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1177/0272989X07307319 Do Patient Decision Aids Meet Effectiveness Criteria of the International Patient Decision Aid Standards Collaboration? A Systematic Review and Meta-analysis Annette M. O'Connor, RN, PhD, Carol Bennett, MSc, Dawn Stacey, RN, PhD, Michael J. Barry, MD, Nananda F. Col, MD, MPH, MPP, Karen B. Eden, PhD, Vikki Entwistle, PhD, Valerie Fiset, MScN, Margaret Holmes-Rovner, PhD, Sara Khangura, Hilary Llewellyn-Thomas, PhD, David Rovner, MD Objective.

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To describe the extent to which patient decision aids (PtDAs) meet effectiveness standards of the International Patient Decision Aids Collaboration (IPDAS). Data sources. Five electronic databases (to July 2006) and personal contacts (to December 2006). Results. Among 55 randomized controlled trials, 38 (69%) used at least 1 measure that mapped onto an IPDAS effectiveness criterion. Measures of decision quality were knowledge scores (27 trials), accurate risk perceptions (12 trials), and value congruence with the chosen option (3 trials). PtDAs improved knowledge scores relative to usual care (weighted mean difference [WMD] = 15. %, 95% confidence interval [CI] = 11. 7 to 18. 7); detailed PtDAs were somewhat more effective than simpler PtDAs (WMD = 4. 6%, 95% CI = 3. 0 to 6. 2). PtDAs with probabilities improved accurate risk perceptions relative to those without probabilities (relative risk = 1. 6, 95% CI = 1. 4 to 1. 9). Relative to simpler PtDAs, detailed PtDAs improved value congruence with the chosen option. Only 2 of 6 IPDAS decision process criteria were measured: feeling informed (15 trials) and feeling clear about values (13 trials). PtDAs improved these process measures relative to usual care (feeling uninformed WMD = -8. , 95% CI = -11. 9 to -4. 8; unclear values WMD = -6. 3, 95% CI = -10. 0 to -2. 7). There was no difference in process measures when detailed and simple PtDAs were compared. Conclusions. PtDAs improve decision quality and the decision process's measures of feeling informed and clear about values; however, the size of the effect varies across studies. Several IPDAS decision process measures have not been used. Future trials need to use a minimum

data set of IPDAS evaluation measures. The degree of detail PtDAs require for positive effects on IPDAS criteria should be explored.

Key words: decision support techniques; patient education; patient participation; randomized controlled trials. (Med Decis Making 2007; XX: xx-xx) Received 23 July 2007 from the Ottawa Health Research Institute, Canada (AMO, SK, CB); University of Ottawa, Canada (AMO, DS); Massachusetts General Hospital, Boston (MJB); Maine Medical Center, Portland, Maine (NFC); Oregon Health and Science University, Portland (KBE); Social Dimensions of Health Institute, Dundee, UK (VE); Algonquin College, Ottawa, Canada (VF); Michigan State University, East Lansing (MH-R, DR); and Dartmouth Medical School, Hanover, New Hampshire (HL-T).

Financial support for this study was provided by a group grant of the Canadian Institutes of Health Research. The funding agreement ensured the authors' independence in designing the study, interpreting the data, and writing and publishing the report. Address correspondence to Annette M. O'Connor, RN, PhD, University of Ottawa, Ottawa Health Research Institute, 1053 Carling Avenue, ASB, Ottawa, Ontario, Canada K1Y 4E9; e-mail: ca. DOI: 10. 1177/0272989X07307319

Patient decision aids (PtDAs) are adjuncts to counseling that explain options, clarify personal values for the benefits versus harms, and guide patients in deliberation and communication. With the rapid proliferation of these tools, the International Patient Decision Aids Collaboration (IPDAS) has reached agreement on criteria for judging the quality of PtDAs. 1 IPDAS is a network

of more than 100 researchers, practitioners, patients, and policy makers from 14 countries.

These collaborators developed a checklist of criteria that payers, patients, practitioners, developers, and researchers can use to assess PtDAs they encounter. The criteria address 3 domains of quality: clinical content, the development process, and effectiveness. 554 • MEDICAL DECISION

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DECISION AIDS “EFFECTIVENESS CRITERIA OF DECISION AIDS”

This article addresses the 3rd domain, the evaluation of PtDAs’ effectiveness in fostering a high-quality decision process and a high-quality choice. Over the past decade, there has been considerable debate about the definition of a good decision when there is no single best therapeutic action and choices depend on how patients value benefits versus harms. 2–6 To select criteria for decision quality, IPDAS participants were asked to identify “the things that you would need to observe in order to say that after using a patient decision aid, the way the decision was made was good and the choice that was made was good. IPDAS endorsed the following criteria for establishing that a decision aid is effective:

- Decision quality: The PtDA improves the match between the chosen option and the features that matter most to the informed patient.
- Decision processes leading to decision quality: The PtDA helps patients to recognize that a decision needs to be made, know options and their features, understand that values affect the decision, be clear about

the option features that matter most, discuss values with their practitioner, and become involved in preferred ways.

Our study objectives were 1) to describe the number and types of measures used in randomized controlled trials (RCTs) that correspond to IPDAS criteria for effectiveness and 2) to determine the extent to which RCTs of PtDAs meet these new IPDAS criteria for effectiveness. METHODS We have been updating the Cochrane Review of decision aids since the late 1990s. 7–9 This review differed from previous reviews by focusing on the new IPDAS criteria. Moreover, we used a new systematic review software, TrialStat SRS, to manage the search and data extraction; therefore, our search, screen, and data extraction were redone completely.

Data sources included 1) electronic databases to July 2006 (MEDLINE, PsycINFO, CINAHL, and EMBASE), 2) Cochrane Controlled Trials Register (2006, issue 2), and 3) contact with known developers and evaluators to December 2006. The search strategy is described in the appendix. The search was not restricted on the basis of language. PtDAs were defined as interventions designed to help people make specific, deliberated choices among options (including the status quo) by providing information about the options and outcomes (e. . , benefits, DECISION AIDS: PAST, PRESENT, AND FUTURE harms) in sufficient detail that an individual could judge their value implicitly. Patient decision aids may also include information about the clinical condition, outcome probabilities tailored to personal risk factors, an explicit values clarification exercise (e. g. , a relevance chart, utility assessments of probable outcome states, a weigh scale), descriptions of

others' experiences, and guidance in the steps of decision making and communicating with others.

This definition excludes interventions focused solely on lifestyle changes, hypothetical situations, clinical trial entry, or general advanced directives; education programs not geared to a specific decision; and interventions designed to promote adherence to a recommended option or to elicit passive informed consent. In the current review, we also excluded studies whose PtDAs were not available for inspection to catalogue their elements according to the new IPDAS domains. As a consequence, a few studies reported in the previous reviews were not included.

We included published RCTs comparing 1) PtDAs to usual-care controls or 2) detailed PtDAs to simpler ones (which may not have the level of detail or may not contain all of the IPDAS elements). Participants were deciding about screening or treatment options for themselves, for a child, or for an incapacitated significant other. Two reviewers independently screened each study (CB, SK, DS, AMO, VF), extracted data (CB, SK), and assessed study quality (C. B. , S. K.) using standardized forms, including the Jadad scale. 0 Inconsistencies were resolved by consensus. Trial results were described individually. Metaanalysis was used for decision quality and for decision process measures because these effects were expected to be independent of the type of decision. Meta-analysis was performed only on those outcomes with similar types of measures. Review Manager 4. 211 was used to estimate a weighted treatment effect (with 95% confidence intervals [CIs]), defined as

weighted mean differences (WMDs) for continuous measures and pooled relative risks (RRs) for dichotomous outcomes.

The data used in each meta-analysis can be viewed in the online supplement available at <http://mdm.sagepub.com/cgi/content/full/Volume/Issue/Page#/DC1>. All data were analyzed with a DerSimonian and Laird¹² random effects model because of the diverse nature of the trials. Forest plots were used to assess and display potential heterogeneity, and funnel plots were used to explore publication bias. Because of statistically significant heterogeneity for most of the outcomes, we performed post hoc subanalyses to explore the potential causes of heterogeneity.

Heterogeneity was explored according 555 Downloaded from mdm.sagepub.com by guest on July 22, 2012 O'CONNOR AND OTHERS to the following factors: type of decision (treatment versus screening), type of media of decision aid (video/ computer versus audio booklet/pamphlet), and a possible ceiling effect based on good usual-care scores (removal of studies with lower knowledge and realistic risk perception scores; removal of studies with higher decisional conflict scores for subscales feeling uninformed and unclear values).

We analyzed the effects of removing the biggest outlier(s) defined by visual inspection of the forest plots. In addition, a post hoc analysis was performed to examine the effect of 1) excluding trials of low methodological quality and 2) excluding trials that were outliers and contributed to heterogeneity.

RESULTS

Of the 22, 778 unique citations obtained in the review, we identified 1293 as relevant by title and then screened those abstracts (see Figure 1). Of these, 130 citations were retrieved for full-text review.

Sixty-four studies were excluded for the following reasons: the study was not focused on making a choice ($n = 33$), the study was not an RCT ($n = 14$), the decision support intervention did not meet the definition of a PtDA ($n = 8$), the study involved a hypothetical situation ($n = 6$), and no outcome data were provided ($n = 3$). In all, 55 eligible trials (66 references) were found for duplicate data extraction and analysis. The 55 published RCTs evaluating individual PtDAs^{13–78} used 51 different PtDAs that focused on 23 different screening or treatment topics (see Table 1).

Among the 51 different PtDAs, the elements most frequently included were information about the options and outcomes in sufficient detail to judge their value implicitly (100% by definition), information about the clinical condition (98%), outcome probabilities (84%), examples of others' experiences (59%), explicit values clarification exercises (55%), and guidance in the steps of decision making (47%). Quality ratings in the trials ranged from 0/5 to 3/5. All studies lost 2 points because patients or practitioners could not be blinded to the intervention.

As shown in Table 2, 38 of the 55 trials (69%) reported at least 1 outcome that could be mapped onto an IPDAS criterion for effectiveness; 33 (60%) measured some aspect of decision quality, and 15 (27%) measured a

decision process leading to decision quality. Decision Quality As noted above, the definition of decision quality has 2 elements: the extent to which decisions are 556 • MEDICAL DECISION MAKING/MON-MON 2007 informed and based on personal values.

Trials used 3 measures corresponding to this definition: knowledge test results, accuracy of risk perceptions, and value congruence with chosen option. Knowledge. Twenty-seven of the 55 studies examined the effects of PtDAs on knowledge; 18 of these compared PtDAs to usual care, and 9 compared PtDAs with more or less detail. The studies' knowledge tests were based on information contained in the PtDA, thereby establishing content validity. The proportion of accurate responses was transformed to a percentage scale ranging from 0% (no correct responses) to 100% (perfectly accurate responses).

In the comparison of PtDAs to usual care^{15, 16, 18, 26, 28, 29, 31, 36, 39, 41, 43, 48, 50, 64, 65, 69, 73, 78} (Figure 2), PtDAs had higher average knowledge scores (WMD = 15. 2%, 95% CI = 11. 7, 18. 7). The 9 studies comparing detailed with simpler PtDAs^{22, 24, 30, 35, 54, 60, 61, 63, 66} (Figure 3) showed a smaller effect (WMD = 4. 6%, 95% CI = 3. 0, 6. 2). Accurate risk perceptions. Eleven of 55 studies examined the effects of including probabilities of PtDAs on the accuracy of patients' perceived probabilities of outcomes. ^{4, 28, 41, 43-45, 54, 63, 73, 74, 77} Eight studies measured perceived probabilities as percentages, ^{24, 28, 43-45, 54, 73, 74} and 3 gauged probabilities in words. ^{41, 63, 77} Perceived outcome probabilities were classified as accurate according to the percentage of

individuals whose judgments corresponded to the scientific evidence about the chances of an outcome for similar people. In 4 of 5 studies that elicited perceived probabilities for multiple outcomes, 24, 44, 54, 60 the proportion of realistic expectations was averaged; in the remaining study, 43 the most conservative result was chosen for meta-analysis.

People who received a detailed PtDA with descriptions of outcomes and probabilities were more likely to have accurate risk perceptions than those who did not receive this information; the pooled RR of having accurate risk perceptions was 1.6 (95% CI = 1.4, 1.9; Figure 4). The pooled relative risk for probabilities described in words was 1.3 (95% CI = 1.1, 1.5). The pooled relative risk for probabilities described as numbers was 1.8 (95% CI = 1.4, 2.3). Value congruence with chosen option.

Four of 55 studies measured value congruence with the chosen option; however, Lerman and others⁴¹ did not calculate differences between interventions. The 3 trials comparing interventions were similar in that they 1) focused on the decision to take menopausal hormone replacement therapy (HRT) and 2) compared 2 active interventions. However, these trials used different measures of value (text continued on p 565) Downloaded from mdm.sagepub.com by guest on July 22, 2012 DECISION AIDS “EFFECTIVENESS CRITERIA OF DECISION AIDS” 2, 778 unique citations identified for initial screening (screening based on review of the title) 1, 293 potentially relevant citations identified and screened (based on review of the abstract) for retrieval 130 citations retrieved for full-text review 64 excluded: study not focused on making a choice (n = 33); study was not RCT

(n = 14); decision support intervention did not meet the definition of a PtDA (n = 8); study involved a hypothetical situation (n = 6); no outcome data provided (n = 2); protocol only (n = 1) 5 eligible trials (66 references) for duplicate data extraction Data entry & RCT meta- analysis Figure 1 Flowchart of the procedural steps in the systematic review. RCT = randomized controlled trial; PtDA = patient decision aid. DECISION AIDS: PAST, PRESENT, AND FUTURE Downloaded from mdm. sagepub. com by guest on July 22, 2012 557 Table 1 Elements in DAs Characteristics of 55 Trials Included in the Systematic Review of Patient Decision Aids 558

Number of Enrollees in Intervention + Comparison: Options Considered
 Quality Rating (Jadad) Others' Experiences Comparison of Most and Least
 Intensive Intervention Options and Clinical Outcomes Problem Explicit
 Outcome Values Probability Clarification Guidance in Steps of DM Source,
 Year, Location Auvinen and others¹³, 14 2004, Finland 3/5 1/5 2/5 3/5 2/5
 2/5 — X — X X X — — X X X — — X — X X — — X X — — X — X — — — X
 — — X X X — X — — — X — — — — — X — — — X — — — X
 — — — — — — — — X — — Barry and others¹⁵ 1997, United States Bekker
 and others, 16, 17 2004, United Kingdom Bernstein and others¹⁸ 1998,
 United States

Pamphlet PtDA Standard care by clinical guideline Interactive videodisc PtDA
 Usual care Decision analysis plus consultation Usual care Video PtDA Usual
 care Clancy and others¹⁹ 1988, United States 30 + 30 men: prostate cancer
 treatment 67 + 61 women: HRT 1/5 — X X X X X X X X X — X X X X X 103 +
 100 men: prostate cancer treatment 104 + 123 men: benign prostate

hypertrophy treatment 59 + 58 women: prenataldiagnosticscreening for
Down syndrome 65 + 53 patients: ischemic heart disease treatment 753 +
263 physicians: hepatitis B vaccine

Davison and Degner²⁰ 1997, Canada Deschamps and others²¹ 2004,
Canada 3/5 — X X X — X — X — X — — — X — X — X — X — X — — — X — —
— X — X Downloaded from mdm. sagepub. com by guest on July 22, 2012
Deyo and others²² 2000; Phelan and others²³ 2001, United States 2/5 Dodin
and others²⁴ 2001, Canada 50 + 47 adults: colon cancer screening 3/5 2/5
3/5 143 + 144 parents: infant polio vaccine schedules 112 + 114 men: PSA
testing 190 + 203 patients: herniated disc or spinal stenosis treatment 52 +
49 women: HRT

Pamphlet + decision analysis PtDA Usual care Written materials, PtDA, and
audiotape of consultation Usual care Audiotape and booklet Pharmacist
consultation Interactive videodisc PtDA Simple PtDA pamphlet Audiotape
booklet PtDA Simple PtDA pamphlet Dolan and Frisina²⁵ 2002, United States
Dunn and others²⁶ 1998, United States Frosch and others²⁷ 2003, United
States — X — X X X X X X — X — X X — — — — — X — X X — — — — —
Computer: analytic hierarchy process and pamphlet PtDA Usual care Video
and pamphlet PtDA Usual care Video PtDA Internet presentation mirroring
content of video continued) Gattellari and Ward²⁸ 2003, Australia 3/5 3/5 3/5
X X — X — X — X X — X X — X — X X — — X — — — — — X X — — — X — —
X — — — X — X — X — X — X X X X X X — X — X — X — — — — — X
— — — — — X — X — X — X — X — X — — — — — 140 + 140 men: PSA
testing 86 + 50 women: breast cancer surgery 1/5 126 + 122 men: PSA

testing Gattellari and Ward²⁹ 2005, Australia Goel and others³⁰ 2001, Canada Green and others³¹ 2001, United States 3/5 CD-ROM PtDA plus counseling Genetic counseling Pamphlet PtDA Usual care

Pamphlet PtDA General information leaflet Pamphlet PtDA General information leaflet Audiotape and booklet PtDA Simple PtDA pamphlet CD-ROM PtDA plus counseling Usual care Green and others³², ³³ 2004, United States 0/5 2/5 Herrera and others³⁴ 1983, United States Hunter and others³⁵ 2005, Canada 3/5 3/5 2/5 3/5 Audiotape and booklet PtDA Usual care Audiotape and booklet Individual genetic counseling Decision board PtDA Usual care Video plus booklet PtDA Usual care Booklet PtDA Personal risk profile X — X — X — X — X X X — 2/5 X X X — X — X X X — X X X — X X 9 + 14 higher risk women: breast cancer genetic testing 106 + 105 higher risk women: breast cancer genetic testing 56 + 47 parent(s): circumcision of male newborns 116 + 126 women: prenatal diagnostic testing X — X — X X X — X X X — X X — — X — X — X — X — X — — — Downloaded from mdm.sagepub. com by guest on July 22, 2012 Johnson and others³⁶ 2006, United States Kennedy and others³⁷ 2002, United Kingdom Lalonde and others³⁸ 2006, Canada — — X — X — X — X — X — — — — X — X — X — X — X — (continued) Laupacis and others³⁹ 2006, Canada 2/5

Legare and others⁴⁰ 2003, Canada 122 + 164 women: breast cancer genetic testing 100 + 101 women: prenatal diagnostic testing 1/5 32 + 35 patients: dental surgery 300 + 298 women: menorrhagia treatment 13 + 13 patients: cardiovascular health treatment 60 + 60 patients: preoperative autologous blood donation 97 + 87 women: HRT erman and others⁴¹ 1997, United

McBride and others⁴⁵, 46 2002, United States Miller and others⁴⁷ 2005,
United States 139 + 148 aspirin users in atrial fibrillation trial: move to
warfarin 219 + 215 patients: antithrombotic therapy 289 + 292 women: HRT
279 women: BRCA1 BRCA2 gene testing Montgomery and others⁴⁸, 49 2003,
United Kingdom 52 + 55 + 51 + 59 adults: hypertension treatment 3/5
Downloaded from mdm. sagepub. com by guest on July 22, 2012 Morgan and
others⁵⁰ 2000, Canada 3/5 3/5 — X — X — X — X X — X — X — X — X X — X
— X — X — — — — — — — — — X — — X — X — X
— — — — — — — — — — X —

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55 men: benign prostate hypertrophy treatment 102 + 102 women: HRT
 Audiotape and booklet PtDA Usual care Pamphlet PtDA Usual care Discussion
 PtDA and general information pamphlets General information pamphlets
 Decision analysis PtDA Video and booklet PtDA Decision analysis, video and
 booklet PtDA Standard care Interactive videodisc PtDA Usual care Interactive
 videodisc PtDA Usual care

O'Connor and others⁵⁴ 1998, Canada 81 + 84 women: HRT 1/5 X X X X X —
 X — X — X — Interactive videodisc PtDA Usual care Discussion PtDA and
 general information pamphlet General information pamphlet Audiotape and
 booklet PtDA Simple PtDA pamphlet O'Connor and others⁵⁵ 1999, Canada
 3/5 X X X X X X 1/5 3/5 0/5 — X — X — X — X — — — — — — X — — X
 X X X X X — X X X X X — — — X 16 + 17 women: osteoporosis treatment 384
 + 384 men: PSA testing 37 + 37 patients: dental orthognathic surgery 3/5
 3/5 X X X — X — X — X — — — — — — — — X — X 101 +100 women: HRT

Oakley and Walley⁵⁶ 2006, United Kingdom Partin and others⁵⁷ 2004,
 Canada Phillips and others⁵⁸ 1995, United States Pignone and others⁵⁹
 2000, United States Audiotape and booklet PtDA DA without explicit values
 clarification Audiotape and booklet PtDA Usual care Video PtDA Usual care
 Video imaging of facialreconstructionPtDA Usual care Video PtDA Usual care
 — — — X Rostom and others⁶⁰ 2002, Canada X X X X X X — X X X X X X X X
 X — X — — — 125 + 124 adults: colon cancer screening 25 + 26 women:
 HRT X X X X — — — — — — — — — — X X — — — — — 83 + 89 women: HRT
 1/5

Guidance in Steps of DM VanRoosmalen and others⁶⁷, ⁶⁸ 2004, the
Netherlands X X — X — X — X — X — X — X — X X — — X — X — X — — X
— — X — X — X — X — X — X — X X X X — — — — — — — — — — — — — — X
— 44 + 44 women with BRCA1/2 mutation: prophylactic surgery 3/5 X X X X
— — X — — — — — — — X — — — — — X X

— — — — — — — — — — — — — — — Volk and others⁶⁹, ⁷⁰ 1999, United
States 3/5 3/5 3/5 80 + 80 men: prostate cancer screening Vuorma and

others^{71, 72} 2003, Finland Video and brochure PtDA with decision analysis
 Same video and brochure PtDA pamphlet Video with pamphlet PtDA Usual
 care Booklet PtDA Usual care

Whelan and others⁷³ 2003, Canada 3/5 2/5 184 + 179 women: menorrhagia
 treatment 82 + 93 women: breast cancer chemotherapy Downloaded from
 mdm.sagepub.com by guest on July 22, 2012 Whelan and others⁷⁴ 2004,
 Canada Wolf and others^{75, 76} 1996, United States 1/5 2/5 Script PtDA Usual
 care Pamphlet PtDA Usual care 94 + 107 women: breast cancer surgery 103
 + 102 men: prostate cancer screening Decision board PtDA and booklet
 Usual care with booklet Decision board PtDA Usual care Script PtDA Usual
 care Wolf and Schorling⁷⁷ 2000, United States

Wong and others⁷⁸ 2006, United States 266 + 133 seniors: colon cancer
 screening 162 + 164 women: pregnancy termination Note: DM = decision
 making; PtDA = patient decision aid; HRT = hormone replacement therapy;
 PSA = prostate-specific antigen. Table 2 Cumulative Studies Still in 2007
 Review Reporting Outcome in Each Cochrane Review Update Year % n/N
 Lead Author 15 50 18 Trials Measuring Outcomes That Map onto the
 International Patient Decision Aid Standards (IPDAS) Criteria Outcome
 Decision quality 2007 1999 2003 15 27 2/13 8/30 49 27/55 Knowledge
 scores 999 2003 54 57 7/13 17/30 Realistic expectations, accurate risk
 perceptions Barry, Morgan, Bernstein, Lerman, 41 Rothert, 61 O'Connor, 54
 Street⁶⁶ As above plus Schwartz, 64 Man-Son-Hing, 43 Volk, 69 Dunn, 26
 Green, 31 Goel, 30 Shapira, 63 Rostom, 60 Phelan, 23 Dodin²⁴ As above plus
 Bekker, 16 Gattellari, 28 Johnson, 36 Whelan, 73 Shorten, 65 Montgomery,

48 Gattellari, 29 Laupacis, 39 Wong, 78 Hunter³⁵ O'Connor, 54 Lerman⁴¹ As above plus Wolf, 77 McBride, 45 Man-Son-Hing, 43 Rostom, 60 Shapira, 63 Dodin²⁴ As above plus Whelan, 74 Whelan, 73 McAlister, 44 Gattellari²⁸

Value congruence with chosen option Decisional Conflict Scale (DCS) 2007
 1999 2003 2007 1999 2003 2007 80 2007 1999 2003 2007 1999 2003 57 15
 30 27 15 33 24 15/55 2/13 10/30 13/55 2/13 9/30 17/30 Downloaded from
 mdm. sagepub. com by guest on July 22, 2012 22 0 10 5 15 30 12/55 0/13
 3/30 3/55 2/13 9/30 Decision process leading to decision quality Feeling
 informed, subscale of the DCS Feeling clear about values, subscale of DCS

O'Connor, 55 Holmes-Rovner, 62 Dodin²⁴ As above O'Connor, 54 Morgan⁵⁰
 As above plus Murray, 51 Murray, 52 Dolan, 25 Man-Son-Hing, 43 Dodin, 24
 Goel, 30 O'Connor⁵⁵ As above plus Montgomery, 48 Shorten, 65 Laupacis, 39
 Whelan, 74 McAlister, 44 Lalonde, 38 Legare, 40 Hunter³⁵ O'Connor, 54
 Morgan⁵⁰ As above plus Murray, 51 Murray, 52 Dolan, 25 Man-Son-Hing, 43
 Dodin, 24 Goel, 30 O'Connor⁵⁵ As above plus Montgomery, 48 Laupacis, 39
 McAlister, 44 Wong, 78 Bekker, 16 Lalonde³⁸ O'Connor, 54 Morgan⁵⁰ As
 above plus Murray, 51 Murray, 52 Dolan, 25 Man-Son-Hing, 43 Dodin, 24
 Goel, 30 O'Connor⁵⁵ As above plus Montgomery, 48 Laupacis, 39 McAlister,
 44 Lalonde³⁸

Note: Trials included in 1999 and 2003 but not in 2007 are Davison and
 others (measuring feeling informed, clear values); Maisels and others, ⁸¹
 Michie and others⁸² (measuring knowledge scores), and Thornton and
 others. ⁸³ These authors were eliminated because we were unable to verify

what was in their decision aid to meet the IPDAS definition of a decision aid.

563 O'CONNOR AND OTHERS Study or subcategory y Bekker 2004 Gattellari
 2003 Johnson 2006 Whelan 2003 Schwartz 2001 Man-Son-Hing 1999 Morgan
 2000 Shorten 2005 Montgomery 2003 Gattellari 2005 Laupacis 2006 Volk
 1999 Lerman 1997 Barry 1997 Wong 2006 Bernstein 1998 Dunn 1998 Green
 2001 N

Decision Aid Mean (SD) 74. 00(14. 50) 50. 00(18. 40) 92. 60(11. 00) 80.
 20(14. 40) 65. 71(14. 29) 75. 91(15. 72) 76. 00(32. 04) 75. 33(15. 00) 75.
 00(17. 00) 57. 20(21. 30) 83. 00(19. 50) 48. 00(22. 40) 68. 90(19. 00) 75.
 00(45. 00) 85. 00(26. 70) 83. 00(16. 00) 83. 67(23. 13) 95. 00(7. 00) N Usual
 Care Mean (SD) 71. 50(16. 00) 45. 00(15. 90) 85. 20(15. 60) 71. 70(13. 30)
 57. 14(15. 71) 66. 46(16. 07) 62. 00(32. 04) 60. 53(17. 07) 60. 00(18. 00) 42.
 20(16. 70) 67. 40(17. 00) 31. 00(18. 30) 49. 00(21. 70) 54. 00(45. 00) 60.
 00(21. 70) 58. 00(16. 00) 55. 53(22. 80) 65. 00(21. 00) W MD (random) 95%
 CI W eight % 5. 68 6. 3 5. 49 6. 16 6. 41 6. 24 4. 61 6. 04 5. 43 6. 03 5. 32 5.
 50 6. 00 3. 84 5. 81 5. 61 5. 83 3. 97 100. 00 W MD (random) 95% CI 2. 50 [-
 3. 31, 8. 31] 5. 00 [0. 39, 9. 61] 7. 40 [0. 98, 13. 82] 8. 50 [4. 37, 12. 63] 8.
 57 [5. 55, 11. 59] 9. 45 [5. 68, 13. 22] 14. 00 [4. 81, 23. 19] 14. 80 [10. 23,
 19. 37] 15. 00 [8. 39, 21. 61] 15. 00 [10. 40, 19. 60] 15. 60 [8. 64, 22. 56]
 17. 00 [10. 61, 23. 39] 19. 90 [15. 17, 24. 63] 21. 00 [9. 25, 32. 75] 25. 00
 [19. 60, 30. 40] 25. 00 [18. 95, 31. 05] 28. 14 [22. 83, 33. 45] 30. 00 [18. 71,
 41. 29] 15. 22 [11. 71, 18. 73] 50 106 32 82 191 137 90 99 50 131 53 78
 122 104 154 61 143 29 6 108 35 93 190 136 97 92 58 136 53 80 164 123
 159 48 144 14 Total (95% CI) 1712 1786 Test for heterogeneity: $\chi^2 = 130.$

32, df = 17 (P ; 0 . 00001), I² = 87. 0% Test for overall effect: Z = 8. 50 (P ; 0. 00001) -50 Favors Usual Care 0 50 Favors Decision Aid Figure 2 Effect of patient decision aids on patients' mean scores on knowledge tests: decision aid versus usual care. WMD = weighted mean difference; CI = confidence interval. Study N Goel 2001 Rothert / H-Rovner O'Connor 1998-RCT Hunter 2005 Schapira 2000 Street 1995 Rostom 2002 Deyo / Phelan Dodin 2001

Study	N	Mean (SD)	Weight %	WMD (random) 95% CI
Total	77	83.67(11.1)	100.00	1.67 [-2.59, 5.93]
Detailed DA	81	86.79(11.34)	14.31	3.04 [-0.40, 6.48]
Simple DA	81	75.00(20.00)	4.00	4.00 [-2.26, 10.26]
Goel 2001	116	64.53(19.61)	4.40	4.40 [-0.47, 9.27]
Rothert / H-Rovner O'Connor 1998-RCT	122	83.33(12.78)	5.00	5.00 [1.60, 8.40]
Hunter 2005	30	82.60(11.60)	6.20	6.20 [-0.25, 12.65]
Schapira 2000	25	93.80(9.00)	6.70	6.70 [0.95, 12.45]
Street 1995	41	71.76(17.06)	9.41	9.41 [1.00, 17.82]
Rostom 2002	52	71.04(15.45)	9.84	9.84 [3.30, 16.38]
Deyo / Phelan	627	80.00(12.22)	4.63	4.63 [3.02, 6.24]
Dodin 2001	27	87.10(11.80)	48.87	48.87 [3.02, 6.24]
Weighted Mean Difference				1.67 [-2.59, 5.93]
Weighted Mean Difference				3.04 [-0.40, 6.48]
Weighted Mean Difference				4.00 [-2.26, 10.26]
Weighted Mean Difference				4.40 [-0.47, 9.27]
Weighted Mean Difference				5.00 [1.60, 8.40]
Weighted Mean Difference				6.20 [-0.25, 12.65]
Weighted Mean Difference				6.70 [0.95, 12.45]
Weighted Mean Difference				9.41 [1.00, 17.82]
Weighted Mean Difference				9.84 [3.30, 16.38]
Weighted Mean Difference				4.63 [3.02, 6.24]

126 135 30 26 49 49 634

Test for heterogeneity: $\chi^2 = 7.18$, df = 8 (P = 0.52), I² = 0% Test for overall effect: Z = 5.63 (P < 0.00001) -50 Favours Simple 0 50 Favours Detailed Figure 3 Effect of patient decision aids (DAs) on patients' mean scores on knowledge tests: detailed versus simple decision aids. WMD = weighted mean difference; CI = confidence interval. 564 • MEDICAL DECISION MAKING/SEP-OCT 2007 Downloaded from mdm.sagepub.com by guest on July 22, 2012 DECISION AIDS " EFFECTIVENESS CRITERIA OF

DECISION AIDS" Study or subcategory y Decision Aid n/N 90/122 189/266

73/94 109/265 82/122 33/52 58/81 47/82 70/187 88/139 57/106 1516

Usual Care n/N 108/164 72/133 62/107 82/274 62/135 21/49 39/84 34/92

27/165 40/148 11/108 1459 RR (random) 95% CI W eight % 11. 11 10. 83 10.

55 10. 01 10. 16 7. 66 9. 45 8. 54 7. 54 9. 04 5. 12 100. 00 RR (random) 95%

CI 1. 12 [0. 96, 1. 31] 1. 31 [1. 10, 1. 56] 1. 34 [1. 10, 1. 63] 1. 37 [1. 09, 1.

73] 1. 46 [1. 17, 1. 83] 1. 48 [1. 01, 2. 17] 1. 54 [1. 18, 2. 02] 1. 55 [1. 12, 2.

15] 2. 29 [1. 55, 3. 38] 2. 34 [1. 75, 3. 14] 5. 28 [2. 93, 9. 50] 1. 61 [1. 35, 1.

92] Lerman 1997 Wolf 2000 Whelan 2004 McBride 2002 Schapira 2000

Dodin 2001 O'Connor 1998-RCT Whelan 2003 McAlister 2005 Man-Son-Hing

1999 Gattellari 2003 Total (95% CI)

Total events: 896 (Decision Aid), 558 (Usual Care) Test for heterogeneity: χ^2

= 52. 06, df = 10 (P ; 0. 00001), I^2 = 80. 8% Test for overall effect: Z = 5. 34

(P ; 0. 00001) 0. 1 0. 2 0. 5 1 Favours Usual Care 2 5 10 Favours Decision Aid

Figure 4 Effect of patient decision aids on the proportion of patients classified

as having accurate risk perceptions. RR = relative risk; CI = confidence

interval. congruence. Holmes-Rovner and others⁶² measured the correlation

between the subjective expected value of hormones and women's likelihood

of taking HRT, converted here to the percentage of variance in likelihood

explained by alues. Dodin and others²⁴ measured the percentage of

variance in decisions explained by values. O'Connor and others⁵⁵ used

logistic regression to estimate the percentage agreement between values

and choice. PtDAs improved value congruence with the chosen option in 2 of

3 studies. In the trial by Dodin and others, 24 24% of the variance in HRT

decisions was explained by personal values when a detailed PtDA with explicit values clarification was used; in contrast, 14% of the variance in decisions was explained when a simpler PtDA was used ($P = 0.003$).

In the study by Holmes-Rovner and others, 62 the percentage of variance in the likelihood of choosing HRT that was explained by women's expected values was greater when a more detailed PtDA was used (13%–14%) than when a simpler PtDA was used (0.09%–2%). O'Connor and others⁵⁵ found that the addition of an explicit values clarification exercise in a PtDA did not improve agreement between values and the chosen option. However, in the subgroup of women who chose HRT, women who used the PtDA with explicit values clarification DECISION AIDS: PAST, PRESENT, AND FUTURE had a trend toward better agreement (40%) than did those who used an identical PtDA without explicit values clarification (0%, $P = 0.06$).

Decision Processes Leading to Decision Quality There were no trials evaluating the extent to which PtDAs helped patients to recognize that a decision needs to be made, understand that values affect the decision, and discuss values with their practitioner. Although 8 trials evaluated effects on patient participation, none focused on helping patients become involved in preferred ways. Some studies measured patients' self-reports about feeling informed and clear about personal values.

The measures used to evaluate these 2 criteria were 2 subscales of the Decisional Conflict Scale (DCS). The DCS is reliable, discriminates between those who make or delay decisions, is sensitive to change, and discriminates between different decision support interventions. ^{54, 79} The scores are

standardized to range from 0 (no decisional conflict) to 100 points (extreme decisional conflict). Scores of 25 or lower are associated with follow through with decisions, whereas scores that exceed 38 are associated with delay in decision making. 54 When PtDAs are compared with usual care, 565

Downloaded from mdm. agepub. com by guest on July 22, 2012 O'CONNOR AND OTHERS Study or subcategory y Decision Aid N Mean (SD) 22. 17(9. 47) 27. 56(10. 51) 16. 25(13. 75) 29. 93(17. 26) 15. 75(13. 00) 20. 00(21. 50) 15. 75(13. 25) 15. 00(12. 50) 21. 67(15. 83) 32. 50(15. 00) Usual Care N Mean (SD) 58 45 54 93 37 94 148 215 159 56 959 49. 14(25. 40) 38. 88(20. 02) 27. 25(15. 00) 38. 89(22. 53) 24. 50(21. 25) 27. 50(21. 50) 21. 00(14. 75) 20. 00(15. 00) 25. 83(19. 17) 31. 67(14. 17) WMD (random) 95% CI Weight % 8. 64 9. 09 10. 03 9. 73 7. 93 9. 28 11. 82 12. 25 11. 33 9. 90 100. 00 WMD (random) 95% CI -26. 97 [-34. 1, -19. 93] -11. 32 [-17. 83, -4. 81] -11. 00 [-16. 43, -5. 57] -8. 96 [-14. 73, -3. 19] -8. 75 [-16. 67, -0. 83] -7. 50 [-13. 79, -1. 21] -5. 25 [-8. 49, -2. 01] -5. 00 [-7. 60, -2. 40] -4. 16 [-8. 05, -0. 27] 0. 83 [-4. 74, 6. 40] -8. 35 [-11. 89, -4. 80] 02 Uninformed Subscale Montgomery 2003 50 Murray BPH 2001 52 Laupacis 2006 54 Murray HRT 2001 93 Dolan 2002 41 Morgan 2000 86 Man-Son-Hing 1999 139 McAlister 2005 219 Wong 2006 154 Bekker 2004 50 Subtotal (95% CI) 938 Test for heterogeneity: 48. 12, df = 9 (P ; 0. 00001), I² = 81. 3% Test for overall effect: Z = 4. 61 (P ; 0. 0001) -50 0 Favours Decision Aid 50 Favours Usual Care ? 2 = Figure 5 Effect of patient decision aids on patients' scores on the Uninformed subscale of the Decisional Conflict Scale: decision aid versus usual care. WMD = weighted mean difference; CI = confidence interval. Study or subcategory y Detailed DA N Mean (SD) 22. 50(17. 50) 17. 50(12. 50) 20. 75(10. 75) 22.

50(17. 50) 38. 25(12. 00) Simple DA N Mean (SD) 84 49 45 100 12 27. 50(20. 00) 22. 25(14. 75) 24. 00(16. 00) 20. 00(17. 50) 31. 25(10. 75) W MD (random) 95% CI W eight % 20. 52 21. 72 22. 00 23. 42 12. 34 100. 00 W MD (random) 95% CI -5. 0 [-10. 73, 0. 73] -4. 75 [-10. 10, 0. 60] -3. 25 [-8. 51, 2. 01] 2. 50 [-2. 34, 7. 34] 7. 00 [-2. 12, 16. 12] -1. 32 [-5. 27, 2. 62] 02

Uninformed Subscale O'Connor 1998-RCT 81 Dodin 2001 52 Goel 2001 76 O'Connor Wells 1999 101 Lalonde 2006 12 Subtotal (95% CI) 322 290 Test for heterogeneity: $\chi^2 = 9. 24$, $df = 4$ ($P = 0. 06$), $I^2 = 56. 7\%$ Test for overall effect: $Z = 0. 66$ ($P = 0. 51$) -50 0 Favours Detailed DA 50 Favours Simple DA

Figure 6 Effect of patient decision aids on patients' scores on the Uninformed subscale of the Decisional Conflict Scale: detailed versus simple decision aid (DA).

WMD = weighted mean difference; CI = confidence interval. a negative score indicates a reduction in decisional conflict, which is in favor of the PtDA. In our review, 15 trials used the DCS subscale for feeling informed and 13 trials used the DCS subscale for feeling clear about values. Because this DCS subscale measures self-reported comfort with knowledge and not actual knowledge, we elected to consider it a process measure and to reserve the gold standard of objective knowledge tests in assessing decision quality. The WMD in feeling uninformed about options, benefits, and harms was -8. (95% CI = -11. 9 to -4. 8) in the 10 trials^{16, 25, 39, 43, 44, 48, 50-52, 78} that compared the PtDAs to usual care (Figure 5). The 5 trials that compared detailed with simpler PtDAs^{24, 30, 38, 54, 55} had a WMD in feeling uninformed of -1. 3 (95% CI = -5. 3 to 2. 6; Figure 6). Eight trials comparing

PtDA to usual care^{25, 39, 43, 44, 48, 50-52} had a WMD of -6.3 (95% CI = -10.0, -2.7) for feeling clear about values (Figure 7). Five trials compared detailed to simpler PtDAs. ^{24, 30, 38, 54, 55} For these trials, the WMD in feeling clear about values was -1.1 (95% CI = -4.8 to 2.6; Figure 8).

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DECISION AIDS “EFFECTIVENESS CRITERIA OF DECISION AIDS” Study or sub-category Decision Aid N Mean (SD)

Study or sub-category	N	Mean (SD)
Decision Aid	50	54.41 (82.53)
Usual Care	58	55.37 (84.45)

WMD (random) 95% CI Weight % 9.8 11.11 8.15 12.88 11.64 14.75 15.30 16.40 100.00

WMD (random) 95% CI -22.79 [-30.26, -15.32] -11.25 [-17.54, -4.96] -9.50 [-18.61, -0.39] -5.35 [-10.16, -0.54] -5.18 [-11.02, 0.66] -2.75 [-5.91, 0.41] -2.50 [-5.10, 0.10] 0.00 [-0.95, 0.95] -6.33 [-9.98, -2.69]

03 Unclear Values Subscale

Montgomery 2003 Laupacis 2006 Dolan 2002 Murray HRT 2001 Murray BPH 2001 Man-Son-Hing 1999 McAlister 2005 Morgan 2000 Subtotal (95% CI)

Test for heterogeneity: 57.71 , $df = 7$ ($P = 0.0001$), $I^2 = 87.9\%$ Test for overall effect: $Z = 3.40$ ($P = 0.007$) -50 Favours Decision Aid 0 50 Favours Usual Care ? 2 = Figure 7 Effect of patient decision aids on patients' scores on the Unclear Values subscale of the Decisional Conflict Scale: decision aid versus usual care. WMD = weighted mean difference; CI = confidence interval.

Study or sub-category y Detailed DA N Mean (SD) 81 77 52 12 97 25.00 (17.50) 24.00 (12.50) 25.00 (13.75) 39.50 (10.75) 22.50 (15.00) N

84 45 49 12 100 Simple DA Mean (SD) 32. 50(17. 50) 25. 75(15. 75) 24. 75(13. 50) 37. 50(13. 00) 20. 00(15. 00) W MD (random) 95% CI W eight % 21. 23 21. 09 21. 32 10. 94 25. 42 100. 0 W MD (random) 95% CI -7. 50 [-12. 84, -2. 16] -1. 75 [-7. 13, 3. 63] 0. 25 [-5. 07, 5. 57] 2. 00 [-7. 54, 11. 54] 2. 50 [-1. 69, 6. 69] -1. 05 [-4. 81, 2. 70] O'Connor 1998-RCT Goel 2001 Dodin 2001 Lalonde 2006 O'Connor Wells 1999 Subtotal (95% CI) 319 290 Test for heterogeneity: $\chi^2 = 9.02$, $df = 4$ ($P = 0.06$), $I^2 = 55.7\%$ Test for overall effect: $Z = 0.55$ ($P = 0.58$) -50 0 Favours Detailed DA 50 Favours Simple DA

Figure 8 Effect of patient decision aids on patients' scores on the Unclear Values subscale of the Decisional Conflict Scale: detailed versus simple decision aid (DA).

WMD = weighted mean difference; CI = confidence interval. Post hoc Analysis Effects of study quality. To examine the effect of possible bias from including trials of low methodological quality, the 13 trials^{15, 21, 31, 34, 41, 45, 54, 56, 58, 61, 63, 66, 77} with Jadad scores of 0 or 1 were excluded from the analysis. Overall, the results remained the same. There was a significant improvement in knowledge scores for the comparison of PtDAs to usual-care controls (WMD = 14.0%, 95% CI = 2.4, 8.6) and for the comparison of detailed to simpler PtDAs (WMD = 5.5%, 95% CI = 2.4, 8.6).

The proportion of patients having accurate risk perceptions was greater for patients receiving PtDAs with information on outcome probabilities (RR = 2.0, 95% CI = 1.4, 2.8). Publication bias. There were too few studies to explore potential publication bias for all of the outcomes, with the exception of knowledge for the comparison of PtDAs to usual care. The funnel plot for

this outcome (Figure 9) points to the absence of smaller negative studies.

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Comparison: 01 Decision Aids versus Usual Care Outcome: 0 07 Knowledge:

Decision Aids vs Usual Care SE(WMD) 2 4 6 8 -100 -50 0 50 100 WMD (fixed)

Figure 9 Funnel plot of all 18 randomized controlled trials comparing patient decision aids to usual care (knowledge). WMD = weighted mean difference.

Heterogeneity. There was statistically significant heterogeneity when PtDAs were compared with usual care for 4 outcomes: knowledge test scores, realistic risk perceptions, feeling uninformed, and feeling unclear regarding personal values (Table 3). It should be noted that the heterogeneity of the effect was not in the direction but in the size.

When we explored the potential factors contributing to heterogeneity (Table 3), we found that none of the factors eliminated heterogeneity for the outcomes of knowledge scores. When grouped into treatment and screening decisions, the WMD for knowledge scores was slightly higher for the treatment group (16. 6% v. 13. 1%), but there was still statistically significant heterogeneity. For the outcomes of accurate risk perceptions, heterogeneity was not significant when we removed 3 studies with lower accurate risk perception scores in the usual-care control group ($P = 0. .28$, 43, 44 For the outcome of feeling uninformed, heterogeneity was no longer significant with 1) removal of 3 studies with higher uninformed scores in the usual-care control group ($P = 0.11$), 2) inclusion of only audio booklet/pamphlet decision aids ($P = 0.06$), and 3) removal of an outlier⁴⁸ ($P = 0.$

06). None of the factors eliminated heterogeneity for the outcomes of unclear values scores. **DISCUSSION** The majority of trials report on at least 1 IPDAS effectiveness measure, predominately knowledge test scores.

Of those reporting IPDAS measures, we found that PtDAs were superior to usual practices in 568 • MEDICAL DECISION MAKING/SEP-OCT 2007 meeting the new IPDAS standards 1) for decision quality and 2) for 2 process measures (feeling informed and feeling clear about personal values).

Detailed PtDAs had superior effects over simpler PtDAs on value congruence with the chosen option and on accurate risk perceptions but not on knowledge test scores or on self-reports about feeling informed and feeling clear about values.

We also identified the gaps in the use of measures of effectiveness endorsed by IPDAS, notably, value congruence with the chosen option and most of the decision process measures. There are some study limitations. Study quality ratings of all trials included in the review were low because they all lost 2 points for lack of blinding. Although not an a priori exclusion criterion for this review, in the future, we may consider using study quality ratings for the selection of included trials.

The conclusions of this review are limited by 1) inadequate power to detect important differences in effectiveness in subgroups and 2) the wide variability in the decision contexts, the elements within the PtDAs, the type of comparison interventions, the targeted outcomes, and the evaluation procedures. This article focuses solely on measures of effectiveness, not

harms. The small number of studies for most outcomes did not allow for analysis of publication bias because of the failure to publish negative studies. Moreover, there may have been publication bias because of failure to report all negative findings in a published study.

Lastly, several of the outcomes demonstrated statistically significant heterogeneity. It reflects differences across clinically diverse studies; therefore, the pooled effect size and CI should be interpreted as a range across conditions, which may not be applicable to a specific condition. There are several implications for future research. Studies are needed to evaluate the effects of PtDAs on congruence between values and chosen options. Moreover, the methods for quantifying value congruence should be explored. The IPDAS decision processes criteria leading to decision quality should also be measured.

It would be helpful to develop a standardized approach to measurement. With the addition of more trials to the database, it may be possible to tease out the reason for heterogeneity of results, including variability in 1) study quality, 2) comparison intervention, 3) elements within PtDAs, 4) decision type, and 5) format of decision aid (e. g. , video, Internet, booklet). The degree of detail in PtDAs that is required for positive effects on IPDAS criteria should also be explored. Downloaded from mdm.sagepub.com by guest on July 22, 2012 Table 3

Exploration of Potential Factors Affecting Heterogeneity Outcome Overall
Effect Treatment Decision Screening Decision Video/Computer Decision Aid

Audio/Pamphlet Decision Aid Baseline Risk in Usual-Care Groupa Removal of Outliers Knowledge 1. 6 (1. 4, 1. 9) -3. 5 (-12. 9, 5. 8) 1. 6 (1. 1, 2. 3) No data 15. 2 (11. 7, 18. 7) 16. 6 (12. 0, 21. 2) 13. 1 (7. 7, 18. 5) 21. 4 (16. 5, 26. 2) 11. 9 (8. 3, 15. 6) 1. 6 (1. 4, 1. 9) 15. 6 (11. 3, 19. 9) 1. 3 (1. 2, 1. 5)* 1. 6 (1. 4, 1. 9) 17. 316, 28, 36 (13. 7, 20. 9) 1. 528 (1. 3, 1. 7) -8. 4 (-11. 9, -4. 8) -9. 4 (-13. 3 -5. 5) 12. 6 (-19. 5, -5. 8) -4. 9 (-7. 6, -2. 3)*** -5. 4 (-7. 7, -3. 2)** -6. 248 (-8. 4, -4. 1)*** -8. 0 (-15. 1, -1. 0) -4. 5 (-8. 4, -0. 6) -3. 6 (-6. 8, -0. 5) -4. 0 r48 (-6. 7, -1. 3) Downloaded from mdm. sagepub. com by guest on July 22, 2012 Accurate risk perceptions Uninformed Subscale of the Decisional Conflict Scale Unclear values subscale of the Decisional Conflict Scale -6. 0 (-9. 8, -2. 3) Insufficient data -6. 3 (-10. 0, -2. 7) Note: Values are presented as the weighted mean treatment effect (95% confidence interval). Chi-square heterogeneity test P value