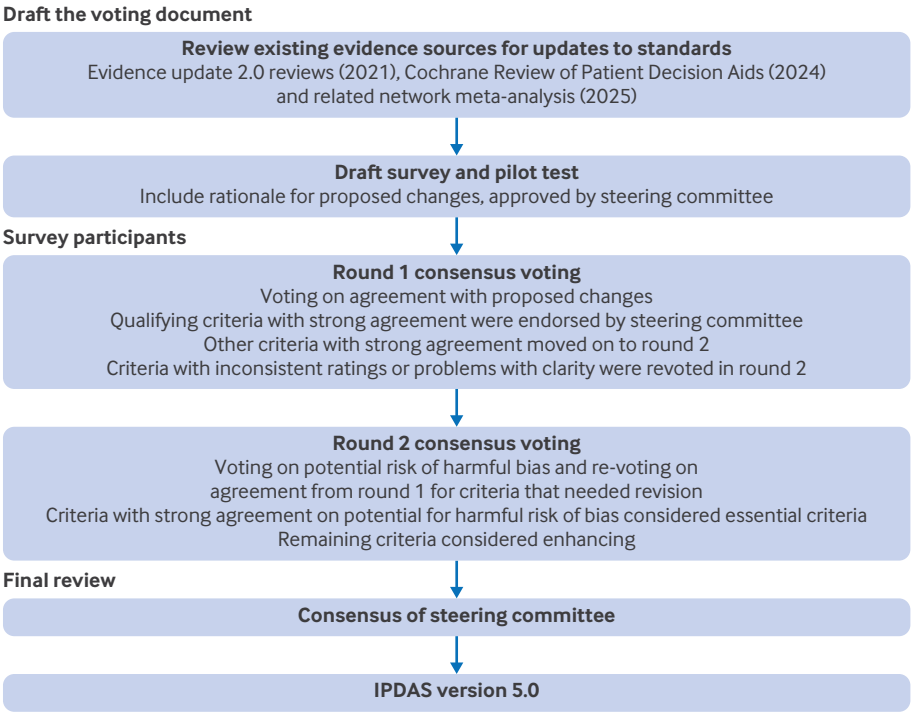

Fig 2 | Diagram of consensus process used to develop International Patient Decision Aid Standards (IPDAS) version 5.0

Research team, including patient and public involvement

Our executive team included the co-chairs of the IPDAS steering committee (DS, RJV), a patient partner who participated on the 2024 update of the Cochrane Review of Patient Decision Aids (MS), a clinician researcher who develops and evaluates PDAs (KBL), and the research coordinator (MC). We collaborated with the IPDAS steering committee that includes representatives from each of the domains represented in the 2021 evidence updates. The patient partner helped prepare the research proposal submitted for funding, attended the executive team meetings every two weeks to discuss study progress and make decisions, made plain language adaptation to the surveys. helped develop the policy brief summarising the findings for policy makers,[22] and provided feedback on drafts of this manuscript.

Preparation of the proposed updated standards for consensus voting

The executive team proposed revising the three broad categories of the IPDAS Quality Framework used previously in IPDAS 4.0.[6] The new terms in the framework approved by the IPDAS steering committee, are:

- qualifying criteria (previously defining) are mandatory and must be met for a decision support intervention to be considered a PDA;
- essential criteria (previously certifying) must be met to reduce harmful bias in making the decision because they demonstrate a strong evidence based linkage to the potential harmful bias if not met; and
- enhancing criteria (previously quality) that may improve the quality of PDAs but are not required and could be of potential value if developers wanted to incorporate them in their PDAs.

The executive team identified potential changes to the standards (IPDAS version 4.0) informed by rigorously synthesised findings from the Evidence Update 2.0 papers published in 2021,[2] the 2024 updated Cochrane Review of PDAs,[3] and related network meta-analysis.[20] We identified criteria that could be revised, proposed new criteria, and noted criteria that could be removed. For each criterion, the evidence was summarised from these sources, and rationale for any changes was abstracted and presented to the participants in the survey. Voters could provide open-ended comments on each criterion. They could not propose new items. In instances where the criteria remained unchanged or only minor wording revisions were suggested, the changes were accepted without requiring a vote. Pilot testing of the voting documents was conducted by the executive committee and changes were made to improve flow of the surveys. The voting documents can be found in supplement file 2A.

Participants and setting

Eligible voters represented four groups of knowledge users:

- clinician researchers (eg, identified solely as clinicians/healthcare professionals or clinicians who also identified as researchers);
- researchers of PDAs and shared decision making who did not identify as clinicians/healthcare professionals (eg, health services researchers,

decision scientists, health communication researchers);
- policy makers (eg, within government health agencies, ministries of health, healthcare institutions); and
- patients/consumers.

We excluded people who reported no previous experience with PDAs (eg, never used a PDA, or never developed nor evaluated PDAs) using a screening question in the electronic survey. Recruitment was conducted through the IPDAS Collaboration membership, special interest groups in the Society for Medical Decision Making (SMDM) and International Shared Decision Making Society (ISDMS), the Cochrane Consumer Network, social media (eg, the Shared Decision Making Network on Facebook), and by word of mouth. Participants were allowed to suggest other members. Interested participants reached out to the research coordinator for access to the survey link.

In round 1, the first survey invitation was sent on 16 February 2024, and the last survey was completed on 2 April 2024. Invitations for round 2 were sent on 16 May 2024, and the last survey was completed on 21 June 2024. In both rounds, participants received up to three reminders one week apart.

Round 1 consensus voting

The purpose of round 1 was to vote on proposed changes to criteria, vote on newly proposed criteria, or vote on criteria to remove. In round 1, voters who indicated an interest in participating received a link to an anonymous online REDCap survey,[23 24] hosted at the Ottawa Hospital Research Institute, which they could complete individually. Participants were asked to provide demographic characteristics based on the PROGRESS framework.[25] Participants were also asked about their experience with PDA development, evaluation, use, and if they stood to gain or lose financially with any of the changes to the IPDAS criteria.

Voters were first presented with the qualifying criteria as a whole and invited to vote on three changes. Voters responded to the question "How much do you agree or disagree with the following change to the criterion required for the tool to be considered a PDA?" Responses used a 5 point Likert scale (strongly agree, agree, neutral, disagree, strongly disagree). Response options of "I don't know" and "I choose not to answer" were also offered and voters could leave comments on each criterion. For essential and enhancing criteria, voters were presented with individual criteria grouped by domain and asked to indicate their agreement with the change using the same Likert scale. Up to three reminders were sent to those individuals who did not initiate or complete the survey.[26]

Round 1 analysis of voting results

Criteria where at least 66% of the voters in each user group indicated "strongly agree" or "agree" were considered as high importance and moved on to round 2. The 66% agreement threshold is within the range of consensus thresholds used in Delphi studies.[27] Participants with partial responses were retained in the analysis. Criteria that failed to meet the 66% threshold in all four user groups were dropped and not considered in round 2. When the importance ratings were inconsistent across user groups or more than 5% of voters responded "I don't know," the team reviewed the written comments to prepare the criterion for revoting in round 2. If the comments were about problems with clarity of the criterion or its rationale, domain leads (with their teams) were asked to make revisions for revoting in round 2.

Round 2 consensus voting

The same voters from round 1 were invited to round 2. The main purpose of round 2 voting was to assess the potential risk of harmful bias in the decisions made by patients if the criterion was not present or of poor quality (essential criteria). Response options used a 5 point scale, ranging from 1 (minimal risk of harmful bias) to 5 (definite risk of harmful bias). Response options "I don't know" and "I choose not to answer" were included (supplement 2A). Responses of 4 or 5 were considered to indicate high risk of bias.

Round 2 also included re-voting on the importance of criteria changes that did not reach consensus from round 1 (ie, high uncertainty) or where there were problems with clarity of the rationale or wording of the criterion. In this case, voters first reconsidered the importance of the criterion using the same scale as round 1 and then voted on its potential for harmful bias.

Round 2 analysis of voting results

Criteria where at least 66% of voters in each user group indicated a high risk of bias were classified as essential criteria. Criteria that failed to meet the 66% threshold in each user group were classified as enhancing criteria. For criteria requiring a revote for importance, individual criteria were dropped if they scored <66% across user groups.

Final review by executive team and steering committee

The executive team reviewed voting results including open comments from round 2 and prepared summary tables for discussion with the IPDAS steering committee. Final decisions about new, revised, or removed criteria and about their classification (qualifying, essential, enhancing) were based on voters' scores meeting our a priori thresholds and/or consensus of the IPDAS steering committee after review and discussion of the voting results.

Results: IPDAS version 5.0

In total, voters considered the importance of nine revised criteria, 19 new criteria, and two criteria proposed for deletion. Box 1 lists the final IPDAS 5.0 qualifying and essential criteria. Enhancing criteria can be found in table 1. (See supplement tables 1C and 1D for IPDAS 5.0, with details about new, changed, and unchanged criteria.)

Box 1: IPDAS qualifying and essential criteria, version 5.0

Qualifying criteria to be defined as a patient decision aid (mandatory)

The patient decision aid:

1. Describes the health condition
2. Explicitly states the decision to be considered
3. Identifies the target audience
4. Lists options including if relevant, "wait and see" (eg, making no change)
5. Describes positive features of options (benefits)
6. Describes negative features of options (harms)
7. Asks patients to think about which positive and negative features of options matter most to them; or describes what it is like to experience the consequences of options (physical, psychological, social).

Essential criteria to reduce the risk of harmful bias (must have)

The patient decision aid:

1. Is based on best available evidence—that is, where possible, directly applies to the patients and clinicians using it
2. Describes how potential users were involved in steps of designing, developing, and/or refining a prototype
3. Shows negative/positive features of options in a balanced manner (eg, neutral, unbiased, non-directive, complete)
4. Reports where the funding came from to develop the PDA and it is clearly stated (eg, plain language, prominent)
5. Provides complete citations to evidence selected
6. Provides a production or publication date
7. Provides information about the proposed update policy (or available supporting document).

Additional criteria for screening decisions

The patient decision aid:

1. Describes what the test is supposed to measure
2. Describes consequences of a positive screening finding that would not have caused problems if screening had not been done
3. Describes possible next steps based on positive and negative test results.

IPDAS=International Patient Decision Aid Standards.

Characteristics of participants

Of 213 participants who responded to the invitation, 202 (95%) from 26 countries completed voting, including 12 patients/consumers, 14 policy makers, 89 researchers, and 87 clinician researchers (fig 3). Six participants did not respond to the round 1 invitation and were not invited to vote in round 2. In round 2, 173 participants voted (84% of the 207 invited to vote). Overall, the panel was predominantly female/women, held graduate degrees, ranged in age from 26 to 87 years, and none indicated a conflict of interest (table 2). Because participation was anonymous, we were not able to exclude voters in round 2 who had no experience with PDAs (n=2) or did not vote (n=3) in round 1.

Consensus on qualifying criteria

For the qualifying criteria, four criteria remained unchanged, two criteria were revised, and one new criterion was added (table 3). Strong consensus was reached about the importance of the three changes. Firstly, two previous criteria were merged to read "lists options and if relevant, wait and see." Secondly, two criteria about values clarification were merged: "The PDA asks patients to think about which positive and negative features of the options matter most to them (explicit values clarification) OR describes what it is like to experience the consequences of the options (physical, psychological, social) (implicit values clarification)." Thirdly, users agreed with the new criterion: "The PDA identifies the target audience." These three changes were endorsed by the steering committee for a total of seven qualifying criteria in IPDAS 5.0.

Consensus on essential and enhancing criteria by domain—new, revised, and removed

Detailed results of voting about importance and risk of bias for essential and enhancing criteria included in supplement table 1E. Table 4 lists summary findings of changes to essential criteria.

Presenting balanced information

There was consensus on the importance of one revised and one new criterion, with both added to the enhancing category

Essential: No changes.

Enhancing: Side-by-side presentation of harms and benefits was considered important but not feasible for all types of PDAs (eg, those used as apps on mobile devices). A new criterion about providing guidance on where and how to find additional information about the decision reached consensus about importance but was not seen as essential because the evidence would need to be assessed for quality.

Conflicts of interest

Five changes were proposed for this domain, including three revised and two new criteria. One revised criterion with voting scores that met the threshold for an essential criterion was downgraded to the enhancing criterion by majority steering committee consensus.

Essential: The steering committee chose to retain an original essential criterion about "disclosing funding sources for PDAs" once the changed version of this criterion was downgraded as an enhancing criterion. The steering committee also modified this essential criterion to emphasise that the disclosure be prominently and clearly stated in the PDA.

Enhancing: There was consensus on the importance of disclosing that "no authors" and "no authors' affiliations" should stand to gain or lose by patients' decisions, but there was concern that many PDAs would not meet these standards if the criterion were essential because there is often a surgeon on the committee when an option includes surgery. Most members of the steering committee reasoned that disclosure was sufficient because the teams that develop the PDAs often include clinicians.

Rejected: A new criterion about reporting "who to contact for information about funding for PDA development" did not reach consensus (rejected) and comments referred to overlap with the other reporting criteria.

Table 1 | IPDAS enhancing criteria, version 5.0

Domain	PDA criteria
Presenting balanced information	Makes it possible to compare benefits and harms for features of available options side by side
	Describes natural course of the health condition if no healthcare option is chosen
	Presents essential content with guidance on how and where patients can seek additional information to support decision making
	Additional criteria for screening PDAs:
	Describes the chances of disease being found with and without screening
	Provides information (including definition) about chances of true positive test result, true negative test result, false positive test result, and false negative test result
Disclosing conflicts of interest	Reports that the PDA was developed without using money from a source that stands to gain or lose by the choices patients make
	Reports that no authors stand to gain or lose by the choices patients make after using the PDA
	Reports that no authors' affiliations stand to gain or lose by the choices patients make after using the PDA
	Includes authors'/developers' credentials or qualifications
	Reports where the funding came from to copy and distribute the PDA and it is clearly stated (eg, prominent, written in plain language)
Guidance and decision coaching	Provides a step-by-step way to make a decision
	Includes tools such as worksheets or question list to use when discussing options with a health professional
Basing information on comprehensive, critically appraised and up-to-date synthesis of scientific evidence	Indicates which section of the PDA where each citation was used
	Reports the source of the personalised evidence, if risk estimates or risk management options are personalised to individual characteristics
	Describes how research evidence was searched for, appraised, selected, and synthesised (derived from systematic reviews or evidence based clinical practice guidelines, where possible)
	Describes the quality of the research evidence used (eg, using the GRADE approach)
Health literacy	Designed, formatted, and written at a level to be understood by its target audience including people with lower health literacy
	Uses strategies to reduce cognitive burden (eg, plain language; glossary of key terms; bullet points; simple navigation), by providing non-text ways to help patients understand information (eg, visual cues and illustrations, audio narration, video)
	Uses field testing to show that the PDA was understood by patients with lower health literacy
	Developed in accordance with health literacy guidelines, for example, by meeting recommended PEMAT thresholds (>70%) and a grade reading level of 8 or lower
	Reports how co-design was used in its development
Communicating probabilities	Presents information about outcomes of options (positive and negative) including the chances they (may) happen, if reliable estimates are available
	Presents probabilities using both positive and negative frames (eg, showing both survival and death rates)
	Presents probabilities using numbers rather than words in general. Care should be taken if numbers and words are combined
	Places the chances of what might happen in the context of other situations (eg, chances of developing other diseases, dying of other diseases, dying of any cause)
	Presents probabilities using event rates in a defined group of patients for a specified time
	Compares probabilities of options using common denominator formats (eg, probabilities or common denominator (frequencies))
	Uses the same scales in the diagrams comparing options
	Describes the uncertainty around the probabilities (eg, by giving a range or by using phrases such as "our best guess is")
	Uses the same time frame for all options and outcomes, if time based risk formats are used
	Uses visual displays (eg, icon arrays, stacked bar graphs) that show both the numerator and the denominator (ie, the part-to-whole association)
	Uses risk formats that were tested with end users in the population to whom the risk applies
Clarifying values	Uses an explicit values clarification method to help patients clarify what is important to them in deciding on options
Development of PDAs	Includes information about the expertise of the authors/developers (eg, patients/care givers, patient advocates, nurses, physicians)
	Reports that potential users (eg, patients, healthcare professionals, care givers) were involved in steps to help understand user goals, motivations, needs, and expectations specific to the decision
	Involved potential users in steps intended to evaluate prototypes of the PDA
	Describes how evaluation showed that undecided patients found the information was presented in a balanced way
	Describes how evaluation showed that it was acceptable to potential users
	Reports that potential users were observed using the PDA
	Uses iterative cycles of feedback from potential users of the PDA (eg, patients/public, healthcare professionals) in the development
	Reports explicit changes between iterative cycles
	Includes relevant experts on the development team (eg, potential users, clinical content/subject matter experts, patients/members of the public who have faced the decision or could reasonably be expected to face the decision in the future, experts in plain language, accessibility, design, engineering, digital security, decision scientists, biostatisticians, epidemiologists, and implementation scientists)
	Reports that members of equity deserving populations (ie, groups that have been historically denied equal access to education, employment, and other opportunities) were meaningfully involved in development of PDA, when relevant
	Describes how the PDA was culturally adapted from existing PDAs, where appropriate
	Follows a theoretical framework or conceptual model together with IPDAS criteria for development
Evaluating effectiveness	There is evidence that the PDA helps patients:
	recognise that a decision needs to be made
	know about the available options
	know about different features of options
	understand that values affect the decision
	be clear about which features of options matter most to them
	discuss values with their health professionals
	become involved in decision making in ways they prefer
	improves the match between the features that matter most to the informed patient and the option that is chosen
	If any evaluation of the PDA was conducted, reports the findings with attention to SUNDAE guidelines
	Describes how evidence of PDA effectiveness was gathered using instruments that have strong psychometric properties (ie, the evaluation tool is valid and reliable)

PDA=patient decision aid; IPDAS=International Patient Decision Aid Standards; GRADE=Grading of Recommendations Assessment, Development and Evaluation; PEMAT=Patient Education Materials Assessment Tool; SUNDAE=Standards for Universal reporting of patient Decision Aid Evaluation.

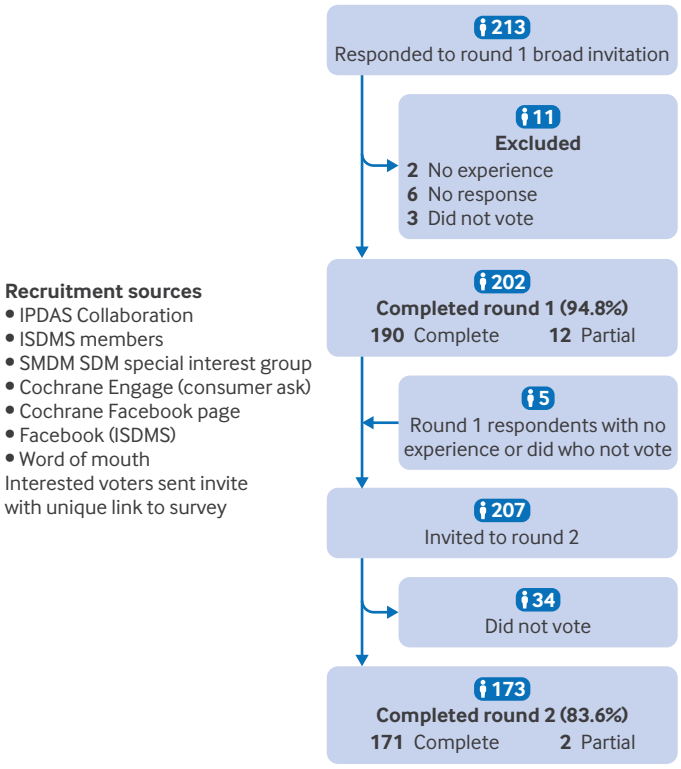

Fig 3 | Flow of participants through the consensus voting process. IPDAS=International Patient Decision Aid Standards; ISDMS=International Shared Decision Making Society; SMDM SDM=Society for Medical Decision Making, Shared Decision Making

Up-to-date evidence

Four new criteria were proposed for this domain.

Essential: The steering committee elevated the criterion about the use of high quality evidence that directly applies to patients from the enhancing to essential category. While this change was not part of the voting, the steering committee noted the need to be explicit about the use of high quality evidence in the most recent version of IPDAS.

Enhancing: Providing supporting documentation for evidence sources and personalisation features such as risk calculators were considered important, but linking the sources to specific content in the PDA was not seen as always feasible or of interest to all users.

Rejected: Stating an expiration date in the PDA was voted as not important in favour of continuing to report the date of the most recent revision of the PDA.

Health literacy

Two revisions and one new criterion were suggested for this domain, with each assigned to the enhancing category.

Essential: No changes.

Enhancing: One revision emphasised using strategies to reduce cognitive burden for patients and ways to promote understanding. A second revision specified the use of the Patient Education Materials Assessment Tool (PEMAT)[28] and an 8th grade (ages 13-14 years) or lower reading level for PDAs. Both revisions were viewed as important but there were concerns about bias introduced by various strategies to improve comprehension (eg, use of patient photos) and being too stringent about using a specific educational assessment tool. A new criterion was voted as important, where PDA developers report how co-design was used in the development of their PDAs.

Presenting probabilities

Changes to this domain included three revised, two new criteria, and two criteria proposed for deletion. Two criteria required re-voting in round 2 to clarify wording and offer additional rationale. Revisions to the criterion about using comparative risks was rejected during voting because it caused confusion, and the original criterion was retained. A similar change about using evaluative labels, symbols, or colours was rejected because evidence was perceived as lacking.

Essential: No changes.

Enhancing: Use of visual displays (eg, icon arrays, stacked bar graphs) of probabilities and numbers rather than words were considering highly important, although consensus was not reached about risk of bias because of challenges in communicating probabilities when they are small. One new criterion was added to the enhancing category after re-voting in round 2 to endorse testing of risk formats with the population to whom the risk applies.

Removal: The criterion "The PDA allows patients to select a way of viewing the probabilities (eg, words, numbers, diagrams)" reached consensus for removal. "Describing the uncertainty around probabilities" reported in PDAs did not reach consensus for removal in round 1. Comments from voters noted the lack of evidence about communicating uncertainty and challenged wording of the criterion, where people agreed with using the phrase "our best guess" to describe uncertainty but disagreed with giving a range of probabilities. The criterion was voted on again in round 2, with an expanded rationale and summary of round 1 voting results and comments. While users voted to retain the criterion, the steering committee decided to move it from essential to enhancing because of the lack of evidence about how to communicate uncertainty to patients without undermining their trust in the information.

Development

Nine new criteria were proposed.

Essential: Users rated "Potential users were involved in steps of designing, developing and/or refining a prototype" as highly important and as being associated with a high risk of bias if not met.

Enhancing: Criteria were included about observing users while using a PDA, reporting the number of iterative cycles and changes made during development, and including multidisciplinary development teams. These changes were viewed as highly important and as best practices by all user groups. Inclusion of individuals from equity deserving populations in development caused some confusion about terminology. Similar comments were made about culturally adapting PDAs, where appropriate. A new

Table 2 | Characteristics of voting participants (n=202)

Self-reported characteristic	Clinician researchers (n=87)	Researchers (n=89)	Policy makers (n=14)	Patient/ consumers (n=12)	Total (n=202)
Experience with PDAs*					
Used a PDA	55 (63)	41 (46)	11 (79)	5 (42)	112 (55)
Gave a PDA to someone	58 (67)	50 (56)	9 (64)	4 (33)	121 (60)
Attended training about PDAs	51 (59)	46 (52)	10 (71)	1 (8)	108 (53)
Helped develop a PDA	76 (87)	70 (79)	10 (71)	6 (50)	162 (80)
Participated in a study to evaluate a PDA	47 (54)	42 (47)	10 (71)	3 (25)	102 (50)
Conducted research about PDAs	64 (74)	76 (85)	11 (79)	2 (17)	153 (76)
Developed/promoted health policy or guideline to support PDA use	34 (39)	28 (31)	9 (64)	3 (25)	74 (37)
Sex at birth					
Male	27 (33)	12 (14)	1 (7)	3 (25)	43 (23)
Female	52 (64)	71 (86)	13 (93)	9 (75)	145 (76)
Intersex	0	0	0	0	0
Chose not to answer	2 (2)	0	0	0	2 (1)
Gender*					
Man	26 (30)	12 (13)	1 (7)	3 (25)	42 (21)
Woman	52 (60)	71 (80)	13 (93)	9 (75)	145 (72)
Trans, non-binary	0	0	0	0	0
Chose not to answer	3 (3)	0	0	0	3 (1)
Age (years)					
Mean (SD)	50.0 (12.1)	45.5 (10.9)	45.0 (10.0)	63.0 (7.7)	48.6 (12.0)
Median	52.0	44.0	48.5	65.0	49.0
Range	29-87	26-68	29-61	49-78	26-87
Highest level of education					
Less than a bachelor's degree (high school, college, other diploma)	0	0	0	0	0
Bachelor's degree	2 (2)	0	1 (7)	3 (25)	6 (3)
University certificate or diploma or degree above bachelor's level	9(11)	4 (4)	0	0	13 (7)
Graduate studies	65 (80)	79 (89)	13 (93)	8 (67)	165 (87)
Chose not to answer	1 (1)	0	0	1 (8)	2 (1)
Race/ethnic origins*					
Black	1 (1)	4 (4)	0	0	5 (2)
Latinx and/or Hispanic	3 (3)	2 (2)	2 (14)	0	7 (3)
East/South East Asian	10 (11)	7 (8)	3 (21)	0	20 (10)
South Asian	1 (1)	2 (2)	0 (0)	0	3 (1)
Middle Eastern	1 (1)	2 (2)	1 (7)	1 (8)	5 (2)
White	56 (64)	62 (70)	9 (64)	10 (83)	137 (68)
Indigenous	1 (1)	0	1 (7)	0	2 (1)
Mixed race/other	2 (2)	3 (3)	0	0	5 (2)
Chose not to answer	8 (9)	2 (2)	0	1 (8)	11 (5)
Have a disability					
Yes	3 (4)	4 (5)	0	2 (17)	9 (5)
No	73 (90)	77 (93)	14 (100)	10 (83)	174 (92)
Chose not to answer	5 (6)	2 (2)	0	0	7 (4)

Data are number (%) of participants.
PDA=patient decision aid; SD=standard deviation.
*Participants could select more than one option.

criterion was adopted that developers should follow a theoretical framework or conceptual model, along with the IPDAS criteria. Voters thought that the IPDAS criteria may be sufficient, although use of a framework/model would be helpful but not required.

Reject: Voters did not find it important that PDAs "avoid gender binary pronouns," with some commenting that this is not relevant for sex specific decisions, that it was difficult to achieve in certain languages, and that some users may perceive it to be distracting.

Evaluating effectiveness

Two new criteria were proposed for this domain.

Essential: No change.

Enhancing: Voters rated as important the SUNDAE (Standards for Universal reporting of patient Decision Aid Evaluation) reporting guideline about using evaluation measures with strong psychometric properties when an evaluation of a PDA is conducted. Lack of familiarity with SUNDAE or evaluation measures were cited as reasons these criteria were not seen as high risk of bias.

Discussion

We updated the IPDAS Quality Framework to offer clearer guidance about which standards are needed for a decision support intervention to be considered a high-quality PDA. The result was seven qualifying criteria and seven essential criteria, which should be feasible for developers to adhere to when developing their PDAs. The large number of enhancing criteria can be seen both as a resource for developers and to highlight areas where additional research is needed. In

Table 3 | Consensus results* about importance of changes to IPDAS qualifying criteria

Original PDA criterion number and description		Clinician researchers (n=87)	Researchers (n=89)	Policy makers (n=14)	Patient/ consumers (n=12)	Consensus
1.2 and 1.5 (merged)	[The PDA] lists the options including if relevant, "wait and see" (eg, making no change, doing nothing).	74 (85)	83 (93)	12 (86)	11 (92)	Changed in qualifying criteria
1.6 (new)	[The PDA] identifies the target audience.	80 (92)	79 (91)	14 (100)	11 (92)	Added to qualifying criteria
9.2 and 9.3 (merged)	[The PDA] asks patients to think about which positive and negative features of the options matter most to them (explicit values clarification) OR describes what it is like to experience the consequences of the options (physical, psychological, social) (implicit values clarification)	69 (79)	59 (67)	12 (86)	8 (67)	Changed in qualifying criteria

Data are number (%). Changes approved 12-13 September 2024 by the IPDAS steering committee.
IPDAS=International Patient Decision Aid Standards; PDA=patient decision aid.
*Criteria with agreement greater than 66% across all user groups were added as qualifying.

updating the standards for PDAs, we were cognisant of concerns about making them too restrictive or offering too many new criteria. These concerns have been raised when considering implementation challenges facing PDA developers,[29] and were also the rationale for the previous version of the minimum standards.

The conflicts of interest domain generated considerable debate about the threshold for disqualifying PDAs when developers or funders had a financial interest in the decisions that patients make. The domain team proposed raising the threshold for a high quality PDA by requiring that developers, and their affiliations, have not received financial support from a source that stands to gain or lose by the choices patients make after using the PDA. The rationale for these changes, which approach how conflicts of interest are handled for clinical practice guidelines, was largely that expecting patients to decipher and account for potential bias in PDA content is both practically and ethically unsound.[8] The criterion about developers' conflicts was rated high for risk of bias by all user groups. During review of the voting results, steering committee members highlighted that it is desirable to have clinicians on development teams, yet this change to the standards would disqualify many PDAs because clinicians and their institutions benefit financially from the care they provide to patients. In response, the steering committee adopted a new, merged essential criterion reflecting these concerns: "The PDA reports where the funding came from to develop the PDA, and it is clearly stated (eg, prominent, plain language)." The remaining changes to the conflicts of interest criteria were included in the enhancing category. This domain will likely remain a source of debate as further evidence is generated and the standards are revised in the future.

The domain team on communicating probabilities proposed to remove the criterion about describing uncertainty of probabilities. This proposal was based on evidence that communicating uncertainty has the potential to undermine decision making, because patients have different degrees of tolerance for ambiguity.[14 30] The voters and steering committee agreed that providing a range of probabilities was

Table 4 | Consensus results* about changes to IPDAS essential criteria

Original PDA criterion number and description	Topic voted on	Clinician researcher	Researcher	Policy maker	Patient/ consumer	Consensus
3.4 reports that developers did not receive any funding from a source that stands to gain or lose by the choices patients make after using the PDA	Importance of change	70/87 (80)	70/89 (89)	13/14 (93)	11/12 (92)	Essential (consensus of steering committee); reports where the funding came from to develop the PDA and it is clearly stated
	Risks of (harmful) bias	49/70 (70)	56/79 (71)	8/12 (67)	6/10 (60)	
3.8 clearly states disclosures about funding and author affiliations	Importance of change	80/87 (93)	78/89 (92)	13/14 (93)	10/12 (83)	
	Risks of (harmful) bias	52/70 (74)	62/79 (78)	8/12 (67)	6/10 (60)	
6.6 is based on high quality evidence that is, where possible, directly applicable to the patients and clinicians using the PDA	Importance of change	—	—	—	—	Added to essential (consensus of steering committee)
	Risks of (harmful) bias	—	—	—	—	
10.6 had potential users involved in steps of designing, developing, and/or refining a prototype	Importance of change	73/87 (90)	79/89 (95)	14/14 (100)	11/12 (92)	Added to essential
	Risks of (harmful) bias	52/70 (74)	57/79 (72)	10/12 (83)	7/10 (70)	
8.4 describes the uncertainty around the probabilities (eg, by giving a range or by using phrases such as "our best guess is")	Importance of removal	52/81 (64)	61/83 (73)	9/14 (64)	9/12 (75)	No consensus to remove; moved to enhancing
	Risks of (harmful) bias	NA	NA	NA	NA	

Data are voting/total numbers and percentages. Denominators for importance of change are from round 1 voting; denominators for risk of bias are from round 2 voting.
NA=not applicable; IPDAS=International Patient Decision Aid Standards; PDA=patient decision aid.
*Percentages exceeding 66% threshold are considered to have high agreement or high risk of bias.

problematic but acknowledged that estimates represented as a "best guess" was an appropriate strategy for describing this uncertainty in plain language. When evidence is lacking, consensus was to encourage but not require developers to acknowledge this uncertainty in their PDAs.

The domain team on clarifying values had originally proposed a new qualifying criterion that would require the use of explicit values clarification as features in PDAs.[16] When approving the voting document, the steering committee thought that the evidence supporting explicit values clarification was limited and a decision was made to merge two values clarification criteria to a single criterion allowing for either explicit or implicit methods, providing developers more flexibility in meeting this standards. There was consensus on this merged qualifying criterion. Additional research is needed about the use and impact of explicit values clarification methods in PDAs used in real world clinical and non-clinical settings, and this criterion is also included in the enhancing category.[16 20]

This update did not directly address standards related to implementation of PDAs. This area is important for further development; Stacey et al found that only about a quarter of PDAs evaluated in randomised trials continued to be used after the trial.[31] A major challenge was lack of financial support to ensure PDAs are updated to reflect current evidence and professional guidelines, and the need for hosting of PDAs after research studies are completed. For Evidence Update 2.0, Joseph-Williams et al conducted a rapid realist review to identify articles that could contribute to theory about PDA implementation.[19] The group made five recommendations: co-produce PDAs with end users for content and processes for use; ensure that the entire team is trained to use the PDA; engage patients by prompting them to use the PDA; ensure buy-in of senior leaders; and "measuring to improve" where measurement is used to show how PDAs link with and improve key priorities of healthcare organisations. The first recommendation, about co-production, is consistent with consensus on involvement of potential users being a new essential criterion within IPDAS 5.0. The updated IPDAS 5.0 standards do not currently address the other recommendations from the implementation group, nor do they reflect implementation of PDAs within broader, multi-level, shared decision making programmes.[32] Future iterations of IPDAS should consider offering guidance on how to effectively support implementation of PDAs, especially during their development.

Criteria that address equity in PDAs were voted as enhancing, yet voters did not consider it as introducing a high risk of harmful bias if it was not achieved. Specifically, voters acknowledged the importance of involving members from equity deserving populations in development of PDAs, yet challenges remain in relation to how this involvement can be done consistently across languages and cultures. Similarly, describing how a PDA was adapted for patients of different cultures was viewed as important but not essential. It will be important to monitor how views about equity in patient decision making evolve and consider revisiting these issues in subsequent updates.

This consensus process to update IPDAS had several limitations. While knowledge users and experts from 26 countries voted on the changes, most were from North America, Europe, and Australia. The IPDAS Collaboration has welcomed translations of the standards in languages other than English (https://decisionaid.ohri.ca/IPDAS/using.html), but cross cultural adaptations and appropriateness of the standards requires additional investigation. Knowledge users were categorised into four groups that varied by size, with fewer policy makers and patient/consumers participating in the update. To deal with this limitation, we analysed data by user groups and carefully reviewed written comments offered by the voters to gain additional insights into their feedback.

Conclusion

IPDAS version 5.0 has updates to the qualifying, essential, and enhancing criteria that reflect the evolving evidence about PDAs, with good agreement on the changes across key knowledge user groups. The update reflects a careful balance between comprehensiveness and feasibility, and it is guided by the IPDAS Collaboration's founding goal of providing high quality PDAs for patients that minimise potential biases in the decisions they make.

AUTHOR AFFILIATIONS

[1]Department of Health Services Research, University of Texas MD Anderson Cancer Center, PO Box 301407, Unit 1738, Houston, TX 77230-1407, USA
[2]School of Nursing, University of Ottawa, Ottawa, ON, Canada
[3]Patient author, Ottawa, ON, Canada
[4]Methodological and Implementation Research, Ottawa Hospital Research Institute, Ottawa, ON, Canada
[5]Harvard Medical School, Boston, MA, USA
[6]School of Medicine, University of Leeds, Leeds, UK
[7]Department of Medical Psychology, University Medical Center Hamburg-Eppendorf, Hamburg, Germany
[8]Institute of Evidence-Based Healthcare, Bond University, Gold Coast, QLD, Australia
[9]Sydney Health Literacy Lab, School of Public Health, University of Sydney, Sydney, NSW, Australia
[10]Duke University School of Medicine, Durham, NC, USA
[11]Faculty of Medicine, Aalborg University, Aalborg, Denmark
[12]Center for Shared Decision Making, Lillebaelt University Hospital of Southern Denmark, Vejle, Denmark
[13]Health Decision Sciences Center, Massachusetts General Hospital, Harvard Medical School, Boston, MA, USA
[14]Sydney School of Health Sciences, Faculty of Medicine and Health, University of Sydney, Sydney, NSW, Australia
[15]Faculty of Medicine and Health, University of Sydney, Sydney, NSW, Australia
[16]Department of Family Medicine, Care and Public Health Research Institute (CAPHRI), Maastricht University, Maastricht, Netherlands
[17]Department of Family and Emergency Medicine, VITAM Research Centre on Sustainable Health, Research Centre of the CHU de Québec, Université Laval, Québec City, QC, Canada
[18]Ottawa Hospital Research Institute, Ottawa, ON, Canada

Contributors: All authors conceived of the project; DS, KBL, RJV, MS, and MC obtained funding for the project; DS and MC provided administrative oversight for the project; DS, KBL, RJV, MS, and MC developed the voting document and data collection site; all authors contributed to revisions and approval of the final voting document; DS, KBL, RJV, MS, and MC conducted formal analyses of the voting results; DS, KBL, RJV, MS, and MC drafted the initial manuscript; RJV and DS prepared visualisations of the study findings; all authors provided critical feedback on drafts of manuscript, and final approval of standards and manuscript. The corresponding author (RJV) is the guarantor and attests that all listed authors meet authorship criteria and that no others meeting the criteria have been omitted.

Funding: Funded by the Canadian Institutes of Health Research (CIHR; reference No PJT-180385). RJV was supported by grants from the US National Institutes of Health (NIH)/National Cancer Institute (NCI) (award P30CA016672), and the Cancer Prevention and Research Institute of Texas (RP240508). The study sponsors had no role in the design, execution, or interpretation of the study findings.

Competing interests: All authors have completed the ICMJE uniform disclosure form at https://www.icmje.org/disclosure-of-interest/ and declare: support from the CIHR for the submitted work; DS holds research grant funding from the CIHR, RJV received research grants from the US NCI and Cancer Prevention and Research Institute of Texas; no other relationships or activities that could appear to have influenced the submitted work.

Data sharing: The study data will be made available following reasonable request.

Transparency: The lead author affirms that this manuscript is an honest, accurate, and transparent account of the study being reported; that no important aspects of the study have been omitted; and that any discrepancies from the study as planned (and, if relevant, registered) have been explained.

Dissemination to participants and related patient and public communities: The new standards from IPDAS 5.0 are publicly available and posted on the collaboration's website (https://decisionaid.ohri.ca/IPDAS/). We will use press releases, social media, and notices with professional organisations.

Provenance and peer review: Not commissioned; externally peer reviewed.

1 Volk RJ, Llewellyn-Thomas H, Stacey D, Elwyn G. Ten years of the International Patient Decision Aid Standards Collaboration: evolution of the core dimensions for assessing the quality of patient decision aids. *BMC Med Inform Decis Mak* 2013;13(Suppl 2):S1. doi:10.1186/1472-6947-13-S2-S1
2 Stacey D, Volk RJ, IPDAS Evidence Update Leads. The International Patient Decision Aid Standards (IPDAS) Collaboration: Evidence Update 2.0. *Med Decis Making* 2021;41:729-33. doi:10.1177/0272989X211035681
3 Stacey D, Lewis KB, Smith M, et al. Decision aids for people facing health treatment or screening decisions. *Cochrane Database Syst Rev* 2024;1:CD001431.
4 Bekker H, Thornton JG, Airey CM, et al. Informed decision making: an annotated bibliography and systematic review. *Health Technol Assess* 1999;3:1-156. doi:10.3310/hta3010
5 Elwyn G, O'Connor A, Stacey D, et al, International Patient Decision Aids Standards (IPDAS) Collaboration. Developing a quality criteria framework for patient decision aids: online international Delphi consensus process. *BMJ* 2006;333:417. doi:10.1136/bmj.38926.629329.AE
6 Joseph-Williams N, Newcombe R, Politi M, et al. Toward Minimum Standards for Certifying Patient Decision Aids: A Modified Delphi Consensus Process. *Med Decis Making* 2014;34:699-710. doi:10.1177/0272989X13501721
7 Martin RW, Brogård Andersen S, O'Brien MA, et al. Providing Balanced Information about Options in Patient Decision Aids: An Update from the International Patient Decision Aid Standards. *Med Decis Making* 2021;41:780-800. doi:10.1177/0272989X211021397
8 Thompson R, Paskins Z, Main BG, et al. Addressing Conflicts of Interest in Health and Medicine: Current Evidence and Implications for Patient Decision Aid Development. *Med Decis Making* 2021;41:768-79. doi:10.1177/0272989X211008881
9 Shaffer VA, Brodney S, Gavaruzzi T, et al. Do Personal Stories Make Patient Decision Aids More Effective? An Update from the International Patient Decision Aids Standards. *Med Decis Making* 2021;41:897-906. doi:10.1177/0272989X211011100
10 Rahn AC, Jull J, Boland L, et al. Guidance and/or Decision Coaching with Patient Decision Aids: Scoping Reviews to Inform the International Patient Decision Aid Standards (IPDAS). *Med Decis Making* 2021;41:938-53. doi:10.1177/0272989X21997330
11 Hoffmann TC, Bakhit M, Durand M-A, Perestelo-Pérez L, Saunders C, Brito JP. Basing Information on Comprehensive, Critically Appraised, and Up-to-Date Syntheses of the Scientific Evidence: An Update from the International Patient Decision Aid Standards. *Med Decis Making* 2021;41:755-67. doi:10.1177/0272989X21996622
12 Muscat DM, Smith J, Mac O, et al. Addressing Health Literacy in Patient Decision Aids: An Update from the International Patient Decision Aid Standards. *Med Decis Making* 2021;41:848-69. doi:10.1177/0272989X211011101
13 Yen RW, Smith J, Engel J, et al. A Systematic Review and Meta-Analysis of Patient Decision Aids for Socially Disadvantaged Populations: Update from the International Patient Decision Aid Standards (IPDAS). *Med Decis Making* 2021;41:870-96. doi:10.1177/0272989X211020317
14 Bonner C, Trevena LJ, Gaissmaier W, et al. Current Best Practice for Presenting Probabilities in Patient Decision Aids: Fundamental Principles. *Med Decis Making* 2021;41:821-33. doi:10.1177/0272989X21996328
15 Trevena LJ, Bonner C, Okan Y, et al. Current Challenges When Using Numbers in Patient Decision Aids: Advanced Concepts. *Med Decis Making* 2021;41:834-47. doi:10.1177/0272989X21996342
16 Witteman HO, Ndjaboue R, Vaisson G, et al. Clarifying Values: An Updated and Expanded Systematic Review and Meta-Analysis. *Med Decis Making* 2021;41:801-20. doi:10.1177/0272989X211037946
17 Witteman HO, Maki KG, Vaisson G, et al. Systematic Development of Patient Decision Aids: An Update from the IPDAS Collaboration. *Med Decis Making* 2021;41:736-54. doi:10.1177/0272989X211014163
18 Trenaman L, Jansen J, Blumenthal-Barby J, et al. Are We Improving? Update and Critical Appraisal of the Reporting of Decision Process and Quality Measures in Trials Evaluating Patient Decision Aids. *Med Decis Making* 2021;41:954-9. doi:10.1177/0272989X211011120
19 Joseph-Williams N, Abhyankar P, Boland L, et al. What Works in Implementing Patient Decision Aids in Routine Clinical Settings? A Rapid Realist Review and Update from the International Patient Decision Aid Standards Collaboration. *Med Decis Making* 2021;41:907-37. doi:10.1177/0272989X20978208
20 Stacey D, Carley M, Gunderson J, et al. The Effect of Patient Decision Aid Attributes on Patient Outcomes: A Network Meta-Analysis of a Systematic Review. *Med Decis Making* 2025;45:437-48. doi:10.1177/0272989X251318640
21 Gattrell WT, Logullo P, van Zuuren EJ, et al. ACCORD (ACcurate COnsensus Reporting Document): A reporting guideline for consensus methods in biomedicine developed via a modified Delphi. *PLoS Med* 2024;21:e1004326. doi:10.1371/journal.pmed.1004326
22 Stacey D, Volk RJ, Smith M, Lewis KB, Carley M, for the IPDAS Steering Committee. (March 2025) Policy Brief: IPDAS 5.0. https://decisionaid.ohri.ca/ipdas
23 Harris PA, Taylor R, Minor BL, et al, REDCap Consortium. The REDCap consortium: Building an international community of software platform partners. *J Biomed Inform* 2019;95:103208. doi:10.1016/j.jbi.2019.103208
24 Harris PA, Taylor R, Thielke R, Payne J, Gonzalez N, Conde JG. Research electronic data capture (REDCap)--a metadata-driven methodology and workflow process for providing translational research informatics support. *J Biomed Inform* 2009;42:377-81. doi:10.1016/j.jbi.2008.08.010
25 O'Neill J, Tabish H, Welch V, et al. Applying an equity lens to interventions: using PROGRESS ensures consideration of socially stratifying factors to illuminate inequities in health. *J Clin Epidemiol* 2014;67:56-64. doi:10.1016/j.jclinepi.2013.08.005
26 Dillman DA, Smyth JD, Christian LM. *Internet, Phone, Mail, and Mixed-Mode Surveys: The Tailored Design Methods.* 4th ed. Wiley & Sons, 2014doi:10.1002/9781394260645.
27 Diamond IR, Grant RC, Feldman BM, et al. Defining consensus: a systematic review recommends methodologic criteria for reporting of Delphi studies. *J Clin Epidemiol* 2014;67:401-9. doi:10.1016/j.jclinepi.2013.12.002

28 Shoemaker SJ, Wolf MS, Brach C. Development of the Patient Education Materials Assessment Tool (PEMAT): a new measure of understandability and actionability for print and audiovisual patient information. *Patient Educ Couns* 2014;96:395-403. doi:10.1016/j.pec.2014.05.027
29 Matlock DD, Jackson LR2nd, Sandhu A, Scherer LD. Past, Present, and Future of Shared Decision-Making. *Circ Cardiovasc Qual Outcomes* 2024;17:e010584. doi:10.1161/CIRCOUTCOMES.124.010584
30 Han PK. Conceptual, methodological, and ethical problems in communicating uncertainty in clinical evidence. *Med Care Res Rev* 2013;70(Suppl):14S-36S. doi:10.1177/1077558712459361
31 Stacey D, Suwalska V, Boland L, Lewis KB, Presseau J, Thomson R. Are Patient Decision Aids Used in Clinical Practice after Rigorous Evaluation? A Survey of Trial Authors. *Med Decis Making* 2019;39:805-15. doi:10.1177/0272989X19868193
32 van Veenendaal H, Peters LJ, van Weele E, et al. Effects and Working Mechanisms of a Multilevel Implementation Program for Applying Shared Decision-Making while Discussing Systemic Treatment in Breast Cancer. *Curr Oncol* 2022;30:236-49. doi:10.3390/curroncol30010019

Web appendix 1: Supplementary file 1A-1E: IPDAS domains; additional details about methods; IPDAS qualifying and essential criteria; IPDAS enhancing criteria; consensus results on agreement on importance and risk of bias

Web appendix 2: Supplementary file 2A: Round 1 and Round 2 consensus voting surveys