A visit to the doctor: shared decision making supported by outcome information in chronic kidney disease

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PART ONE

Shared Decision Making in Chronic Kidney Disease – broadening the scope

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For which decisions is Shared Decision Making considered appropriate? – a systematic review

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Abstract

Objective

To identify decision characteristics for which SDM authors deem SDM appropriate or not, and what arguments are used.

Methods

We applied two search strategies: we included SDM models from an earlier review (strategy 1) and conducted a new search in eight databases to include papers other than describing an SDM model, such as original research, opinion papers and reviews (strategy 2).

Results

From the 92 included papers, we identified 18 decision characteristics for which authors deemed SDM appropriate, including preference-sensitive, equipoise and decisions where patient commitment is needed in implementing the decision. SDM authors indicated limits to SDM, especially when there are immediate life-saving measures needed. We identified four decision characteristics on which authors of different papers disagreed on whether or not SDM is appropriate.

Conclusion

The findings of this review show the broad range of decision characteristics for which authors deem SDM appropriate, the ambiguity of some, and potential limits of SDM. Practice implications: The findings can stimulate clinicians to (re)consider pursuing SDM in situations in which they did not before. Additionally, it can inform SDM campaigns and educational programs as it shows for which decision situations SDM might be more or less challenging to practice.

1. Introduction

Shared Decision Making (SDM) is increasingly being advocated in clinical practice and efforts are made to implement it throughout healthcare. SDM does not currently have a unified definition, yet attempts have been made to capture its core elements. SDM entails a collaborative decision making process, including clarifying a decision is needed, discussing the options, exploring patient preferences, and ultimately making a decision (or deferring it) [1–3]. These core elements have been translated into workable steps to help incorporate them into practice [4,5].

Several national quality institutes linked to clinical practice guidelines recommend SDM, such as The Institute for Quality and Efficiency in Healthcare in Germany and The National Institute for Health and Care Excellence (NICE) in the UK. In addition, strong political advocacy for SDM is visible in different countries in the form of national campaigns, among which The Netherlands, USA, Germany, Canada, UK and Taiwan [6]. However, SDM is often advocated broadly without specifying *when* to apply SDM. In transitioning from advocating towards implementing SDM in daily clinical practice, questions may arise regarding the limits to SDM's applicability. For effective implementation, guidance for clinicians on when SDM is considered to be appropriate is required.

The large body of literature on patient decision aids, tools to support SDM, shows that SDM is deemed relevant or appropriate for many different decisions in many different settings [7]. Specification in what exactly makes these decisions particularly appropriate for SDM is often lacking. For some decisions, engaging in SDM is deemed so important that it has been made mandatory, for example for lung cancer screening decisions or decisions regarding implanting cardioverter-defibrillators (ICD's) in the US. These decisions are described as *not having one superior option* and *preference-sensitive* [8].

Some SDM authors mention characteristics of decisions for which SDM is particularly appropriate. For example, Whitney et al. propose that the level of *uncertainty* (evidence) around decisions, their *importance* [9], and the *amount of risk* involved in decision options [10], all play a role in determining the relevance of SDM. In their ground-laying work, Charles et al. described SDM in the context of early-stage breast cancer treatment decisions as their main example. They characterized this decision as having *several treatment options* and comprising *uncertainty around possible outcomes* [11] and considered these two decision characteristics to make SDM appropriate.

However, the SDM literature is less extensive on when SDM might *not* be appropriate. Hypothetically, SDM could lead to a burden of choice for patients, particularly in decisions which may have *high impact*. Additionally, for *urgent* decisions with *large (life-saving) consequences*, SDM can potentially be harmful [12,13]. Thus, it seems some decision characteristics clearly make SDM suitable, while others indicate the limits of SDM. Identifying these decision characteristics and how they relate to SDM can help clinicians in implementing SDM effectively in practice. Therefore, in this review, we aim to systematically assess what decision characteristics SDM authors report for which they deem SDM appropriate. Additionally, we wish to explore the limits of SDM and identify which decision characteristics SDM authors mention that make SDM inappropriate or even potentially harmful. We will provide an overview of the different decision characteristics and decision examples reported by SDM authors (including the setting in which they were mentioned), and what arguments authors provide on why SDM is (in) appropriate in those situations.

2. Methods

The focus of this review is on decision characteristics, i.e., features that characterize decisions (e.g., impact of a decision) regardless of the content of the decision or its setting. Decision characteristics are different from characteristics regarding decision makers (e.g., cognitive functioning), decision setting (e.g., primary care), or decision type (e.g., treatment). (**Fig. 1**). For example, decisions to be made within a short time frame (a decision characteristic) may occur in different settings (primary care, emergency department etc.) and may entail different types of decisions (diagnostics, treatment etc).

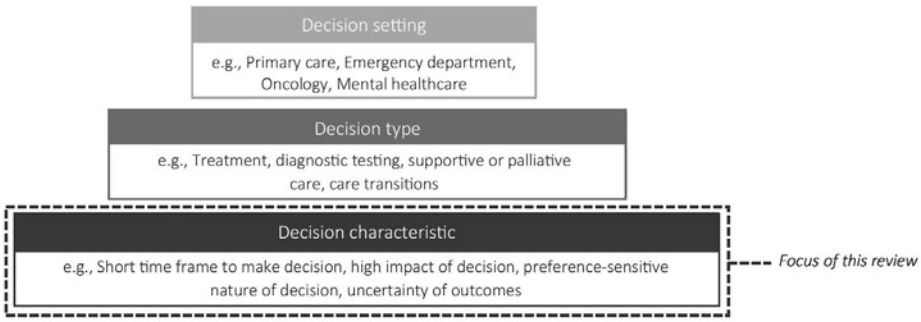

Figure 1. Three levels to describe decisions

2.1. Data collection

In order to identify a broad variety of papers, we applied two strategies to collect data. In strategy 1, we focused on how authors of SDM models implicitly and/or explicitly consider SDM to be appropriate. The papers describing SDM models were derived from a 2019 review of SDM models [1].

Strategy 2 included a systematic search of papers that describe decision characteristics. The second strategy focused on opinion papers, original research and reviews, and not on SDM models. The search consisted of keywords and synonyms for 'SDM', 'decision situation', 'decision type', and decision characteristics that had been identified in the papers included in the first strategy. We searched the following eight databases: Academic Search Premier, Cochrane, Pubmed, Emcare, Embase, Medline, PsychINFO and Web of Science. See **Supplement 1** for the full search strategy. To be eligible, the papers had to be published in a peer-reviewed journal and explicitly describe the authors' view on the appropriateness of SDM as a function of decision characteristics. Papers on SDM models that were published after the search of Bomhof- Roordink et al. [1] and that came up in this search, were also included. We excluded papers that did not present the *authors'* views on when SDM is appropriate as a function of particular decision characteristics and, for example, described the opinions of study participants such as clinicians and/or patients; papers in other languages than English, Dutch or French; and papers on SDM interventions such as decision aids that did not explain why SDM is important for that particular decision. Title-abstract screening and full-text screening were performed independently and in duplicate (DH-AP and DH-MG). In case of disagreement, consensus was reached by discussion and if needed, a third researcher was consulted (AP or MG).

2.2. Data extraction

One researcher (DH) extracted the data from all the papers included based on strategy 1 and 2 using a standardized extraction form, and another researcher (AP or MG) verified the extractions. Consensus, if needed, was reached through discussion. For all papers (both strategy 1 and 2), we extracted the following general characteristics: author(s), year of publication, journal, country of study, and study design. We extracted fragments describing the decisions (including their setting), decision characteristics, and arguments used to determine whether SDM was considered appropriate or not.

2.3. Data analysis

We used the extracted data, based on all papers, including strategy 1 and 2, to build an overview of the decision characteristics and examples of decisions. One researcher

(DH) categorized the decision characteristics based on their similarity, and two other researchers checked the categorization (AH and MG). Inconsistencies were discussed until consensus was reached. In the results, we provide decision characteristics, decision examples and arguments of all papers (both strategy 1 and 2) in a descriptive way. We tried to describe the decision characteristics and decision examples as concretely as possible, while staying close to the original authors' wording.

We counted how often decision characteristics were mentioned in the papers included in strategy 1. We excluded the papers from strategy 2 in this calculation, because we had purposely included decision characteristics in building the search for strategy 2. Quality and risk of bias of all included studies were not assessed, because we aimed to be inclusive of the different views of authors, which is not in line with excluding views based on formal bias/quality assessments. Ethical approval was not required for this study. This review was registered at PROSPERO: CRD42021236297.

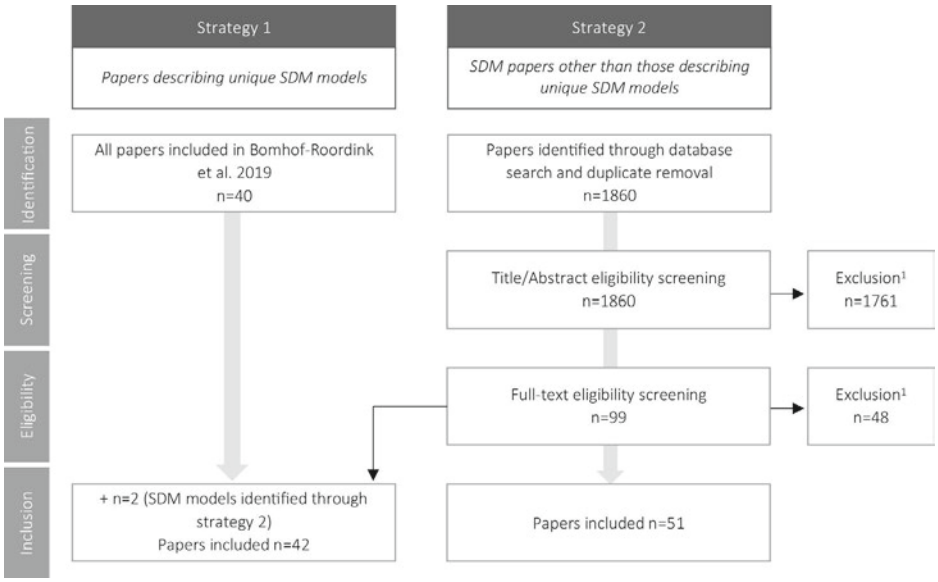

Figure 2. Flow diagram of the inclusion process of relevant papers

[1] Reasons for exclusion: Paper not written in English, French or Dutch or paper does not contain explicit statements describing the authors' view on decision characteristics making SDM appropriate or not. Papers that had already been identified based on strategy 1 were excluded in strategy 2.

3. Results

3.1. Included papers

We included the 40 papers describing an SDM model from the review of Bomhof-Roordink et al. [1]. Two papers, each describing a unique SDM model, were added from the search of strategy 2 [14,15] (**Fig. 2**). The authors of half of the papers on SDM models (n = 21) explicitly stated for what kind of decisions they considered their SDM model to be appropriate [5,11,14–32]. In 19 papers they only implicitly mentioned when they considered SDM appropriate [2,4,33–49]. For example, these authors implied that their SDM model was appropriate for certain decisions by providing decision examples containing specific decision characteristics. Two papers did not mention when their SDM model is appropriate [50,51].

Strategy 2 yielded 1860 papers, of which 51 were included (**Fig. 2**). Eight original studies were included, mostly qualitative [52–59] (**Table 1**). Other papers were reviews (n = 17) [60–75] or other non-empirical papers [9,10,76–100].

Table 1. Overview of included papers

Author, publication year [ref]	Country	Study design/type of paper	Setting Paper
Papers describing SDM models (strategy 1)			
Bomhof-Roordink et al. 2019 [48]	The Netherlands	Qualitative: interviews	Oncology
Caverly et al. 2020 [14]	USA	Non-empirical paper	Primary care
Charles et al. 1997 [11]	Canada	Non-empirical paper	Early stage breast cancer treatment
Charles et al. 1999 [30]	Canada	Non-empirical paper	Early stage breast cancer treatment
Chor et al. 2019 [22]	USA	Non-empirical paper	Gynaecology: asymptomatic non pregnant women
Dobler et al. 2017 [27]	USA	Non-empirical paper	Lung cancer screening
Eliacin et al. 2015 [41]	USA	Qualitative: interviews	Mental healthcare
Elwyn et al. 2000 [43]	UK	Qualitative: focus groups	Primary care
Elwyn et al. 2012 [4]	UK	Non-empirical paper	Not specified
Elwyn et al. 2013 [44]	UK, USA, Canada	Non-empirical paper	Not specified
Elwyn et al. 2017 [51]	USA, UK	Qualitative and quantitative: commentary, review, survey	Not specified
Gillick et al. 2015 [20]	USA	Non-empirical paper	Not specified
Grim et al. 2016 [35]	Sweden	Qualitative study: focus groups	Mental healthcare
Jansen et al. 2016 [26]	Australia	Non-empirical paper	Elderly care (polypharmacy)
Joseph- Williams et al. 2019 [39]	UK	Qualitative: observation of consultations	Chronic kidney disease and early stage breast cancer
Kane et al. 2014 [24]	USA	Review	Oncology
Karkazis et al. 2010 [25]	USA	Non-empirical paper	Decisions about genital surgery for disorders of sex development
Langer et al. 2018 [31]	USA	Non-empirical paper	Psychotherapy youth and families
Légaré et al. 2011 [40]	Canada	Non-empirical paper	Primary care
Légaré et al. 2011 [46]	Canada	Qualitative design: interviews	Primary care
Lenzen et al. 2018 [29]	The Netherlands	Non-empirical paper	Primary care
Lown et al. 2009 [47]	USA	Qualitative design: working groups	Chronic conditions and primary care
Makoul et al. 2006 [2]	USA	Review	Not specified
Montori et al. 2006 [17]	Canada	Non-empirical paper	Chronic care
Moore et al. 2018 [18]	USA	Non-empirical paper	Physiotherapy
Murray et al. 2006 [16]	UK, Canada	Non-empirical paper	Primary care
Navar et al. 2016 [15]	USA	Review	Cardiovascular disease prevention

Table 1. *(Continued)*

Author, publication year [ref]	Country	Study design/type of paper	Setting Paper
Ng et al. 2019 [23]	Malaysia	Non-empirical paper	Primary care (complex multimorbidity)
Park et al. 2018 [19]	South Korea	Review	Paediatric care
Peek et al. 2008 [101]	USA	Qualitative: interviews	Diabetes
Probst et al. 2017 [32]	USA	Non-empirical paper	Emergency department
Probst et al. 2018 [21]	USA	Non-empirical paper	Emergency cardiovascular care
Rennke et al. 2017 [42]	USA	Non-empirical paper	Inpatient hospital setting
Rusiecki et al. 2018 [36]	USA	Quantitative: pre-post surveys	Not specified
Saidinejad et al. 2018 [34]	USA	Non-empirical paper	Paediatric emergency department
Shay et al. 2014 [37]	USA	Qualitative: interviews	Primary care
Simon et al. 2006 [49]	Germany	Qualitative and Quantitative: Delphi method and survey	Depression, gynaecology, primary care, urology, anaesthesia
Stiggelbout et al. 2015 [5]	The Netherlands	Non-empirical paper	Not specified
Towle et al. 1999 [33]	Canada	Qualitative: interviews	Not specified
Truglio-Londrigan et al. 2018 [28]	USA	Review	Not specified
Van de Pol et al. 2016 [45]	The Netherlands	Qualitative: Delphi method	Elderly care
Volk et al. 2014 [50]	USA	Quantitative: pre- post surveys	Primary care
SDM papers not describing SDM models (strategy 2)			
Anagnostou et al. 2020 [60]	USA	Review	Paediatric allergy care
Armstrong et al. 2019 [96]	USA	Non-empirical paper	Disorders of consciousness
Bailo et al. 2019 [77]	Italy	Non-empirical paper	Not specified
Barry 2012 [78]	USA	Non-empirical paper	Not specified
Blaiss et al. 2019 [61]	USA	Review	Allergology
Clarke et al. 2004 [52]	USA	Qualitative: interviews	Congestive Heart Failure
Colligan et al. 2017 [62]	USA	Review	Multiple sclerosis
De Ligt et al. 2019 [63]	The Netherlands	Review	Breast cancer
Deegan et al. 2014 [79]	USA	Non-empirical paper	Mental healthcare
Drake et al. 2009 [80]	USA	Non-empirical paper	Mental healthcare
Elwyn et al. 1999 [58]	UK/The Netherlands	Qualitative: discourse analysis	Primary care
Elwyn et al. 2009 [81]	USA/UK	Non-empirical paper	Not specified
Elwyn et al. 2014 [83]	UK	Non-empirical paper	Not specified
Engelhardt et al. 2016 [55]	The Netherlands	Qualitative/quantitative: coding of consultations	Breast cancer

Table 1. *(Continued)*

Author, publication year [ref]	Country	Study design/type of paper	Setting Paper
Forner et al. 2020 [64]	Canada	Review	Head and neck oncology (surgery)
Greenhawt et al. 2020 [75]	USA	Review	Food allergy care
Gwyn et al. 1999 [59]	UK	Qualitative: discourse analysis	Primary care
Hamann and Heres. 2014 [82]	Germany	Non-empirical paper	Mental healthcare
Herlitz et al. 2016 [65]	Sweden	Review	Chronic care in general
Jansen et al. 2019 [53]	Australia	Qualitative: interviews	Elderly care
Kahlert et al. 2018 [66]	Switzerland	Review	Breastfeeding HIV infected mothers
Kon et al. 2016 [98]	USA	Non-empirical paper	Intensive Care Unit
Kraus et al. 2016 [67]	USA	Review	Emergency department
Langford et al. 2019 [74]	USA	Review	Hypertension management
Martínez-González et al. 2018 [68]	Switzerland	Review	Prostate cancer
Matthias et al. 2020 [54]	USA	Qualitative: interviews	Primary care
Mercuri et al. 2020 [84]	Canada	Non-empirical paper	Not specified
Mistler et al. 2008 [85]	USA	Non-empirical paper	Mental healthcare
Moulton et al. 2020 [86]	USA	Non-empirical paper	Enrolment in research
Narayan et al. 2015 [69]	USA	Review	Elderly care
Nelson et al. 2014 [87]	Canada	Non-empirical paper	Children with severe neurologic impairment
Niburski et al. 2020 [70]	Canada	Review	Surgery
Opel et al. 2018 [76]	USA	Non-empirical paper	Paediatric care
Palace et al. 2013 [88]	UK	Non-empirical paper	Multiple sclerosis
Pickrell et al. 2015 [89]	UK	Non-empirical paper	Epilepsy
Politi et al. 2013 [71]	USA	Review	Not specified
Politi et al. 2012 [90]	USA	Non-empirical paper	Oncology
Politi et al. 2013 [72]	USA	Review	Not specified
Pynnonen et al. 2014 [91]	USA	Non-empirical paper	Head and neck surgery
Shaw et al. 2020 [100]	UK	Protocol paper qualitative study	Major surgery
Turnbull et al. 2016 [56]	USA	Qualitative: Delphi method	Intensive Care Unit (non-emergent care)
Ubbink et al. 2015 [92]	The Netherlands	Non-empirical paper	Surgery
Van Beek- Peeters et al. 2020 [73]	The Netherlands	Review	Elderly patients with symptomatic severe aortic stenosis
Waldron et al. 2020 [97]	Canada	Review: realist synthesis	Not specified

Table 1. *(Continued)*

Author, publication year [ref]	Country	Study design/type of paper	Setting Paper
Weiss et al. 2019 [93]	USA	Non-empirical paper	Paediatric care
Whitney 2003 [9]	USA	Non-empirical paper	Not specified
Whitney et al. 2003 [10]	USA	Non-empirical paper	Not specified
Whitney et al. 2006 [94]	USA	Non-empirical paper	Paediatric oncology
Whitney et al. 2008 [95]	USA	Non-empirical paper	Not specified
Woolf et al. 2001 [99]	USA	Non-empirical paper: editorial	Not specified
Zhuang et al. 2020 [57]	USA	Qualitative: Delphi method	Carpal tunnel syndrome surgery

3.2. Decision characteristics

In total, 18 decision characteristics were identified for which authors considered SDM appropriate and seven decision characteristics for which it was not. Authors disagreed on four decision characteristics, namely decisions with *one best option*, *weight of the decision being light* (decisions that are considered 'minor' or 'not important'), decisions with *a trade-off between individual impact and public benefit* and decisions to be made *in a short time frame*. Some authors described these as decision characteristics for which SDM is appropriate while others described them as inappropriate for SDM. See **Supplement 2** for a full list of the decision characteristics, decision examples, and the settings in which the decisions were mentioned. In the next paragraphs we will elaborate on the decision characteristics identified.

3.3. Decision characteristics for which SDM is deemed appropriate

3.3.1. Preference-sensitive

Preference-sensitive was frequently mentioned as a decision characteristic that makes SDM appropriate. The definition that the authors provided for this term differed. Therefore, we extracted the features that authors mentioned (**Table 2**). **Supplement 2** contains the complete descriptions that authors gave of preference-sensitive. Preference-sensitive decisions were most often described as bearing *multiple options* or *multiple reasonable options*. In some papers, this was the only feature mentioned [20,23,82,85,95,100]. Other authors further specified that the options entail a *trade-off of risks and benefits* [32,62,68,72,79] and/or that the *decision depends on patient preferences* [22,24,25,53,55,60,63,64, 72,76,81,90,98]. The options in preference-sensitive decisions were stated to be *valued differently between patients* [19,53,64,74,88] or to *differ between patients and healthcare professionals* [77]. Other features mentioned

were *limited evidence* [5,53,69,88], *uncertainty around outcomes* [14,55,64], and *equipoise* [5,64,71,88]. Some authors referred to the *impact on patients' lifestyle* and the *need for patient cooperation for implementing the decision*, as features of preference-sensitive decisions [56,63]. Others described preference-sensitive as a *trade-off in which length and quality of life, preservation of bodily integrity, prevention of future problems, costs, and convenience* should be considered [9]. Lastly, authors indicated that in case of 'a clearly better option', the decision can still be preference-sensitive because of the *ensuing risks or burden* [69], or when *preferences around decisions vary per patient* [64]. Examples of preference-sensitive decisions included treatment decisions in breast cancer [9,24,55,63,81,95], decisions regarding prostate cancer screening [68,72,90,95], hypertension treatment decisions [74], and drug choice in mental healthcare [79,82,85]. **Supplement 2** contains more examples. Some authors used the term *value-sensitive*. In this decision characteristic the emphasis lies on patients' religious, moral and other values, as well as philosophical beliefs, that lead to varying preferences among patients and thus making SDM appropriate, for example the decision for genetic prenatal screening [9].

The arguments for SDM being applicable in preference-sensitive decisions were often related to the ethical imperative to include patients in these decisions [22,28,80,85], or as a means to achieve patient-centred care [53,85]. Additionally, SDM was mentioned as a conversation process that can help in exploring patients' values and preferences [96], and aligning them with the best available clinical evidence [57]. Another argument was that clarifying preferences through SDM is needed because clinicians cannot, and should not, presume patient preferences as they may misperceive them [62,99]. If not prompted as in SDM, patients may not express their preferences because clinicians do not make explicit that their preferences are relevant, or patients (wrongfully) assume clinicians know their preferences [53].

Table 2. Features of the term 'preference-sensitive'

References	Core features of authors' descriptions of 'preference-sensitive'
[20,23,82,85,95,100]	Multiple reasonable options
[24,25,75,98]	Choice depends on personal preferences and values of patient
[22,72,76,90]	Multiple reasonable options, decision depends on patient preferences
[74]	Multiple reasonable options, decision depends on patient preferences, which vary per patient
[88]	Multiple reasonable options each with benefits and disadvantages and may vary in scientific certainty (i.e. where equipoise exist); this is valued differently per patient
[77]	Multiple reasonable options (evidence uncertain), patient views on benefits and risks vary per patient or differ from those of healthcare professionals

Table 2. *(Continued)*

References	Core features of authors' descriptions of 'preference-sensitive'
[19]	Multiple reasonable options, benefit and risks valued differently by patients
[32,62,68,79]	Multiple reasonable options with trade-off risks and benefits
[55]	Multiple reasonable options with trade-off risks and benefits where patients preferences should adjudicate, uncertainty which patients might benefit
[60,81]	Multiple options with trade off harms and benefits, decision dependent on values and personal preferences patient
[63]	Multiple options with trade-off risks and benefits, options comparable in outcomes, insufficient evidence what's the best option, outcomes highly dependent on patient cooperation/high impact patient's lifestyle
[5]	Multiple options, evidence lacking or equipoise, only patient preferences can adjudicate
[69]	Multiple options (no clear evidence) or clear evidence but benefit in tandem with risks or burdens
[56]	Criteria: multiple options with trade-off risks and benefits, options comparable in outcomes, insufficient evidence what is the best option, outcomes highly dependent on patient cooperation/ high impact patient's lifestyle
[9]	Trade-off including considerations related to length- and quality of life or preservation of bodily integrity, prevention of future problems, cost, and convenience
[14]	Uncertainty outcomes and individual preferences
[71]	Equipoise between treatment options with equal or similar outcomes from a medical standpoint
[64]	Equipoise or substantial uncertainty effect of treatment or: clear option, but values vary per patient
[53]	Evidence benefit and harms limited, decision depend on weighing many factors, option depends on how outcomes are valued, for which preferences vary widely

3.3.2. Equipoise

Another frequently mentioned decision characteristic that makes SDM appropriate was *equipoise*. Again, authors' definitions differed and we extracted the features (**Table 3**). Supplement 2 shows the complete authors' descriptions of the term equipoise. The most often mentioned feature of equipoise was that it entails decisions with *multiple options* or *multiple reasonable options* [18,28,59,70,89], similar to preference-sensitive decisions. Other authors added that these options are *dependent on patient preferences* [31,32] and/or have to be *in balance* [31,66,81,88]. The existence of a reasonable balance between options in a situation with equipoise was described in one paper as: "*when a majority of people would agree that it is reasonable to consider making a choice between competing options*" [81]. Others described equipoise as multiple options from which *potential benefits and disadvantages need to be weighed* [40,46] or more simply as decisions with *not one best option* [18,28,59, 70] due to limited evidence [18]. Examples of equipoise decisions included decisions regarding anticoagulation for patients with new-onset atrial fibrillation [21] and decisions regarding breastfeeding by HIV-infected mothers with low viral load [66]. Some authors who used the term '*clinical equipoise*'

included the *uncertainty on the potential benefits and disadvantages of the options* in their description [89], for example in the choice of medication in epilepsy treatment [89]. '*Professional equipoise*' was described as decisions where 1) *clinicians deem there is no best choice* [43], 2) "*where there is consensus among clinicians that there is no superior option"* [81], *3) patients have 'freedom' to choose* between options [58,59], or 4) as a pre-condition for '*dual equipoise*': a situation in which both clinicians and patients agree that all options are in balance and patient preferences are paramount to decide [58].

Table 3. Features of the term 'equipoise'

References	Core features of authors' descriptions of 'equipoise'	Used term
[40,46]	Multiple options (including maintaining status quo) for which potential benefits and disadvantages need to be weighed	**Equipoise**
[28]	Alternative options (based on evidence)	**Equipoise**
[31]	Multiple options with equal effectiveness, dependent on patient preferences	**Equipoise**
[70]	Multiple options, not one best option	**Equipoise**
[18]	Multiple options, not one best option (because of conflicting or inadequate evidence)	**Equipoise**
[59]	Multiple reasonable options	**Equipoise**
[32]	Multiple reasonable options dependent on patients values and preferences	**Equipoise**
[88]	Multiple reasonable options with trade off benefits and disadvantages, may vary in scientific uncertainty	**Equipoise**
[58]	Reasonable balance in benefits and disadvantages of options: when a majority of people would agree that it is reasonable to consider making a choice between competing options	**Equipoise**
[66]	Balance in benefits and disadvantages of options	**Clinical Equipoise**
[89]	Multiple reasonable options in clinical situations	**Clinical Equipoise**
[86]	Uncertainty potential benefits and disadvantages	**Clinical Equipoise**
[81]	Both healthcare professionals and patients agree that all options are in balance and patient preferences are paramount	**Dual Equipoise**
[43]	In clinicians point of view there is no best choice	**Professional Equipoise**
[58,59]	Multiple options, patient 'free' to choose	**Professional Equipoise**
[81]	Consensus among clinicians that there is no superior option, as a pre-condition for dual equipoise	**Professional Equipoise**

In summary, both the terms preference-sensitive and equipoise share an important key element: the decision has multiple (reasonable) options. The multitude of options are a result of having comparable options in terms of risks and benefits, or existing uncertainty about which option may be best. With the term 'equipoise' the emphasis is on having multiple options and those options being somewhat in balance. A preference-sensitive decision may also contain these elements, but is further portrayed as depending on

patient preferences, and the possibility that patients may value the options differently. A preference-sensitive decision may contain equipoise, but this is not a requirement. A decision with equipoise on the other hand, could be considered a preference-sensitive decision, in most or all cases.

3.3.3. Multiple options

In addition to being mentioned as a feature of 'equipoise' and 'preference-sensitive', the availability of multiple options was also mentioned independently as a decision characteristic for which SDM is considered appropriate, and described as a decision with: *multiple options* [25,31,44,70,83,97], *multiple options with different possible outcomes* [11,19,30,54] or *multiple reasonable options* [4,5,24,33,61,76,78,92,94]. Foregoing active treatment may also count as a reasonable option [4, 30]. Authors described decisions with *no best option* as a specific form of decisions with multiple options for which SDM was deemed applicable [11,25,61,87,91,94]. These decision situations entail no superior option, for example whether or not to perform a tonsillectomy on a child with recurrent throat infection [91].

3.3.4. Uncertainty

Uncertainty around the decision was another decision characteristic that was frequently mentioned [9,10,28,48,90,96]. A further distinction can be made between *uncertainty about evidence* and *uncertainty about outcomes* of decision options. The authors described *uncertainty about evidence* as situations in which evidence about options was limited, conflicting or lacking [19,24,25,27,71,87,90,92]. Examples are introduction of new technologies in surgery [92] and children with severe neurologic impairment [87]. Uncertainty can also originate from the difficulty to apply evidence, often deriving from well-controlled trials among highly-selected patient populations, to individual patients [72, 90]. *Uncertainty about outcomes* relates to uncertainty about what the outcome of the decision will be and how outcomes might impact physical and physiological wellbeing [11,30,72]. Some authors proposed that regardless of the severity of decisions, SDM is appropriate when there is uncertainty [10]. For example, both high-risk decisions, e.g. mastectomy versus lumpectomy in treating breast cancer, and low-risk decisions, e.g. lifestyle changes versus hyperlipidaemia medication, contain uncertainty and therefore SDM was deemed appropriate [10].

3.3.5. Trade-off

Authors proposed that SDM is appropriate in decisions characterized by containing trade-offs. Examples included trade-offs in the advantages and disadvantages of genital surgery for children with disorders of sex development [25] and of cancer screening [14].

3.3.6. High impact of decision

High impact decisions may have serious implications for health outcomes or quality of life [24]; hold effects that emerge over time and contain multiple life domains [35]; entail potentially major harmful effects [27,48,90,100]; have consequences that are immediate and important [17]; impact family members/loved ones [75,87]; or heavily influence daily routines [70,79,87]. Some authors described SDM to be applicable in 'major' [14] or 'high stake' decisions [33,94,97]. Authors of one paper proposed 'detailed SDM' versus 'everyday SDM' to be appropriate for, respectively, major decisions and substantive everyday decisions. 'Everyday SDM' focuses on eliciting individual patient preferences but in a less detailed process than 'detailed SDM' [14]. Examples of substantive everyday decisions include: at what age to initiate breast cancer screening or prescribing cardiovascular preventive medicine [14]. Related to decision impact is a decision's *irreversibility*, which was mentioned as a decision characteristic where SDM is deemed appropriate [70,81]. The irreversible impact of decisions in surgery for example, can potentially result in a radical life and health status change, making SDM especially important [70].

3.3.7. Patient commitment needed

Multiple authors identified decisions that require patient commitment for carrying out the treatment as decisions for which SDM is appropriate. Requiring such patient commitment particularly applies in (lifestyle) decisions in chronic care. Authors argued that an increase in patients' involvement in decision making can stimulate patients to implement the decision [16,17,31]. In addition, SDM can help to align treatment options with individual patients needs and circumstances, and in turn positively affect treatment adherence [17,31,61,66,76]. With similar reasoning, authors advised practicing SDM in decisions requiring significant time commitment of patients, such as physiotherapy for chronic pain [54] or decisions regarding food allergy [60]. In addition, patient-clinician relationship, creating a situation in which patients feel safe to express their worries and beliefs. This enables to jointly identify the best fitting treatment, to which the patient is likely to adhere [66].

It was further argued that the involvement of patients in decision processes is essential when patients need to implement decisions in their own space and with their own resources. Patients know best how to evaluate options in terms of how realistic and feasible they are for the patient to carry them out [17]. Exploring patients' potential barriers for implementing the decision is especially important when decisions are *reversible*. Therapy adherence may be more difficult for patients if they have the possibility to revisit decisions over an extended period of time without immediate harm, for example decisions on hypertension treatment [17].

3.3.8. Decisions known to often entail misalignment in views

Different authors considered SDM appropriate for decisions for which it is known *beforehand* that clinicians' and patients' views are likely to be misaligned and each perspective needs to be considered. Examples included planning psychotherapy in youth mental health [31] and non-emergent decisions in the intensive care unit which are possibly incompatible with common patient goals, such as offering a permanent feeding tube or placing a suprapubic urinary catheter [56]. Enrolment in clinical research intrinsically contains misalignment between the researchers' and patients' views because of competing interests. An alternative form for SDM was proposed here, focusing mainly on properly informing the patient and explicating the alignment of different options with patients' personal contexts and overall goals [86].

3.3.9. Every decision

Some authors considered SDM to be appropriate in every decision [28,62,79,86,92]. To illustrate, it was proposed that in surgery: *"all delivered care decisions independent of the level of evidence regarding treatment options or presence of equipoise SDM should be practiced"* [92]. Other authors nuanced this position by stating that in every decision reasonable attempts for SDM should be made [67] or that SDM is most commonly applied in decisions with clinical uncertainty, but can also be applied in decisions with certainty [62].

Tables 4 and 5 offers an overview of all the decision characteristics identified. In green, it shows the variety of decision characteristics for which SDM was deemed appropriate and how often these were mentioned in papers describing SDM models (strategy 1). The most frequently mentioned decision characteristics (*preference-sensitive*, *multiple options* and *equipoise*) for which SDM was deemed appropriate had overlap; they all portrayed the presence of multiple (reasonable) options'. Other frequently-mentioned decision characteristics also related to the availability of multiple options: *trade-off* and *uncertainty*. Regardless of how decisions with multiple options are described or phrased, it clearly is deemed an important indicator for the appropriateness of SDM. Other decision characteristics did not relate to the number of options of the decision, such as: *decision impact*, *who is implementing the decision*, or the *reversibility/time frame* in which a decision can be made.

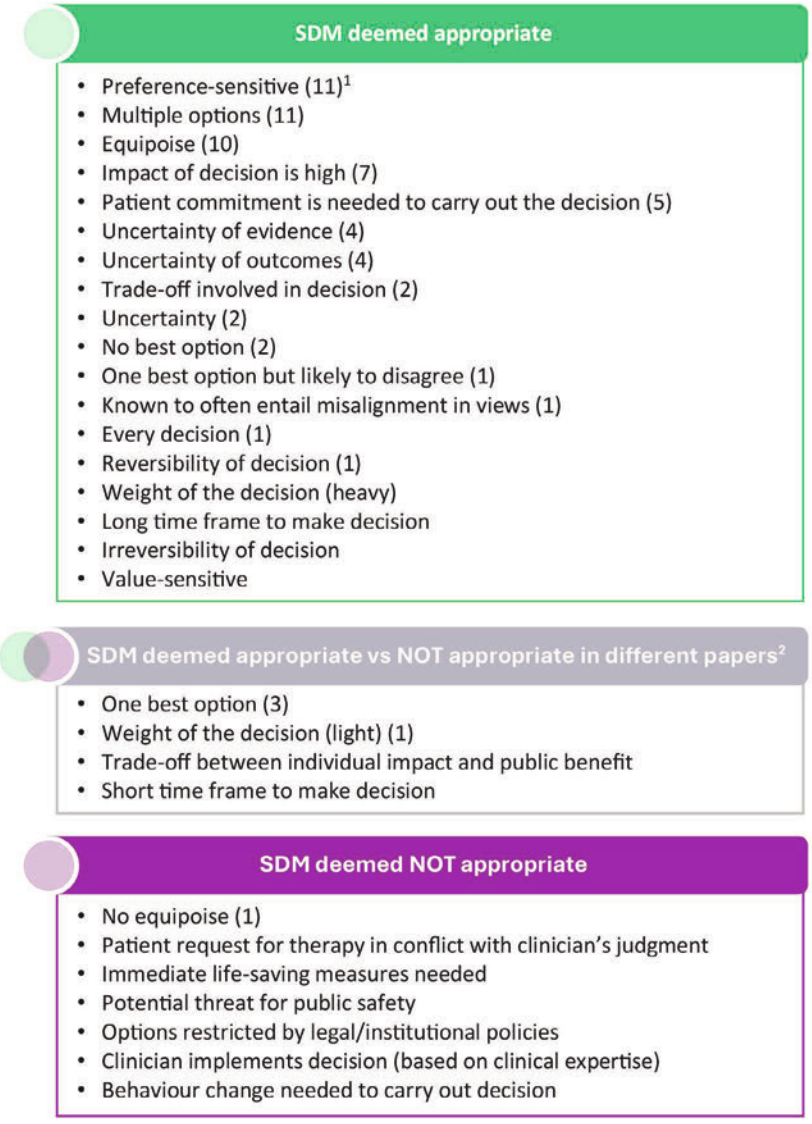

Table 4. Overview of decision characteristics identified

[1] (number) = in how many papers the decision characteristic was mentioned, only counted in papers describing SDM models (strategy 1). Decision characteristics without a number are only mentioned in papers included through strategy 2.

[2] Decision characteristics both identified as a decision characteristic for which SDM is appropriate and for which it is not appropriate according to different authors

3.4. Decision characteristics on which authors differed regarding whether they deem SDM appropriate or not

3.4.1. Weight of the decision

Decisions described as 'major' [78,96,98], 'complex' [73], or 'important' [57] were all considered as decisions for which SDM is appropriate. Examples of such decisions included: hip replacement to manage pain, treatment for newly-diagnosed breast or prostate cancer [78], starting immunomodulatory therapies for multiple sclerosis [88], or surgery for carpal tunnel syndrome [57]. However, some authors argued that SDM is also applicable in case of other decisions that might be less 'major', as long as they entail multiple reasonable options with different side-effects and benefits. This was illustrated with the choice of cholesterol-lowering therapy for patients with no known coronary heart disease [78]. Other authors referred to the need for both patients and clinicians to become proficient in SDM, starting with minor decisions: "*We are not surprised that patients shun making decisions about treatment for breast cancer if their prior experience gave little opportunity or encouragement in relatively minor medical situations*" [33].

Yet other authors argued that some decisions can be so unimportant from a clinical perspective, that even when it may be appropriate to apply SDM because of the available multiple options with similar effects, it can be unfeasible to apply SDM for these decisions. An example included the decision between a cotton elastic compression wrap or a soft padding bandage in case of orthosis [57].

3.4.2. Time frame to make decisions

Some authors considered a *long time frame* to make decisions as a decision characteristic making SDM appropriate [56]. Having a *short time frame* to make decisions was mentioned both as a decision characteristic making SDM appropriate [67,81,97] and inappropriate [21, 32]. Examples of decisions for which authors considered SDM appropriate even though there is a short time frame to make the decision, are do-not-resuscitate decisions and cyanoacrylate versus sutures in treating wounds [67]. These authors further indicated that SDM is '*an ethical imperative, especially in the emergency department*' [67].

Other authors deemed SDM not appropriate when decisions must be made quickly and in an emergency setting [21,32]. They mentioned that SDM was only appropriate when all of the following criteria were met: 1) clinical equipoise, 2) adequate/sufficient patient decision-making ability and 3) sufficient time. If one criteria is not met, other decision-

making approaches apply, such as persuasion, informed consent, or physician-directed decision-making. An exception includes treatment that is incongruent with patients' goals, such as performing intubation to a terminally-ill patient in respiratory distress [32].

3.4.3. Decisions with one best option

Several authors argued that SDM can still be appropriate when only one best option exists. This may be the case when the decision encompasses other decisions that may be malleable and suitable for SDM, e.g. decisions about specifying treatment goals and deciding who to include as treatment participants in youth psychotherapy [31]. SDM was also deemed applicable for decisions with one best option when illness severity is low, for example the decision about starting an antihistamine for mild seasonal allergies [76]. Moreover, decision situations with one best option in which it *is known beforehand that patients and clinicians are likely to disagree*, may benefit from SDM [31,82]. SDM was considered to improve the decision process by integrating evidence whilst informing the patient and elucidating the patients' perspective, which might differ from clinicians' [18,31,34]. For example, a mother demanding antibiotics for her child with a viral upper respiratory infection might come to understand the options better through an SDM process, and therefore more easily accept discharge without antibiotics [34]. However, other authors, using the same example of prescribing antibiotics for a viral respiratory infection, argued that it is not yet known whether SDM is effective or practical in such a decision entailing disagreement. At the same time, they also emphasize that the underlying communicative elements of SDM might benefit these decision situations and possibly prevent unnecessary antibiotic prescribing [58]. Following the same reasoning, some authors suggested that the steps of SDM should be followed in decisions with one best option, particularly the exploration of preferences. However, eventually clinicians may nudge patients according to their view [76]. Such a process was described by others as*: 'an informed decision engineered according to doctor preference'* in which the SDM process is not fully neglected, but ultimate decisional authority lies with the clinician in case of a possible 'incorrect' decision [59]. Authors of one paper identified a common set of communication skills from both SDM (in particular how to assist patients in identifying or developing their preferences), motivational interviewing and negotiation for decisional situations with one best option, which they named 'SDM-PLUS' [82].

Other authors considered decision situations with one best option as decisions in which SDM is inappropriate [9,10,32,62,78,81,91,94,95, 99]. Examples included decisions in medically threatening situations, such as antibiotics for sepsis, hospital admission for acute myocardial infarction, and melanoma resection [10,32,62,95,99]. Authors explained that SDM does not apply/is not required in these situations entailing high risk, because

there is no 'real' choice [9,10,99]. Instead, an informed consent process is required [10], and negotiation and persuasion might be needed [32,95]. Especially when there is a high change of cure (with the best option), a clinician recommendation instead of SDM is considered 'ethically justifiable' [94]. Authors emphasize the importance of adequately informing patients in these processes [32,91,95]. The authors' choice of decision examples implied that refraining from doing the 'best treatment option' can cause harm to the patient, but this was not explicitly stated. An exception where SDM might still apply was mentioned in one paper: when religious beliefs go against the dominant choice, for example, an adult Jehovah's witness refusing blood transfusion because he believes this may jeopardize his chance on eternal life [95].

Decision examples with one best option and entailing low risk were also mentioned, such as lowering a diuretic because of high potassium levels [10]. Here, 'simple consent', a less extensive version of informed consent, was deemed sufficient [10]. Lastly, for decisions in managing chronic condition, which may often entail one best option, authors proposed that other strategies, such as motivational interviewing [78, 81], or even persuasion [78], might be a better fitting approach than SDM, and SDM '*might not be worth the investment*' [81].

3.4.4. Trade-off between individual impact and public benefit

A special form of trade-off in decisions that authors mentioned was a *trade-off between individual impact and public benefit*, for example in decisions regarding vaccinations [72]. An argument for practicing SDM in these situations was that SDM can help make sense of available data and communicate the difference between population- and individual-based estimates of risks and benefits [72]. Other authors argued that it may be justifiable not to apply SDM to these decisions when potential public health benefits outweigh individual burden, particularly in case of emergency [93]. They noted however that assessing this balance is difficult. This was illustrated by the decision whether or not to perform diagnostics on a child with bloody stool when there is suspicion for an E. coli outbreak; the minimal benefit and potential hassle in collecting stool for the patient and parent should be balanced against the potential public health benefit [93].

In summary, most ambiguity occurred regarding the decision characteristic '*decisions with one best option*'. SDM might be beneficial in these decisions when SDM elements such as sharing information and exploring preferences are effectively incorporated in the conversation. However, when there is a possibility of choosing a 'wrong' option, it is questioned whether the ultimate decisional responsibility truly lies with both the patient and the clinician, or rather with the clinician alone. Clinician-directed decision making

strategies may be justified whilst still incorporating important (communicative) elements of SDM. Although major decisions were more frequently associated with SDM, minor decisions were also considered appropriate for SDM; as long as multiple reasonable options exist. Again, this was only considered so to some degree: decisions that are too unimportant were considered unfeasible to share. Authors did not state criteria for determining the weight/ importance of decisions. Lastly, in decisions to be made in a short time frame, SDM might still be appropriate or even needed, unless medical urgency limits the time available for SDM. In the latter situation, SDM is potentially harmful and not appropriate, unless the treatment is incongruent with patients' goals.

3.5. Decision characteristics for which SDM is deemed NOT appropriate

3.5.1. Patient request for therapy in conflict with clinician's judgment

Authors deem SDM inappropriate when patients and clinicians hold conflicting views *at the time* of decision making. Reasons for such conflicts may be inappropriate patient requests, or inappropriate patient responses to medical situations. Examples include medically futile aggressive treatments in the face of inevitable death [67], excessive opioid prescriptions [54,67], and antipsychotic medication management [85]. In these situations, different authors believed SDM not to be possible [67], to be inappropriate [98], or challenging [54]. Clinical judgment may overrule inappropriate patient requests [54,98] or requests incompatible with best patients' interest [67,85]. Authors proposed conflict resolution strategies instead of SDM [98], or informing patients on the clinician's' decision and offering alternatives if appropriate, such as a care transfer [67].

3.5.2. Immediate life-saving measures needed

Multiple authors considered SDM not appropriate when the decision is made under circumstances in which immediate life-saving measures are needed, such as: acute surgery decisions [70]; starting antibiotics for bacterial meningitis [62]; or cardiopulmonary resuscitation for an acutely instable patient [56]. In these examples, delaying treatment initiation is potentially harmful. SDM is also considered 'logistically impractical' when a patient is acutely unstable [56]. Authors suggested to weigh per situation, whether time is crucial for life-saving measures or there is time to discuss options [70]. Others suggested that in making these decisions, patients should rather be informed than invited to participate [62]. Furthermore, authors recommend to discuss potential future (emergent) treatments prospectively as part of advance care planning [56].

3.5.3. Potential threat for public safety

SDM was not considered applicable and even potentially harmful in case decisions may impact public safety, or patients' own safety [82,85]. Examples included discharging suicidal patients [82] or starting antipsychotic treatment in psychotic patients [85]. A paternalistic or directive approach was deemed needed in these cases [82,85].

3.5.4. Options restricted by legal and/or institutional policies

SDM could be constrained when legal or institutional policies restrict choice, as is the case in opioid prescribing [54], and whether or not to use extracorporeal life support (ECLS) in children with submersion injury [93]. Practice variation in the use of ECLS across paediatric centres indicates that there is not one best option, but since it is a scarce resource, its availability overrules the ability to employ SDM [93].

3.5.5. Clinician implements the decision (based on clinical expertise)

Multiple authors considered SDM logistically impractical [98] or even 'absurd' [93] in routine care decisions based on clinical expertise, such as the choice of vasoactive drip rates in the intensive care unit [98] or the frequency of checking vital signs [93]. In decisions that the clinician implements and for which the clinician is primarily responsible, the success of the implemented therapy can be a function of the clinician's expertise. A clinician may hold particular experience and comfort with the different options, which may possibly affect the success of implementing the decision. For these decisions, such as the choice of ketamine versus propofol to sedate patients for fracture reduction [76], more 'provider-oriented' rather than 'shared' - decision making was considered justified [76].

3.5.6. Patient behaviour change necessary

When patient behaviour change is needed, motivational interviewing may be more appropriate than SDM [83]. The authors provided the example of whether or not to perform gastric bypass surgery for weight reduction. They considered SDM not applicable if the patient was not yet willing to lose weight, and first deemed a behaviour change process necessary [83].

To summarize, the original authors clearly agreed that in urgent situations in which life-saving measures are needed, and/or there is a potential threat for the patient's or public safety, SDM is not appropriate and can even be harmful. A clinician directive approach is then needed. SDM might not be harmful, but rather impractical or unnecessary in decisions based on clinical expertise and implemented by the clinician (technical decisions) or when decisions ask for other conversation strategies because behaviour

change is needed. Lastly, SDM can be restricted when a patient's request is in conflict with clinicians' judgment or when the decision is constrained by legal or institutional policies.

3.6. The settings of the decision characteristics

The decisions and decision characteristics identified in this review were collected from a broad range of clinical settings. **Table 5** shows how often authors mentioned a particular decision characteristic per setting. Equipoise, preference-sensitive decisions and decisions with high impact were mentioned in the highest number of different settings. Notably, decisions with one best option for which SDM was deemed *appropriate* were mentioned in mental healthcare and paediatric care, whilst decisions with one best option for which SDM was deemed *inappropriate* were most often mentioned in the emergency department, and also in gynaecology, neurology, oncology, primary care and surgery. This might relate to how urgent the decision is, which was mentioned as a limit to the applicability of SDM. Overall, decision characteristics for which SDM was deemed appropriate were most often mentioned in oncology, primary care/chronic care and paediatric care, and those or which SDM was deemed inappropriate were most often mentioned in primary/chronic care, surgery, and emergency care.

Table 5. List of decision characteristics and how often they were mentioned per clinical setting

SDM deemed appropriate	Allergy care	Childbearing mother with disease	Elderly care	Emergency Department	Enrolment research	Gynaecology	Intensive Care Unit	Mental healthcare	Neurology	Oncology	Paediatric care	Physiotherapy	Primary care / chronic care	Surgery / invasive treatment	Urology	Vaccination
Total number of decision characteristics per setting	**8**	**1**	**2**	**7**	**2**	**4**	**6**	**15**	**6**	**46**	**19**	**1**	**29**	**16**	**1**	**1**
Preference-sensitive	2		1	1		1	2	3	2	11	4		6	1		
Multiple options	1							1		8	4		4	3		
Equipoise		1		3	1	2		2	1	4		1	2	1	1	
Impact of decision is high	1			1			1	3		6	2		3	2		
Patient commitment is needed to carry out the decision	3		1					1			1		5			
Uncertainty of evidence										4	3		2	1		
Uncertainty of outcomes										5	1		2			
Trade-off involved in decision								1			1		2	1		
Uncertainty									1	3				1		
No best option										2	2			1		
One best option but likely to disagree								2		1						
Decision known to often entail misalignment in views	1				1		1	1								
Every decision				1												
Reversibility of the decision													1			
Long time frame to make decision							1									
Weight of the decision (heavy)							1		2	1				3		
Irreversibility of the decision														2		
Value-sensitive						1										
One best option								1			1					
Short time frame to make decision				1						1			1			
Weight of the decision (light)													1			
Trade-off individual impact and public benefit																1

Table 5. *(Continued)*

SDM deemed NOT appropriate	Allergy care	Childbearing mother with disease	Elderly care	Emergency Department	Enrolment research	Gynaecology	Intensive Care Unit	Mental healthcare	Neurology	Oncology	Paediatric care	Physiotherapy	Primary care / chronic care	Surgery / invasive treatment	Urology	Vaccination
Total number of decision characteristics per setting				**6**		**1**	**2**	**4**	**2**	**3**	**3**		**7**	**6**		
No equipoise													1			
Patient request for therapy in conflict with clinician's judgment				1				1			1		1			
Immediate life saving measures needed							1		1					1		
Clinician implements decision (based on clinical expertise)							1				1			1		
Decision entails potential threat for public safety								2								
Options restricted by legal/institutional policies								1					1			
Behaviour change needed to carry out decision													1			
One best option				4		1			1	3			3	3		
Short time frame to make decision				1												
Weight of the decision (light)														1		
Trade-off individual impact and public benefit											1					

- *The more saturated the colour, the more frequently a decision characteristic was mentioned in that particular setting.*
- *[Grey shading] = decision characteristic both identified as a decision characteristic for which SDM is appropriate and for which it is not appropriate according to different authors*
- *Mental healthcare includes: mental health in general and specifically in youth*
- *Neurology includes: Multiple sclerosis, epilepsy, disorders of unconsciousness, meningitis*
- *Oncology includes: breast, prostate and head and neck cancer, unspecified, unspecified in paediatric patients*
- *Paediatric care includes: paediatrics in general, emergency, children with severe neurologic impairment, genital surgery children with disorders of sex development*
- *Primary care and chronic care includes: hypertension, pain management, cardiovascular disease management, lifestyle, chronic kidney disease, end-of-life decisions, lung cancer screening*
- *Allergy care includes: paediatric allergy care and food allergy care*
- *Emergency Department includes: cardiovascular diagnoses and care delivered at the emergency department in general*

4. Discussion and conclusion

4.1. Discussion

We explored how authors describe the applicability of SDM depending on how decisions are characterized. Decision characteristics for which SDM was deemed appropriate were often related to a decision having multiple (reasonable options), including 'preference-sensitive decisions' and decisions with 'equipoise'. However, SDM was also deemed appropriate for less 'typical' decision characteristics, such as the effect of the decision in terms of impact and/or the level of patient engagement necessary to implement the decision. Some decision characteristics made SDM seem less appropriate or inappropriate. First, legal or institutional requirements may constrain whether SDM can take place. Second, in technical routine decisions carried out solely by the clinician and/or decisions that are clinically too unimportant, it may be unfeasible to engage in SDM. The challenge therein lies in deciding what those 'technical' and 'unimportant' decisions are, as such qualification may vary across patients. It is yet unknown whether patients would want to be included in technical decisions, which may lead to information overload. This could potentially impede their capacity to engage in decisions for which their input is more important. Overall, caution should be taken in assuming the importance of decisions for patients, and the ideal approach would be to 'just ask them'. However, in the turmoil of daily practice this may be impossible for all decisions. Third, in some decisions, SDM may potentially be harmful. This can be the case when 'wrong' decisions can be made, leading to a potential threat to the patient or to others, and/or when decisions need to be made quickly due to medical urgency. However, even under these extreme conditions, when (life-saving) treatment is incongruent with a patient's goal, SDM may still be needed. This shows the difficulty of determining 'clear-cut' guidelines as to when SDM is (in)appropriate.

This difficulty is further underlined by the ambiguity reflected in decision characteristics that different authors used to describe either as decisions for which SDM is appropriate versus inappropriate. In some cases, even exactly the same decision examples were used to argue for or against the appropriateness of SDM. Differences in definitions of SDM to which the original authors adhered could explain the different viewpoints. To illustrate, some authors reasoned that SDM is appropriate in decisions with one best option entailing (the possibility of) conflict, because elements of SDM can (still) benefit the decision process. Others considered SDM not to be appropriate in this case because even though steps of SDM should largely be followed, eventually the clinician is justified to steer towards the 'better' option, when a 'wrong' decision could be made. The different authors may vary in what they believe should be considered as SDM: following a large part

of the process or also ultimately deciding together? Thus, not having a universal definition of SDM [1–3] may have caused some of the ambiguity in these study findings. Original authors used different definitions of SDM, or did not provide a definition. Additionally, some authors proposed different forms of SDM to be appropriate in different decision situations [14,65, 76,86].

Regardless of the SDM definition used and whether authors deemed SDM appropriate or not, the importance of applying core elements of SDM, in particular exploring preferences, and the communicative behaviours needed for these core SDM elements (e.g., listening to the patient and leaving room for the patient to express themselves) was recognized. It can be argued that particular core elements of SDM and underlying communicative behaviours are always important, regardless of the decision to be made. SDM then is not something to be turned 'on' or 'off', but rather a decision-making approach entailing particular communication behaviours that become part of adequate communication during any clinical encounter. This brings us back to the lack of a unique definition of SDM, as it leaves open what should still be seen as SDM? Simply put, clinicians should always thrive for 'good communication' to happen. SDM focuses specifically on the actual and full involvement of patients in decisions that are made about their care. In today's healthcare, we should be careful with the fluidity between the concepts of 'SDM' and 'good communication'. The normality and importance of sharing decisions with patients in today's practice is not fully embraced or implemented yet. Agreeing on a more tangible definition of SDM may allow healthcare culture to change more easily into one in which patients get more say in the care that they receive. When we see SDM as an upgrade of 'a good conversation' the message to implement SDM may spread less effectively. Thus, we do think that a clear and shared idea on what an SDM process entails, or at least its core, would foster its successful implementation in clinical practice.

Core elements of SDM processes have already for a large part been identified [1–3]. A first step forward would be to determine which communicative behaviours are then minimally required to achieve SDM, depending on the decisional situation. For example, is there a different emphasis on certain communication behaviours for 'minor' routine care decisions than for major preference-sensitive decisions? Can agreement be reached regarding what communication behaviours would be minimally required when making decisions for which we found ambiguity whether or not SDM is appropriate? Such a framework would assist clinicians in implementing SDM in their daily encounters. Hargraves et al. developed a framework relevant to this proposition, as it describes different kinds of SDM, including their associated communication strategies, depending on the problem that SDM tries to solve in different (decisional) situations [102,103].

In interpreting the results of this study, it should first be noted that we focused on when original authors considered SDM to be appropriate, not when patients or clinicians prefer SDM or believe it to be appropriate. Evidence suggests that, when asked, patients and clinicians identify comparable decision characteristics to determine the applicability of SDM, such as time available for decision making, number of therapeutic options, and/or available evidence on efficacy [104]. We do not intend to make recommendations to clinicians about whether or not they should try and engage in SDM in particular decision situations. As illustrated above, knowing when SDM is appropriate or not is not an exact science and (communicative) elements of SDM should probably not be fully switched 'on' or 'off'. Furthermore, some authors consider SDM as something to always thrive for, because it can be seen as an ethical imperative to foster patient autonomy [22,28,80,85,105]. In addition, not only the decision itself, but also other factors affect the applicability of SDM (or the possibility to apply it), such as patient cognition or patient preferences for SDM [106,107].

A strength of our review is that we combined different search strategies to identify papers describing decision characteristics. Furthermore, to our knowledge, this is the first study to describe how authors explain the frequently-used terms 'preference-sensitive' and 'equipoise', which can serve as input to developing consistent definitions of these terms. This study also has limitations. First, we made choices in grouping the decision characteristics which may not always reflect the original authors' intentions. Second, we based our understanding of the terms 'preference-sensitive' and 'equipoise' on the descriptions from the included papers, without also incorporating information from the literature that the papers referenced, as our aim was to explore how the authors of the included papers had chosen to describe decisions. Third, we could not create mutually exclusive categories when grouping the decision characteristics while staying close to the text in the papers. For example, we extracted 'multiple options' and 'uncertainty' separately if preference-sensitivity was not mentioned, even though other authors described preference-sensitivity in terms of multiple options and/or uncertainty. Fourth, the original authors' descriptions determined the limit to how extensively we could describe the decision characteristics, as we stayed close to their wording. For example, what exactly defines 'major decisions' was not always further explicated.

4.2. Practice implications

Most clinicians might already acknowledge the relevance of SDM in preference-sensitive decisions, decisions with multiple (reasonable) options, and situations of equipoise. This review shows that SDM can be relevant to decisions with other characteristics too, such as *when patient commitment is needed to carry out the decision* or decisions with *one*

best option. Practicing SDM in these 'less typical' decisional situations can even come with benefits for clinicians, such as improving their relationship with patients, offer care that fits better with their patients' preferences and personal circumstances, improve patients' knowledge, and increasingly activate patients in their own care. This is not to say that SDM should 'simply' always be attempted, as this may engender potentially adverse consequences in certain circumstances, especially when there is medical urgency. Neither would it suffice to only apply SDM for a limited amount of decisional situations. In most cases an SDM approach to decision making would not hurt, the process itself might even lead to benefits for both clinicians and patients. This leaves us somewhere in the middle with regard to what recommendations could be made. We do hope that clinicians and patients will soon have fully embraced the idea of sharing decisions, and that they practice SDM in decisions for which its relevance seems undisputed. This overview can help to identify when SDM should be thrived for and when it may be unfitting. The broad range of decisions for which the relevance of SDM is recognized can create awareness in clinicians in particular. It may stimulate them to (re)evaluate when they choose to try and engage in SDM, including decisions for which they did not consider SDM before. After all, it is the clinician who has the largest role in initiating SDM and it is up to them to navigate their ethical compass in trying to tailor their conversational strategy to the patient, the decision problem, and the circumstances as best as possible. Additionally, the current overview can provide input into SDM training programs, in which it is often asked when one should try and engage in SDM. These findings may finally inform campaigns and educational programs advocating for SDM, as it helps to determine in which settings and for which decision characteristics the need for SDM is commonly acknowledged, as well as when SDM is considered challenging or inappropriate.

4.3. Conclusion

Our review summarizes original authors' statements about decision characteristics for which SDM is considered to be appropriate or not. Our findings show a broad range of decision characteristics for which SDM is deemed appropriate, the ambiguity of some, and the limits of the applicability of SDM for certain decisions. Deciding when to apply SDM is no exact science, and communicative behaviour and core elements underlying the SDM process might be needed in most clinical encounters. Identifying which SDM elements are always required, and which may vary depending on the decisional situation needs to be further investigated. This overview of decisions may stimulate clinicians to (re-) evaluate SDM as the approach of choice in making decisions in clinical practice, and to further develop their ethical compass as when to try and engage in SDM.

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Supplement 1 – Search Strategy

Search summary: Total found on 7-8-2020: 1860 refereces, originating from:

- PubMed: 741
- MEDLINE: 1031 - 294 unique
- Embase: 832 - 287 unique
- Web of Science: 208 - 70 unique
- COCHRANE Library: 98 - 58 unique
- Emcare: 566 - 109 unique
- PsycINFO: 394 - 292 unique
- Academic Search Premier: 109 - 9 unique

Pubmed

Strategy: one of both components at least being in a lead role. - 741 references

((("Decision Making, Shared"[Mesh] OR "shared decision making"[tw] OR "shared decisionmaking"[tw] OR "shared decision"[tw] OR "shared decisions"[tw] OR "SDM"[tw] OR "shared decis*"[tw] OR (("shared"[tw] OR "share"[tw] OR "sharing"[tw]) AND ("Decision Making"[Mesh] OR "decision"[tw] OR "decisions"[tw])) OR (("Decision Making"[mesh] OR "decision making"[ti] OR "decision-making"[ti]) AND ("social environment"[mesh] OR "family"[tiab] OR "community"[tiab] OR "friend"[tiab] OR "friends"[tiab] OR "communication"[mesh] OR "interpersonal relations"[mesh] OR "patient participation"[mesh] OR "patient participation"[tiab] OR "Physician-Patient Relations"[mesh] OR "Physician-Patient Relations"[tiab] OR "patient empowerment"[tiab] OR "Power, Psychological"[Mesh])) OR "patient decision"[tw] OR "patient decisions"[tw] OR "informed decision making"[tw] OR "evidence-based patient choic*"[tw]) AND ("nonpreference"[ti] OR "non preference"[ti] OR "nonprefer*"[ti] OR "non prefer*"[ti] OR "sensitive decisions"[ti] OR "sensitive decision"[ti] OR "effective decisions"[ti] OR "effective decision"[ti] OR "effective decision*"[ti] OR "preference-sensitive"[ti] OR "preference sensitiv*"[ti] OR "preference effective"[ti] OR "non equipoise*"[ti] OR "nonequipoise*"[ti] OR "equipoise"[ti] OR "counterbalance"[ti] OR "counterpoise"[ti] OR "equipoise*"[ti] OR "counterbalanc*"[ti] OR "counterpois*"[ti] OR "Decision situation"[ti] OR "choice situation"[ti] OR "decision type"[ti] OR "Decision situations"[ti] OR "choice situations"[ti] OR "decision types"[ti] OR "Decision situation*"[ti] OR "choice situation*"[ti] OR "decision type*"[ti] OR "disagreements"[ti] OR "disagreement"[ti] OR "dis agreement"[ti] OR "dis agreements"[ti] OR "typology"[ti] OR "typolog*"[ti] OR "decisional situation*"[ti] OR "decision characteristic*"[ti] OR "decision making characteristic*"[ti] OR "decision making typ*"[ti] OR "decision making situation*"[ti] OR "decision making preference*"[ti] OR "decision preference*"[ti] OR "decisional preference*"[ti])) **OR** (("Decision Making, Shared"[majr] OR "shared decision making"[ti] OR "shared decisionmaking"[ti] OR "shared decision"[ti] OR "shared decisions"[ti] OR "SDM"[ti] OR "shared decis*"[ti] OR (("shared"[ti] OR "share"[ti] OR "sharing"[ti]) AND ("Decision Making"[majr] OR "decision"[ti] OR "decisions"[ti])) OR (("Decision Making"[majr] OR "decision making"[ti] OR "decision-making"[ti]) AND ("social environment"[majr] OR "family"[ti] OR "community"[ti] OR "friend"[ti] OR "friends"[ti] OR "communication"[majr] OR "interpersonal relations"[majr] OR "patient participation"[majr] OR "patient participation"[ti] OR "Physician-Patient Relations"[majr] OR "Physician-Patient Relations"[ti] OR "patient empowerment"[ti] OR "Power, Psychological"[majr])) OR "patient decision"[ti] OR "patient decisions"[ti] OR "informed decision making"[ti] OR "evidence-based patient choic*"[ti]) AND ("nonpreference"[tw] OR "non preference"[tw] OR "nonprefer*"[tw] OR "non prefer*"[tw] OR "sensitive decisions"[tw]

OR"sensitive decision"[tw] OR"effective decisions"[tw] OR"effective decision"[tw] OR"effective decision*"[tw] OR "preference-sensitive"[tw] OR"preference sensitiv*"[tw] OR"preference effective"[tw] OR"non equipoise*"[tw] OR "nonequipoise*"[tw] OR"equipoise"[tw] OR"counterbalance"[tw] OR"counterpoise"[tw] OR"equipoise*"[tw] OR "counterbalanc*"[tw] OR"counterpois*"[tw] OR"Decision situation"[tw] OR"choice situation"[tw] OR"decision type"[tw] OR"Decision situations"[tw] OR"choice situations"[tw] OR"decision types"[tw] OR"Decision situation*"[tw] OR"choice situation*"[tw] OR"decision type*"[tw] OR"disagreements"[tw] OR"disagreement"[tw] OR"dis agreement"[tw] OR"dis agreements"[tw] OR"typology"[tw] OR"typolog*"[tw] OR"decisional situation*"[tw] OR"decision characteristic*"[tw] OR"decision making characteristic*"[tw] OR"decision making typ*"[tw] OR"decision making situation*"[tw] OR "decision making preference*"[tw] OR"decision preference*"[tw] OR"decisional preference*"[tw]))**)**

MEDLINE via OVID

http://gateway.ovid.com/ovidweb.cgi?T=JS&MODE=ovid&NEWS=n&PAGE=main&D=medall

(14706973 OR 18556639 OR 11141876 OR 19922647 OR 11281884).ui

Additional search techniques with proximity operators and phrase-searching (**bold**) leads to around 300-600 additional references

One of both components at least being in a lead role

(("Decision Making, Shared"/ OR"shared decision making".mp OR"shared decisionmaking".mp OR"shared decision". mp OR"shared decisions".mp OR"SDM".mp OR"shared decis*".mp OR (("shared".mp OR"share".mp OR"sharing". mp) AND (exp"Decision Making"/ OR"decision".mp OR"decisions".mp)) OR ((exp"Decision Making"/ OR"decision making".ti OR"decision-making".ti) AND (exp"social environment"/ OR"family".ti,ab OR"community".ti,ab OR"friend". ti,ab OR"friends".ti,ab OR exp"communication"/ OR exp"interpersonal relations"/ OR exp"patient participation"/ OR "patient participation".ti,ab OR exp"Physician-Patient Relations"/ OR"Physician-Patient Relations".ti,ab OR"patient empowerment".ti,ab OR exp"Power, Psychological"/)) OR"patient decision".mp OR"patient decisions".mp OR"informed decision making".mp OR"evidence-based patient choic*".mp) AND ("nonpreference".ti OR"non preference".ti OR "nonprefer*".ti OR"non prefer*".ti OR"sensitive decisions".ti OR"sensitive decision".ti OR"effective decisions".ti OR "effective decision".ti OR"effective decision*".ti OR"preference-sensitive".ti OR"preference sensitiv*".ti OR"preference effective".ti OR"non equipoise*".ti OR"nonequipoise*".ti OR"equipoise".ti OR"counterbalance".ti OR"counterpoise". ti OR"equipoise*".ti OR"counterbalanc*".ti OR"counterpois*".ti OR"Decision situation".ti OR"choice situation".ti OR "decision type".ti OR"Decision situations".ti OR"choice situations".ti OR"decision types".ti OR"Decision situation*". ti OR"choice situation*".ti OR"decision type*".ti OR"disagreements".ti OR"disagreement".ti OR"dis agreement".ti OR"dis agreements".ti OR"typology".ti OR"typolog*".ti OR"decisional situation*".ti OR"decision characteristic*".ti OR"decision making characteristic*".ti OR"decision making typ*".ti OR"decision making situation*".ti OR"decision making preference*".ti OR"decision preference*".ti OR"decisional preference*".ti **OR"type of decision*".ti OR"types of decision*".ti OR (("sensitive".ti OR"effective".ti OR"situation".ti OR"situations".ti OR"type".ti OR"types".ti OR "characteristic*".ti OR"preference*".ti) ADJ2"decision*".ti) OR (("boundaries".ti OR"boundary".ti OR"limits". ti OR"limit".ti) ADJ3"decision*".ti))** OR ((*"Decision Making, Shared"/ OR"shared decision making".ti OR"shared decisionmaking".ti OR"shared decision".ti OR"shared decisions".ti OR"SDM".ti OR"shared decis*".ti OR (("shared".ti OR "share".ti OR"sharing".ti) AND (exp *"Decision Making"/ OR"decision".ti OR"decisions".ti)) OR ((exp *"Decision Making"/ OR"decision making".ti OR"decision-making".ti) AND (exp *"social environment"/ OR"family".ti OR"community".ti OR "friend".ti OR"friends".ti OR exp *"communication"/ OR exp *"interpersonal relations"/ OR exp *"patient participation"/ OR"patient participation".ti OR exp *"Physician-Patient Relations"/ OR"Physician-Patient Relations".ti OR"patient empowerment".ti OR exp *"Power, Psychological"/)) OR"patient decision".ti OR"patient decisions".ti OR"informed

decision making".ti OR"evidence-based patient choic*".ti) AND ("nonpreference".mp OR"non preference".mp OR "nonprefer*".mp OR"non prefer*".mp OR"sensitive decisions".mp OR"sensitive decision".mp OR"effective decisions". mp OR"effective decision".mp OR"effective decision*".mp OR"preference-sensitive".mp OR"preference sensitiv*".mp OR"preference effective".mp OR"non equipoise*".mp OR"nonequipoise*".mp OR"equipoise".mp OR"counterbalance". mp OR"counterpoise".mp OR"equipoise*".mp OR"counterbalanc*".mp OR"counterpois*".mp OR"Decision situation". mp OR"choice situation".mp OR"decision type".mp OR"Decision situations".mp OR"choice situations".mp OR"decision types".mp OR"Decision situation*".mp OR"choice situation*".mp OR"decision type*".mp OR"disagreements".mp OR "disagreement".mp OR"dis agreement".mp OR"dis agreements".mp OR"typology".mp OR"typolog*".mp OR"decisional situation*".mp OR"decision characteristic*".mp OR"decision making characteristic*".mp OR"decision making typ*".mp OR"decision making situation*".mp OR"decision making preference*".mp OR"decision preference*".mp OR"decisional preference*".mp **OR"type of decision*".mp OR"types of decision*".mp OR (("sensitive".ti,ab OR"effective".ti,ab OR "situation".ti,ab OR"situations".ti,ab OR"type".ti,ab OR"types".ti,ab OR"characteristic*".ti,ab OR"preference*". ti,ab) ADJ2"decision*".ti,ab) OR (("boundaries".ti,ab OR"boundary".ti,ab OR"limits".ti,ab OR"limit".ti,ab) ADJ3 "decision*".ti,ab)**))

Embase

http://ovidsp.ovid.com/ovidweb.cgi?T=JS&PAGE=main&MODE=ovid&D=oemezd

((*"Shared Decision Making"/ OR"shared decision making".ti,ab OR"shared decisionmaking".ti,ab OR"shared decision". ti,ab OR"shared decisions".ti,ab OR"SDM".ti,ab OR"shared decis*".ti,ab OR (("shared".ti,ab OR"share".ti,ab OR"sharing". ti,ab) AND (exp"Decision Making"/ OR"decision".ti,ab OR"decisions".ti,ab)) OR ((exp *"Decision Making"/ OR"decision making".ti OR"decision-making".ti) AND (exp *"social environment"/ OR"family".ti,ab OR"community".ti,ab OR"friend". ti,ab OR"friends".ti,ab OR exp *"communication"/ OR exp *"human relation"/ OR exp *"patient participation"/ OR "patient participation".ti,ab OR *"Doctor Patient Relationship"/ OR"Physician-Patient Relations".ti,ab OR"patient empowerment".ti,ab OR *"Empowerment"/)) OR"patient decision".ti,ab OR"patient decisions".ti,ab OR"informed decision making".ti,ab OR"evidence-based patient choic*".ti,ab) AND ("nonpreference".ti OR"non preference".ti OR "nonprefer*".ti OR"non prefer*".ti OR"sensitive decisions".ti OR"sensitive decision".ti OR"effective decisions".ti OR "effective decision".ti OR"effective decision*".ti OR"preference-sensitive".ti OR"preference sensitiv*".ti OR"preference effective".ti OR"non equipoise*".ti OR"nonequipoise*".ti OR"equipoise".ti OR"counterbalance".ti OR"counterpoise". ti OR"equipoise*".ti OR"counterbalanc*".ti OR"counterpois*".ti OR"Decision situation".ti OR"choice situation".ti OR "decision type".ti OR"Decision situations".ti OR"choice situations".ti OR"decision types".ti OR"Decision situation*". ti OR"choice situation*".ti OR"decision type*".ti OR"disagreements".ti OR"disagreement".ti OR"dis agreement".ti OR"dis agreements".ti OR"typology".ti OR"typolog*".ti OR"decisional situation*".ti OR"decision characteristic*".ti OR"decision making characteristic*".ti OR"decision making typ*".ti OR"decision making situation*".ti OR"decision making preference*".ti OR"decision preference*".ti OR"decisional preference*".ti **OR"type of decision*".ti OR"types of decision*".ti OR (("sensitive".ti OR"effective".ti OR"situation".ti OR"situations".ti OR"type".ti OR"types".ti OR "characteristic*".ti OR"preference*".ti) ADJ2"decision*".ti) OR (("boundaries".ti OR"boundary".ti OR"limits". ti OR"limit".ti) ADJ3"decision*".ti))** **OR** ((*"Shared Decision Making"/ OR"shared decision making".ti OR"shared decisionmaking".ti OR"shared decision".ti OR"shared decisions".ti OR"SDM".ti OR"shared decis*".ti OR (("shared".ti OR "share".ti OR"sharing".ti) AND (exp"Decision Making"/ OR"decision".ti OR"decisions".ti)) OR ((exp *"Decision Making"/ OR"decision making".ti OR"decision-making".ti) AND (exp *"social environment"/ OR"family".ti OR"community".ti OR"friend".ti OR"friends".ti OR exp *"communication"/ OR exp *"human relation"/ OR exp *"patient participation"/ OR"patient participation".ti OR *"Doctor Patient Relationship"/ OR"Physician-Patient Relations".ti OR"patient empowerment".ti OR *"Empowerment"/)) OR"patient decision".ti OR"patient decisions".ti OR"informed decision

making".ti OR"evidence-based patient choic*".ti) AND ("nonpreference".ti,ab OR"non preference".ti,ab OR"nonprefer*". ti,ab OR"non prefer*".ti,ab OR"sensitive decisions".ti,ab OR"sensitive decision".ti,ab OR"effective decisions".ti,ab OR "effective decision".ti,ab OR"effective decision*".ti,ab OR"preference-sensitive".ti,ab OR"preference sensitiv*".ti,ab OR "preference effective".ti,ab OR"non equipoise*".ti,ab OR"nonequipoise*".ti,ab OR"equipoise".ti,ab OR"counterbalance". ti,ab OR"counterpoise".ti,ab OR"equipoise*".ti,ab OR"counterbalanc*".ti,ab OR"counterpois*".ti,ab OR"Decision situation".ti,ab OR"choice situation".ti,ab OR"decision type".ti,ab OR"Decision situations".ti,ab OR"choice situations". ti,ab OR"decision types".ti,ab OR"Decision situation*".ti,ab OR"choice situation*".ti,ab OR"decision type*".ti,ab OR "disagreements".ti,ab OR"disagreement".ti,ab OR"dis agreement".ti,ab OR"dis agreements".ti,ab OR"typology".ti,ab OR "typolog*".ti,ab OR"decisional situation*".ti,ab OR"decision characteristic*".ti,ab OR"decision making characteristic*". ti,ab OR"decision making typ*".ti,ab OR"decision making situation*".ti,ab OR"decision making preference*".ti,ab OR "decision preference*".ti,ab OR"decisional preference*".ti,ab **OR"type of decision*".ti,ab OR"types of decision*".ti,ab OR (("sensitive".ti,ab OR"effective".ti,ab OR"situation".ti,ab OR"situations".ti,ab OR"type".ti,ab OR"types".ti,ab OR"characteristic*".ti,ab OR"preference*".ti,ab) ADJ2"decision*".ti,ab) OR (("boundaries".ti,ab OR"boundary". ti,ab OR"limits".ti,ab OR"limit".ti,ab) ADJ3"decision*".ti,ab)**)) NOT (conference review or conference abstract).pt

Web of Science

http://isiknowledge.com/wos

((TI=("shared decision making" OR"shared decisionmaking" OR"shared decision" OR"shared decisions" OR"SDM" OR"shared decis*" OR (("shared" OR"share" OR"sharing") AND ("Decision Making" OR"decision" OR"decisions")) OR (shar* NEAR/5 decis*) OR ("Decision Making" AND ("social environment" OR"family" OR"community" OR"friend" OR "friends" OR"communication" OR"interpersonal relations" OR"patient participation" OR"patient participation" OR "Physician-Patient Relations" OR"Physician-Patient Relations" OR"patient empowerment" OR"Power, Psychological")) OR"patient decision" OR"patient decisions") AND TS=("nonpreference" OR"non preference" OR"nonprefer*" OR"non prefer*" OR"sensitive decisions" OR"sensitive decision" OR"effective decisions" OR"effective decision" OR"effective decision*" OR"preference-sensitive" OR"preference sensitiv*" OR"preference effective" OR"non equipoise*" OR "nonequipoise*" OR "equipoise" OR "counterbalance" OR "counterpoise" OR "equipoise*" OR "counterbalanc*" OR"counterpois*" OR "Decision situation" OR"choice situation" OR"decision type" OR"Decision situations" OR "choice situations" OR"decision types" OR"Decision situation*" OR"choice situation*" OR"decision type*" OR "disagreements" OR"disagreement" OR"dis agreement" OR"dis agreements")) **OR** (TS=("shared decision making" OR "shared decisionmaking" OR"shared decision" OR"shared decisions" OR"SDM" OR"shared decis*" OR (("shared" OR "share" OR"sharing") AND ("Decision Making" OR"decision" OR"decisions")) OR (shar* NEAR/5 decis*) OR ("Decision Making" AND ("social environment" OR"family" OR"community" OR"friend" OR"friends" OR"communication" OR "interpersonal relations" OR"patient participation" OR"patient participation" OR"Physician-Patient Relations" OR "Physician-Patient Relations" OR"patient empowerment" OR"Power, Psychological")) OR"patient decision" OR"patient decisions") AND TI=("nonpreference" OR"non preference" OR"nonprefer*" OR"non prefer*" OR"sensitive decisions" OR "sensitive decision" OR"effective decisions" OR"effective decision" OR"effective decision*" OR"preference-sensitive" OR "preference sensitiv*" OR "preference effective" OR "non equipoise*" OR "nonequipoise*" OR "equipoise" OR "counterbalance" OR"counterpoise" OR"equipoise*" OR"counterbalanc*" OR"counterpois*" OR"Decision situation" OR "choice situation" OR"decision type" OR"Decision situations" OR"choice situations" OR"decision types" OR"Decision situation*" OR"choice situation*" OR"decision type*" OR"disagreements" OR"disagreement" OR"dis agreement" OR "dis agreements"))**)** NOT dt=(meeting abstract)

Cochrane

https://www.cochranelibrary.com/advanced-search/search-manager

(("shared decision making" OR "shared decisionmaking" OR "shared decision" OR "shared decisions" OR "SDM" OR "shared decis*" OR (("shared" OR "share" OR "sharing") AND ("Decision Making" OR "decision" OR "decisions")) OR (shar* NEAR/5 decis*) OR ("Decision Making" AND ("social environment" OR "family" OR "community" OR "friend" OR "friends" OR "communication" OR "interpersonal relations" OR "patient participation" OR "patient participation" OR "Physician-Patient Relations" OR "Physician-Patient Relations" OR "patient empowerment" OR "Power, Psychological")) OR "patient decision" OR "patient decisions") AND ("nonpreference" OR "non preference" OR "nonprefer*" OR "non prefer*" OR "sensitive decisions" OR "sensitive decision" OR "effective decisions" OR "effective decision" OR "effective decision*" OR "preference-sensitive" OR "preference sensitiv*" OR "preference effective" OR "non equipoise*" OR "nonequipoise*" OR "equipoise" OR "counterbalance" OR "counterpoise" OR "equipoise*" OR "counterbalanc*" OR "counterpois*" OR "Decision situation" OR "choice situation" OR "decision type" OR "Decision situations" OR "choice situations" OR "decision types" OR "Decision situation*" OR "choice situation*" OR "decision type*" OR "disagreements" OR "disagreement" OR "dis agreement" OR "dis agreements")):ti,ab,kw NOT (conference abstract):pt

Emcare

http://ovidsp.ovid.com/ovidweb.cgi?T=JS&NEWS=n&CSC=Y&PAGE=main&D=emcr

((*"Shared Decision Making"/ OR "shared decision making".ti,ab OR "shared decisionmaking".ti,ab OR "shared decision".ti,ab OR "shared decisions".ti,ab OR "SDM".ti,ab OR "shared decis*".ti,ab OR (("shared".ti,ab OR "share".ti,ab OR "sharing".ti,ab) AND (exp "Decision Making"/ OR "decision".ti,ab OR "decisions".ti,ab)) OR ((exp *"Decision Making"/ OR "decision making".ti OR "decision-making".ti) AND (exp *"social environment"/ OR "family".ti,ab OR "community".ti,ab OR "friend".ti,ab OR "friends".ti,ab OR exp *"communication"/ OR exp *"human relation"/ OR exp *"patient participation"/ OR "patient participation".ti,ab OR *"Doctor Patient Relationship"/ OR "Physician-Patient Relations".ti,ab OR "patient empowerment".ti,ab OR *"Empowerment"/)) OR "patient decision".ti,ab OR "patient decisions".ti,ab OR "informed decision making".ti,ab OR "evidence-based patient choic*".ti,ab) AND ("nonpreference".ti OR "non preference".ti OR "nonprefer*".ti OR "non prefer*".ti OR "sensitive decisions".ti OR "sensitive decision".ti OR "effective decisions".ti OR "effective decision".ti OR "effective decision*".ti OR "preference-sensitive".ti OR "preference sensitiv*".ti OR "preference effective".ti OR "non equipoise*".ti OR "nonequipoise*".ti OR "equipoise".ti OR "counterbalance".ti OR "counterpoise".ti OR "equipoise*".ti OR "counterbalanc*".ti OR "counterpois*".ti OR "Decision situation".ti OR "choice situation".ti OR "decision type".ti OR "Decision situations".ti OR "choice situations".ti OR "decision types".ti OR "Decision situation*".ti OR "choice situation*".ti OR "decision type*".ti OR "disagreements".ti OR "disagreement".ti OR "dis agreement".ti OR "dis agreements".ti OR "typology".ti OR "typolog*".ti OR "decisional situation*".ti OR "decision characteristic*".ti OR "decision making characteristic*".ti OR "decision making typ*".ti OR "decision making situation*".ti OR "decision making preference*".ti OR "decision preference*".ti OR "decisional preference*".ti **OR "type of decision*".ti OR "types of decision*".ti OR (("sensitive".ti OR "effective".ti OR "situation".ti OR "situations".ti OR "type".ti OR "types".ti OR "characteristic*".ti OR "preference*".ti) ADJ2 "decision*".ti) OR (("boundaries".ti OR "boundary".ti OR "limits".ti OR "limit".ti) ADJ3 "decision*".ti))** **OR** ((*"Shared Decision Making"/ OR "shared decision making".ti OR "shared decisionmaking".ti OR "shared decision".ti OR "shared decisions".ti OR "SDM".ti OR "shared decis*".ti OR (("shared".ti OR "share".ti OR "sharing".ti) AND (exp "Decision Making"/ OR "decision".ti OR "decisions".ti)) OR ((exp *"Decision Making"/ OR "decision making".ti OR "decision-making".ti) AND (exp *"social environment"/ OR "family".ti OR "community".ti OR "friend".ti OR "friends".ti OR exp *"communication"/ OR exp *"human relation"/ OR exp *"patient participation"/ OR "patient participation".ti OR *"Doctor Patient Relationship"/ OR "Physician-Patient Relations".ti OR "patient

empowerment".ti OR *"Empowerment"/)) OR"patient decision".ti OR"patient decisions".ti OR"informed decision making".ti OR"evidence-based patient choic*".ti) AND ("nonpreference".ti,ab OR"non preference".ti,ab OR"nonprefer*". ti,ab OR"non prefer*".ti,ab OR"sensitive decisions".ti,ab OR"sensitive decision".ti,ab OR"effective decisions".ti,ab OR "effective decision".ti,ab OR"effective decision*".ti,ab OR"preference-sensitive".ti,ab OR"preference sensitiv*".ti,ab OR "preference effective".ti,ab OR"non equipoise*".ti,ab OR"nonequipoise*".ti,ab OR"equipoise".ti,ab OR"counterbalance". ti,ab OR"counterpoise".ti,ab OR"equipoise*".ti,ab OR"counterbalanc*".ti,ab OR"counterpois*".ti,ab OR"Decision situation".ti,ab OR"choice situation".ti,ab OR"decision type".ti,ab OR"Decision situations".ti,ab OR"choice situations". ti,ab OR"decision types".ti,ab OR"Decision situation*".ti,ab OR"choice situation*".ti,ab OR"decision type*".ti,ab OR "disagreements".ti,ab OR"disagreement".ti,ab OR"dis agreement".ti,ab OR"dis agreements".ti,ab OR"typology".ti,ab OR "typolog*".ti,ab OR"decisional situation*".ti,ab OR"decision characteristic*".ti,ab OR"decision making characteristic*". ti,ab OR"decision making typ*".ti,ab OR"decision making situation*".ti,ab OR"decision making preference*".ti,ab OR "decision preference*".ti,ab OR"decisional preference*".ti,ab **OR"type of decision*".ti,ab OR"types of decision*".ti,ab OR (("sensitive".ti,ab OR"effective".ti,ab OR"situation".ti,ab OR"situations".ti,ab OR"type".ti,ab OR"types".ti,ab OR"characteristic*".ti,ab OR"preference*".ti,ab) ADJ2"decision*".ti,ab) OR (("boundaries".ti,ab OR"boundary". ti,ab OR"limits".ti,ab OR"limit".ti,ab) ADJ3"decision*".ti,ab))**) NOT (conference review or conference abstract).pt

PsycINFO

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Supplement 2.

Table 1. Decision characteristics and decision examples of all included articles. *(including the setting in which they were described)*

Categorization of decision characteristic	Decision characteristic as extracted from the paper [1] *Including the description of "equipoise" and "preference-sensitive" from the paper, if available.*	Example decision	Decision type	Decision setting	Ref
Decision characteristics for which SDM is deemed appropriate					
Equipoise	Equipoise - *A situation where a decision point with more than one option (including the option to maintain the status quo) exists and for which potential benefits and harms should be weighed across the options*	-	-	-	(46)
Equipoise	Equipoise - *A situation in which more than one option exists (including the option of status quo) and in which the pros and cons of each option must be weighed*	Prenatal screening for Down syndrome during pregnancy	Prenatal screening	Gynaecology	(40)
Equipoise	Equipoise - *when multiple treatment options with relatively equal effectiveness and treatment may be more based on preferences, values and goals*	-	-	Mental healthcare (setting article)	(31)
Equipoise	Clinical uncertainty or equipoise - *equipoise exists when there are two or more medically reasonable management options, either of which could be favoured based on the patient's values and preferences) AND 2) sufficient amount of time AND 3) patient able to participate in decision making*	To perform diagnostic evaluation and admission for suspicion acute coronary syndrome but with an unremarkable electrocardiogram, immediate antibiotics or 'wait and see' approach for acute otitis media, choice of anticoagulation for atrial fibrillation, initial imaging for acute flank pain and thrombolysis for acute ischemic stroke	Diagnostic, treatment, care transition	Emergency department	(45)
Equipoise	Equipoise - *where conflicting or inadequate evidence offers no single "best" intervention)*	Surgery or conservative care for sciatica	Treatment	Physiotherapy	(18)
Equipoise	1) Time to make decision, 2) clinical equipoise, 3) patient decision making ability	Disposition decision (admit versus discharge) after a negative diagnostic evaluation for low-risk chest pain, choice of anticoagulation for patients with new-onset atrial fibrillation, and the disposition decision (admit versus discharge) after a negative diagnostic evaluation for isolated syncope	Treatment (chronic care), care transition decision	Emergency department	(21)
Equipoise	Equipoise	Examples in the training of SDM: initiating longer-term medications (cholesterol medication), lifestyle modifications, or cancer screening	Treatment, (cancer) screening	Chronic care, oncology	(36)

Table 1. *(Continued)*

Categorization of decision characteristic	Decision characteristic as extracted from the paper [1] *Including the description of "equipoise" and "preference-sensitive" from the paper, if available.*	Example decision	Decision type	Decision setting	Ref
Equipoise	Equipoise - *evidence that there may be alternative best practice choices*	-	-	-	(28)
Equipoise	Equipoise as a step of SDM process	Items developed in SDMQ-9 related to treatment decisions, validated in depression, gynaecology, medical decisions in general practice, urology, anaesthesia	Treatment	Mental healthcare, gynaecology, primary care, urology, anaesthesia	(49)
Equipoise	Equipoise - *balance exists between harm and benefit of different options [...] the existence of options that are in balance in terms of their attractiveness, or that the outcomes are to, a degree at least, equally desirable (or possibly, undesirable). This balance between options need not be perfect, indeed it is doubtful whether for any one individual that perfect equipoise between choices ever exists; but insofar as is reasonable, equipoise can be deemed to exist when a majority of people would agree that it is reasonable to consider making a choice between competing options*	Mastectomy or breast sparing surgery in case of early stage breast cancer	Treatment	Oncology	(81)
Equipoise	Equipoise - *a decision in which options really are options, must exist in order for a shared decision to successfully take place and thereby justify the term*	-	-	-	(59)
Equipoise	Clinical equipoise - *when the potential risks and the benefits of an intervention tend towards zero, balancing risks and benefits is extremely challenging, if not impossible*	Breastfeeding by HIV infected mothers (in optimal scenario with low viral load and adherent to HIV medication)	Childbearing with disease	Childbearing with disease	(66)
Equipoise	Equipoise	Hospitalization or discharge for chest pain evaluation, intensive care unit or hospice for terminal patient	Care transition decisions, end-of-life decisions	Emergency department	(67)
Equipoise	Clinical equipoise - *i.e. uncertainty about the relative therapeutic benefit of every arm of a trial alters the role of shared decision making when consenting a potential subject to participate in clinical research*	Enrolment clinical research (enrolment in clinical trials)	Enrolment in research	Research	(86)
Equipoise	Equipoise - *not one option exist*	Decisions in surgery (in general)	Treatment (surgery)	Surgery	(70)

Table 1. *(Continued)*

Categorization of decision characteristic	Decision characteristic as extracted from the paper [1] *Including the description of "equipoise" and "preference-sensitive" from the paper, if available.*	Example decision	Decision type	Decision setting	Ref
Equipoise	Equipoise - *more than one reasonable treatment option and where none has a clear health outcome advantage, where each has benefits and disadvantages, and may vary in their scientific uncertainty*	-	-	-	(88)
Equipoise	Clinical equipoise - *clinical situations where more than one reasonable option exists for that person*	Choice of medication in epilepsy, treatment or medication withdrawal epilepsy during pregnancy	Treatment, childbearing with disease	Neurology	(89)
Equipoise	Clinical equipoise	-	-	-	(57)
Equipoise (dual)	Dual equipoise - *where both health professionals and patients, once informed, agree conceptually that individual preferences are acceptable arbitrators of choice. Dual equipoise assumes that all parties in the decision space agree that preferences are paramount that there is sufficient equivalence among options to allow personal preference to hold sway.*	Mastectomy or breast sparing surgery in case of early stage breast cancer, PSA (prostate specific antigen) testing for prostate cancer	Treatment, screening (cancer)	Oncology	(81)
Equipoise (professional)	Equipoise - *professional equipoise: in certain clinical scenarios the doctor can have no clear preference about the treatment choice to make. This is where shared decision making is most feasible. Legitimate choices exist.*	-	-	-	(43)
Equipoise (professional)	Professionally situated equipoise - *We propose that professionally-situated equipoise is a pre-condition to the existence of dual equipoise interactions, and that these in turn facilitate shared decision making, and, as a result, are a pre-condition for the implementation of decision support interventions*	Mastectomy or breast sparing surgery in case of early stage breast cancer, PSA (prostate specific antigen) testing for prostate cancer	Treatment, screening (cancer)	Oncology	(81)
Equipoise (professional)	Professional equipoise - *Professional equipoise about the outcomes of decisions is an important criterion that enables shared decision-making to take place, and which is missing in these cases. It allows patients the `freedom' to choose preferred options*	-	-	-	(58)

Table 1. *(Continued)*

Categorization of decision characteristic	Decision characteristic as extracted from the paper [1] *Including the description of "equipoise" and "preference-sensitive" from the paper, if available.*	Example decision	Decision type	Decision setting	Ref
Equipoise (professional)	Professional equipoise - *the patient is free to choose whatever option they prefer, given that they have received the necessary information on which to base their choice*	-	-	-	(59)
Every decision	In a healthcare encounter when an issue/need is identified	-	-	-	(28)
Every decision	In all decisions, reasonable attempt to SDM should always be made	-	Diagnostic test, treatment, care transition decisions	Emergency department	(67)
Every decision	Every clinical decision	-	-	-	(86)
Every decision	All delivered care decisions independent of the level of evidence or presence of equipoise	-	-	-	(92)
Every decision	Decisions including both certainty AND uncertainty	-	-	-	(63)
Every decision	All decisions (including when there is a best choice)	-	-	-	(79)
Impact decision high	Treatment choices that have serious implications for their health outcomes and quality of life	Cancer treatment decisions, i.e. breast cancer and the decision for chemotherapy	treatment	Oncology	(24)
Impact decision high	Complex (mental health) decisions: involving number of life domains and contain both biopsychological aspects as having effects and consequences on individuals life which emerge over time	Decisions concerning psychiatric care or treatment	Treatment	Mental healthcare	(35)
Impact decision high	Decisions that potentially have major adverse effects for which the risks and benefits have to be carefully weighed against each other	Lung cancer screening with low-dose CT: potential important harms (false-positive findings with investigations of those carrying risk of morbidity and even mortality)	Screening	Primary care	(27)
Impact decision high	Options that have irreversible and enduring side effects	-	Treatment	Oncology	(48)
Impact decision high	Major decisions	Surgery decisions, chemotherapy decisions	Treatment	Primary care (setting article)	(14)

Table 1. *(Continued)*

Categorization of decision characteristic	Decision characteristic as extracted from the paper [1] *Including the description of "equipoise" and "preference-sensitive" from the paper, if available.*	Example decision	Decision type	Decision setting	Ref
Impact decision high	Substantive everyday decisions (intermediate stakes decisions that occur dozens of times every day, yet nontrivial for patients), 'everyday SDM' is applicable here	Routine mammography starting at age 40, 45 or 50, screening decisions for cancers (prostate, cervical, colon, lung, ovarian), cardiovascular prevention decisions (statins, aspirin, and blood pressure medications: when to start them and which one(s) and at what dose; when to follow-up; when to increase dosing; or when to stop them completely)	Screening (cancer), treatment	Primary care	(14)
Impact decision high	Discrete treatment decisions for serious acute care illnesses with important and immediate consequences to the patient, for which alternatives exist	Surgical treatment choices for patients with new diagnosis of breast cancer, leg amputation vs. medical treatment or revascularization in a patient with diabetes and ischaemic limb pain and ulcer, surgical repair of bone fracture vs casting, use of thrombolytic agents to decrease long-term sequalae of an ischaemic stroke	Treatment	Emergency department, oncology	(17)
Impact decision high	Spill-over effect illness (parents and other family members affected by the child's illness), often because of potential for serious consequences (mortality, physical comorbidities, hospitalization) that causes psychological burden	Early Introduction of Allergenic Solids in food allergy, peanut allergy treatment choice in food allergy anaphylaxis management	Treatment	Allergy care	(75)
Impact decision high	Critical decisions (wrong decisions might lead to poor outcomes)	Antipsychotic treatment in psychotic patient	Treatment	Mental healthcare	(82)
Impact decision high	Decision that influence daily routines or interactions with healthcare systems	Introduction of technology in children with severe neurologic impairment	Treatment	Paediatric care	(87)
Impact decision high	Impact on patient and family	Introduction of technology in children with severe neurologic impairment	Treatment	Paediatric care	(87)
Impact decision high	Decisions potentially resulting in radical change in life and health status	Decisions in surgery (in general)	Treatment	Surgery	(70)
Impact decision high	Decisions crucially depending on individual context because of high side effect burden and modest effects	Surgery or radiation therapy for localized lung cancer with impaired lung function, addition of erlotinib to gemcitabine for metastatic pancreatic cancer	Treatment	Oncology	(71)
Impact decision high	High risk intervention: possible (long term) poor outcomes, potential unwanted outcomes or unsuccessful treatment	(Major) surgery	Treatment	Surgery	(100)

Table 1. *(Continued)*

Categorization of decision characteristic	Decision characteristic as extracted from the paper [1] *Including the description of "equipoise" and "preference-sensitive" from the paper, if available.*	Example decision	Decision type	Decision setting	Ref
Impact decision high	The intervention of the decision-option is potentially physically, emotionally or financially harmful	Non emergent intensive care unit decisions: permanent feeding tube (percutaneous feeding tube), permanent dialysis catheter, suprapubic urinary catheter, tracheotomy, long-term venous catheter, pulmonary artery catheter, in-hospital dialysis, or temporary naso gastric feeding tube.	Treatment	Intensive care unit	(56)
Impact decision high	Decision option has profound impact on individuals life	Electroconvulsive therapy, psychosurgery, psychiatric medication during pregnancy, decision to return to work or school, psychiatric medications	Treatment, returning society, childbearing with disease	Mental healthcare	(79)
Impact decision high	Likelihood of cure of option unprecedented and high impact therapy	Medulloblastoma in child (aggressive treatment with cognitive side effects)	Treatment	Oncology (paediatric)	(94)
Impact decision high	Multiple high stakes around decisions	Decisions required when dealing with a cancer diagnosis	Treatment	Oncology	(97)
Irreversibility	Discrete decisions: single time point, irreversible, relatively urgent	Undergo surgical procedure, to have a test, to enter a screening programme	Treatment, diagnostic testing, screening	Surgery	(81)
Irreversibility	Irreversibility of decision	Decisions in surgery (in general)	Treatment	Surgery	(70)
Known to often entail misalignment in views	Decisions causing frequent disagreement patients, caregivers and HCP	Planning youth mental health (psychotherapy) treatment	Treatment	Mental healthcare	(31)
Known to often entail misalignment in views	Potential goal misalignment patients and clinicians in the decision (patients often very particular preferences for these decisions)	Food immunotherapy: oral, epicutaneous or sublingual, food allergy decisions: diagnostic testing, application new guidelines on early potentially allergenic solid food introduction, the use of formal oral food challenges or less formal supervised feeds	Treatment, diagnostic testing	Allergy care (paediatric)	(60)
Known to often entail misalignment in views	Complicated and competing interests around decision, alternative SDM proposed	Enrolment clinical research	Enrolment in research	Research	(86)
Known to often entail misalignment in views	Intervention (decision) potentially incompatible with more than one common patient goals	Non emergent intensive care unit decisions: permanent feeding tube (percutaneous feeding tube), permanent dialysis catheter, suprapubic urinary catheter, tracheotomy, long-term venous catheter, pulmonary artery catheter, in-hospital dialysis, or temporary naso gastric feeding tube.	Treatment	Intensive care unit	(56)

Table 1. *(Continued)*

Categorization of decision characteristic	Decision characteristic as extracted from the paper [1] *Including the description of "equipoise" and "preference-sensitive" from the paper, if available.*	Example decision	Decision type	Decision setting	Ref
Long window of opportunity to make decision	Intervention can be anticipated on a non-emergent basis	Non emergent intensive care unit decisions: permanent feeding tube (percutaneous feeding tube), permanent dialysis catheter, suprapubic urinary catheter, tracheotomy, long-term venous catheter, pulmonary artery catheter, in-hospital dialysis, or temporary naso gastric feeding tube.	Treatment	Intensive care unit	(56)
Multiple options	Several treatment options exist with different possible outcomes and substantial uncertainty	Early stage breast-cancer treatment decision making	Treatment	Oncology	(11)
Multiple options	When decisions involve more than one choice	Decisions about genitoplasty for children with disorders of sex development	Treatment	Paediatric care	(25)
Multiple options	More than one reasonable treatment option available including taking no action	Early stage breast-cancer treatment decision making: lumpectomy with radiotherapy or mastectomy, surgery for urinary problems due to enlarged prostate	Treatment	Oncology, surgery	(4)
Multiple options	Alternative options exist	-	-	-	(44)
Multiple options	More than one medically reasonable option	Breast cancer and prostate cancer: when the treatment options affected patients' lifestyle and self-image (e.g., treatments for prostate cancer that affected sexual function), when deciding upon treatments for supportive or palliative care.	Treatment	Oncology	(24)
Multiple options	Both clinicians and patients have to perceive that there are treatment choices (including doing nothing as a choice), options have different possible outcomes (benefits and risks or side effects)	Early stage breast-cancer treatment decision making	Treatment	Oncology	(30)
Multiple options	More than one medically reasonable option	Decisions about diagnosis, treatment or follow up	Treatment, diagnostic testing, planning (follow up)	Not specified	(5)
Multiple options	Multiple options exist	Mental health decisions: which family members will participate in treatment, what type of communication caregivers will have with the clinician, how much confidentiality caregivers will allow the clinician to maintain with youth patients, and what type of treatment to use (or which skills to focus on)	Treatment	Mental healthcare	(31)

Table 1. *(Continued)*

Categorization of decision characteristic	Decision characteristic as extracted from the paper [1] *Including the description of "equipoise" and "preference-sensitive" from the paper, if available.*	Example decision	Decision type	Decision setting	Ref
Multiple options	Existing several options with different possible outcomes: decisional conflict	-	-	Paediatric care (setting article)	(19)
Multiple options	Any doctor-patient encounter in which a substantive decision is made about treatment or investigation for which reasonable choices exist	-	Treatment, diagnostic testing	Oncology	(33)
Multiple options	Reasonable available options including taking no action	-		-	(43)
Multiple options	One more effective option but still multiple acceptable options given patient preferences	Hypertension treatment	Treatment	Chronic care	(83)
Multiple options	Various options with varying degrees of effectiveness and side effects	Choosing alternatives for opioids in chronic pain management, de-prescribing main medication	Treatment	Chronic care	(54)
Multiple options	Several reasonable options with different (side) effects where patients differ in their preferences for outcomes and options	Treatment choice lower urinary tract symptoms due to BPH (surgery, medication, watchful waiting), screening tests (PSA (prostate specific antigen)screening), decisions on strategies of care (overall goals of care and end of life decisions)	Treatment, screening (cancer), and end of life decisions	Oncology, chronic care	(78)
Multiple options	Alternative treatment method exists (SDM *even more* applicable)	Decisions in surgery (in general)	Treatment	Surgery	(70)
Multiple options	More than one medically reasonable option with medically reasonable defined as consistent with the standard of care	-	-	Paediatric care (setting article)	(76)
Multiple options	No consensus standard care (therefore more than one acceptable option)	Surgical intervention hypoplastic left heart syndrome or trisomy (child surgery congenital heart disease)	Treatment	Paediatric care (surgery)	(76)
Multiple options	Multiple clinically appropriate options exist	Choices among biologics for asthma with an eosinophilic phenotype	Treatment	Allergy care	(61)

Table 1. *(Continued)*

Categorization of decision characteristic	Decision characteristic as extracted from the paper [1] *Including the description of "equipoise" and "preference-sensitive" from the paper, if available.*	Example decision	Decision type	Decision setting	Ref
Multiple options	Multiple equally suitable, or effective treatment options available	Bariatric surgery procedure selection, early stage breast cancer surgery, colorectal surgery, orthopaedic surgery for shoulder disorders; carpal tunnel syndrome or joint replacements, pelvic organ prolapse surgery, vascular surgery for abdominal aneurysms; peripheral vascular disease; varicosis or carotid stenosis, (neo)adjuvant treatments related to various oncological surgical interventions, and all indications for cosmetic or aesthetic surgery.	Treatment	Surgery	(92)
Multiple options	More than one reasonable option, three circumstances: single treatment vs trial, well-defined trade-off between different treatments, two different treatments that result in equal cure rates and long term adverse effects	Medulloblastoma in child (aggressive treatment with cognitive side effects)	Treatment	Oncology (paediatric)	(94)
Multiple options	SDM useful in complex cases where multiple options exist	Decisions required when dealing with a cancer diagnosis	Treatment	Oncology	(97)
Multiple options	All decisions that contain competing options or the different approaches need prioritization	-	-	Chronic care (setting article)	(83)
No best option	No clear-cut right or wrong answer	Early stage breast-cancer treatment decision making	Treatment	Oncology	(11)
No best option	No clear best choice treatment	Decisions about genitoplasty for children with disorders of sex development	Treatment	Paediatric care (surgery)	(25)
No best option	Best clinical option not clear	-	-	Paediatric care (setting article)	(87)
No best option	Evidence does not indicate superior option, patient preferences may heavily influence decision	Tonsillectomy or watchful waiting for children with recurrent throat infection	Treatment	Surgery	(91)
No best option	No clear best choice	-	-	.	(61)
No best option	Chance of cure is slight and there is a reasonable choice in therapies	Aggressive anticancer therapy or palliative care for adolescent with acute lymphocytic leukaemia who has had more than one bone marrow relapse	Treatment	Oncology (paediatric)	(94)

Table 1. *(Continued)*

Categorization of decision characteristic	Decision characteristic as extracted from the paper [1] *Including the description of "equipoise" and "preference-sensitive" from the paper, if available.*	Example decision	Decision type	Decision setting	Ref
One best option	One clear best treatment choice (though SDM is less applicable here then when there is equipoise)	Other decisions within "winner" treatment that can incorporate SDM, such as decisions about specific treatment goals, treatment participants, and other aspects of treatment that are malleable	Treatment	Mental healthcare	(31)
One best option	Evidence, practice guidelines and protocols strongly favour particular options	-	-	.	(18)
One best option	One best option	No antibiotics for 5 year old with viral upper respiratory infection	Treatment	Paediatric care	(34)
One best option AND Weight of decision (light)	Only one medically reasonable option but low severity of illness, elective nature of treatment	Antihistamine for mild seasonal allergies	Treatment	Paediatric care	(76)
One best option but likely to disagree	One best treatment, but perspectives client-clinician may differ in defining the problem to target	-	-	Mental healthcare (setting article)	(31)
One best option but likely to disagree	Best-choice decisions: professionals agree on decision but anticipate patient resistance (a better option clearly exists but also poses a risk that the patient will refuse)	Antipsychotic treatment in psychotic patient	Treatment	Mental healthcare	(82)
Patient commitment is needed to carry out decision	Active role patient needed in carrying out decision	Planning youth mental health (psychotherapy) treatment	Treatment	Mental healthcare	(31)
Patient commitment is needed to carry out decision	Active patient role needed in carrying out decision	Treatment decisions in chronic care (e.g. treatment decisions for diabetes, hypertension, asthma)	Treatment	Chronic care	(17)
Patient commitment is needed to carry out decision	Patients role during treatment administration is active (patient controls treatment administration) rather than passive (inflicted on patient)	Chronic care: lifestyle and pharmacological treatment choices for patients with new diagnosis of uncomplicated type 2 diabetes	Treatment	Chronic care	(17)
Patient commitment is needed to carry out decision	Long term commitment needed for chosen decision	Food allergy: diagnostic testing, application new guidelines on early potentially allergenic solid food introduction, oral food challenges, supervised feeds, other treatment options	Treatment, diagnostic testing	Allergy care (paediatric)	(60)

Table 1. *(Continued)*

Categorization of decision characteristic	Decision characteristic as extracted from the paper [1] *Including the description of "equipoise" and "preference-sensitive" from the paper, if available.*	Example decision	Decision type	Decision setting	Ref
Patient commitment is needed to carry out decision	Patient adherence required in carrying out decision	Food allergy: diagnostic testing, application new guidelines on early potentially allergenic solid food introduction, oral food challenges, supervised feeds, other treatment options	Treatment, diagnostic testing	Allergy care (paediatric)	(60)
Patient commitment is needed to carry out decision	Decisions requiring significant amount of self-care, alternative SDM approach proposed: SDM and CSA=counselling selfcare and adherence	Chronic condition management in elderly	Treatment	Elderly care	(65)
Patient commitment is needed to carry out decision	Some options may require substantial time commitments	Choosing alternatives for opioid in pain management chronic pain which are time consuming such as physical therapy	Chronic pain management	Chronic care	(54)
Patient commitment is needed to carry out decision	When parents/patients are primarily responsible for implementation SDM should be calibrated to align with this responsibility (i.e. a weaker version of parent-guided SDM can be calibrated to a stronger one).	Supine sleep position, decisions regarding breastfeeding for new-borns	New born parent care	Paediatric care	(76)
Patient commitment is needed to carry out decision	Long-term potentially complicated or intensive treatments where adherence depends on patient preferences (SDM needed to explore these preferences)	Atopic disease treatments	Treatment	Allergy care	(61)
Patient commitment is needed to carry out decision	Decision implementation in patient's own 'space'	Chronic care: lifestyle and pharmacological treatment choices for patients with new diagnosis of uncomplicated type 2 diabetes	Treatment	Chronic care	(17)
Patient commitment is needed to carry out decision	Patients' needs to implement decision	Self-care in chronic disease management (taking prescribed medication, lifestyle modifications such as losing weight and exercise)	Treatment	Primary care	(16)
Preference-sensitive	Options depend heavily on decision makers values	Decisions about genitoplasty for children with disorders of sex development	Treatment	Paediatric care	(25)
Preference-sensitive	Preference-sensitive	-	-	Primary care (setting article)	(40)
Preference-sensitive	Choice best option depends on patients preferences and values *- term 'preference-sensitive' not mentioned in this article)*	Cancer treatment decisions, i.e. breast cancer and the decision for chemotherapy	Treatment	Oncology	(24)

Table 1. *(Continued)*

Categorization of decision characteristic	Decision characteristic as extracted from the paper [1] *Including the description of "equipoise" and "preference-sensitive" from the paper, if available.*	Example decision	Decision type	Decision setting	Ref
Preference-sensitive	Preference-sensitive - *those medical decisions for which there is more than one medically reasonable approach to treatment*	-	-	-	(20)
Preference-sensitive	Preference-sensitive - *evidence lacking or weak and/or equipoise; various treatment options, only patient preferences can adjudicate*	Decisions about diagnosis, treatment or follow up	Treatment, diagnostic testing, planning	Not specified	(5)
Preference-sensitive	Preference-sensitive - *a state of uncertainty regarding a course of action and occurring when two or more clinically reasonable options involve benefits and risks that patients value differently*	-	-	Paediatric care (setting article)	(19)
Preference-sensitive	Preference-sensitive conditions - *conditions where treatment options exist that come with trade-offs between potential harms and benefits for the patient*	Hospital admission or not for diagnostic evaluation possible acute coronary syndrome with an unremarkable electrocardiogram , immediate antibiotics or 'wait and see' approach for acute otitis media, choice of anticoagulation for atrial fibrillation, initial imaging for acute flank pain and thrombolysis for acute ischemic stroke	Diagnostic testing, treatment, care transition decisions	Emergency department	(32)
Preference-sensitive	Preference-sensitive	Curative treatment decisions and decisions in chronic care (goal setting)	Treatment	Primary care	(29)
Preference-sensitive	Preference-sensitive - *several methods medically appropriate, result of decision experience influences by patient values, preferences and lived experiences*	Contraceptive counselling, pelvic examination (screening) in asymptomatic non pregnant women	Preventive /screening	Gynaecology	(22)
Preference-sensitive	Preference-sensitive - *no single best option exist*	Patient with multimorbidity: prioritizing in diseases (e.g. focus on osteoarthritis or other diseases like diabetes, hypertension, dyslipidaemia, obesity), treatment options (e.g. pain reduction options osteoarthritis; physiotherapy, paracetamol, oral NSAID, topical NSAID, hyaluronic acid injection, surgery total hip replacement).	Treatment, prioritizing comorbidity	Primary care	(23)
Preference-sensitive	Preference-sensitive zone - *uncertainty treatment outcomes and individual preferences creating a grey area for medical decision making*	-	-	Primary care (setting article)	(14)

Table 1. *(Continued)*

Categorization of decision characteristic	Decision characteristic as extracted from the paper [1] *Including the description of "equipoise" and "preference-sensitive" from the paper, if available.*	Example decision	Decision type	Decision setting	Ref
Preference-sensitive	Preference-sensitive - *situations in which multiple treatment options, each with potential trade-offs and outcomes where the decision to choose 1 option is largely dependent on the values and personal preferences of the patient*	Food allergy: diagnostic testing, application new guidelines on early potentially allergenic solid food introduction, oral food challenges, supervised feeds, other treatment options	Treatment, diagnostic testing	Allergy care (paediatric)	(60)
Preference-sensitive	Preference-sensitive	-	-	-	(80)
Preference-sensitive	Preference-sensitive care - *describes a situation where the evidence for the superiority of one treatment over another is not available; there are therefore two or more valid approaches to care and the best choice depends on how a patient values the risks and benefits of the treatments available*	Early stage breast cancer and decision whether to have surgery that removes or conserves the breast (mastectomy or breast conservation), PSA testing for prostate cancer	Treatment, screening (cancer)	Oncology	(81)
Preference-sensitive	Preference-sensitive - *when there is no obvious 'best' treatment. Treatment choice then depends on a necessarily subjective trade-off be- tween the benefits and side-effects of treatment alter- natives. Therefore, patients' informed values and preferences should drive decision making) (...) options vary in benefit, important short and long term side effects, impossible to predict which patient will benefit*	Chemotherapy and endocrine therapy stage III breast cancer	Treatment	Oncology	(55)
Preference-sensitive	Preference-sensitive - *clinical equipoise or substantial uncertainty of effect size treatment (...) clear treatment option, but values vary significantly patient-to-patient*	Treatment thyroid nodules/cancers and laryngeal cancer: surveillance or surgery	Treatment, surveillance (cancer)	Oncology	(64)
Preference-sensitive	Preference-sensitive - when the choice of a particular option becomes dependent on what the personal preferences and values of the patient may be	Early allergenic solid introduction, pre-emptive epinephrine use when allergic exposure but no symptoms, automatic activation of EMS after using epinephrine, and choices of food allergy treatment	Treatment, prevention	Allergy care	(75)
Preference-sensitive	Preference-sensitive decisions - *several more or less equivalent options or uncertainty about best way to proceed*	Drug choice in mental healthcare	Treatment	Mental healthcare	(82)

Table 1. *(Continued)*

Categorization of decision characteristic	Decision characteristic as extracted from the paper [1] *Including the description of "equipoise" and "preference-sensitive" from the paper, if available.*	Example decision	Decision type	Decision setting	Ref
Preference-sensitive	Preference-sensitive - *may occur when 1) multiple treatment options exist and none of them is clearly superior for all patients, 2) the evidence supporting one option is considerably uncertain or variable, and/or 3) patients' views on the most important benefits and acceptable risks vary considerably within the patient population or differ from those of health care professionals*	-	-	-	(77)
Preference-sensitive	Highly preference-sensitive decisions - *evidence about benefits and harms treatments limited, decisions involve weighing many factors (patient capacity, social support, carers, burden of treatment), best option strongly depends on which outcomes matter the most to the individual older patient and their circumstances, patients preferences will vary widely*	CVD prevention (re-evaluating, starting, adjusting medication decision) in elderly care	Prevention	Elderly care	(53)
preference-sensitive	Major preference-sensitive decisions - *major treatment decisions that may be affected by personal values, goals and preferences*	Goals of care (Intensive care Unit) including withdrawing or limiting life prolonging interventions	End-of-life decisions	Intensive care unit	(98)
Preference-sensitive	Preference-sensitive - *many reasonable options exist and patients can have different goals and preferences for treatment and each option has different trade-offs, risks and quality of life implications that may be valued differently by patients*	Managing uncomplicated stage 1 hypertension: future opportunities for SDM in hypertension may include home and ambulatory blood pressure monitoring, individualized blood pressure targets, antihypertensive medication selection, and integration of lifestyle interventions	Treatment	Chronic care	(74)
Preference-sensitive	Highly preference-sensitive - *no consensus on decision, more than one alternative treatment with a variety of benefits and risks without convincing evidence best choice, trade off survival and morbidity, psychological distress and increased health care costs*	Prostate cancer screening	Screening (cancer)	Oncology	(68)
Preference-sensitive	Preference-sensitive - *similar efficacies of available options*	Antipsychotic (medication) management	Treatment	Mental healthcare	(85)
Preference-sensitive	Preference-sensitive (SDM most easily applied here) - *no clear best option, no clear evidence, or clear evidence of benefit in tandem with significant risks or burdens and especially when prognosis is uncertain*	An array of potential health care decisions relating to medication treatment, revascularization procedures, valve replacement, and device-based therapies	Treatment	Surgery	(69)

Table 1. *(Continued)*

Categorization of decision characteristic	Decision characteristic as extracted from the paper [1] *Including the description of "equipoise" and "preference-sensitive" from the paper, if available.*	Example decision	Decision type	Decision setting	Ref
Preference-sensitive	Preference-sensitive decisions	Introduction of technology in children with severe neurologic impairment	Treatment	Paediatric care	(87)
Preference-sensitive	Preference-sensitive	-	-	Paediatric care (setting article)	(76)
Preference-sensitive	Preference-sensitive - more than one reasonable treatment option and where none has a clear health outcome advantage, where each has benefits and disadvantages, and may vary in their scientific uncertainty i.e. where equipoise exists. Because these factors are valued by individual patients differently, they are preference-sensitive	Multiple sclerosis disease modifying therapies (immunomodulatory therapies)	Treatment	Neurology	(88)
Preference-sensitive	Preference-sensitive - *where there is equipoise between treatment options with equal or similar outcomes from a medical standpoint*	Blood pressure medication, cholesterol medication, chemotherapy in metastatic colorectal cancer	Treatment	Chronic care, oncology	(90)
Preference-sensitive	Preference-sensitive - *multiple medically appropriate options, patients preferences for risks and benefits of options are key*	Whether or not to have a prostate-specific antigen test for men aged 65 years, when to start mammography screening for women aged 40–50 years, cancer treatment decisions (e.g., whether or not to participate in a phase III clinical trial and whether or not to have chemotherapy for early-stage cancer), end- of-life care decisions (e.g., when to forgo cancer-directed therapy and focus exclusively on palliative care and whether or not to participate in a phase I or phase II clinical trial)	Screening (cancer), treatment, enrolment in research, end-of-life decisions	Oncology	(71)
Preference-sensitive	Preference-sensitive - *no best option from an evidence standpoint and patient preferences central to the choice, trade-offs between risks and benefits of options*	Prostate cancer screening (PSA, prostate specific antigen)	Screening (cancer)	Oncology	(72)
Preference-sensitive	Preference-sensitive - *where there is no one best available treatment*	-	-	.	(100)
Preference-sensitive	Preference-sensitive	non emergent intensive care unit decisions: permanent feeding tube (percutaneous feeding tube), permanent dialysis catheter, suprapubic urinary catheter, tracheotomy, long-term venous catheter, pulmonary artery catheter, in-hospital dialysis, or temporary naso gastric feeding tube.	Treatment	Intensive care unit	(56)

Table 1. *(Continued)*

Categorization of decision characteristic	Decision characteristic as extracted from the paper [1] *Including the description of "equipoise" and "preference-sensitive" from the paper, if available.*	Example decision	Decision type	Decision setting	Ref
Preference-sensitive	Preference-sensitive - *choice involves trade-off between length and quality of life, or such competing considerations as preservation of bodily integrity, prevention of future problems, cost, and convenience*	Mastectomy versus lumpectomy plus radiation for small localized breast cancer	Treatment	Oncology	(10)
Preference-sensitive	Preference-sensitive - *more than one reasonable option*	Mastectomy versus lumpectomy for early breast cancer, PSA (prostate specific antigen) testing to screen for prostate cancer, anticoagulation (or not) for atrial fibrillation	Screening (cancer), treatment	Oncology, chronic care	(95)
Preference-sensitive	Preference-sensitive conditions - *there exist a number of available treatment options of similar efficacy, with differences in risks and benefits*	Relapsing-remitting multiple sclerosis treatment: starting steroids, immunotherapy, disease-modifying drugs early in the disease course, having a child	Treatment, childbearing with disease,	Neurology	(62)
Preference-sensitive	Preference-sensitive	Form, frequency and length of surveillance imaging and form, frequency and length of follow up consultations aimed at physical and psychosocial effects of treatments, adjuvant anti-hormonal treatment, breast reconstruction, treatment affecting fertility, getting pregnant after breast cancer, lifestyle changes, use of alternative and complementary medicine, hereditary testing,	Planning (follow up), treatment, childbearing with disease	Oncology	(63)
Preference-sensitive	Preference-sensitive decisions - *i.e. psychiatric medication that can be effective but also harmful and ineffective for some people*	Electroconvulsive therapy, psychosurgery, psychiatric medication during pregnancy, decision to return to work or school, psychiatric medications	Treatment, returning society, childbearing with disease	Mental healthcare	(79)
Reversibility	Reversibility of the decision (revisit and reverse them without important loss)	Treatment decisions in chronic care (e.g. treatment decisions for diabetes, hypertension, asthma)	Treatment	Chronic care	(17)
Short timeframe to make decision	Discrete decisions: single time point, irreversible, relatively urgent	Undergo surgical procedure, to have a test, to enter a screening programme	Treatment, diagnostic testing, screening	Surgery, not specified	(81)
Short timeframe to make decision	Decision time dependent	Cyanoacrylate or sutures, do-not-resuscitate order with advanced metastatic malignancy	Treatment, end-of-life decisions	Emergency department	(67)
Short timeframe to make decision	Narrow window of time to make decisions	Decisions required when dealing with a cancer diagnosis	Treatment	Oncology	(97)
Trade off	Each choice advantages and disadvantages	Decisions about genitoplasty for children with disorders of sex development	Treatment	Paediatric care	(25)

Table 1. *(Continued)*

Categorization of decision characteristic	Decision characteristic as extracted from the paper [1] *Including the description of "equipoise" and "preference-sensitive" from the paper, if available.*	Example decision	Decision type	Decision setting	Ref
Trade off	Substantive risk/benefit trade-offs	Routine mammography starting at age 40, 45 or 50, screening for cancers (prostate, cervical, colon, lung, ovarian), cardiovascular prevention decisions (statins, aspirin, and blood pressure medications: when to start them and which one(s) and at what dose; when to follow-up; when to increase dosing; or when to stop them completely)	Screening (cancer), treatment	Primary care	(14)
Trade off	Similar efficacy profiles and complex risk-benefit trade-offs	Psychotropic agents medications	Treatment	Mental healthcare	(80)
Trade off	Decisions involving range of trade offs	Obese patient choosing best intervention; diet, exercise or medical	Treatment	Chronic care	(83)
Trade off	Treatments involving trade-offs that can be considered differently by individual patients	Healthcare decisions cardiovascular disease: percutaneous interventions (cardiac stents and aortic valves) to major surgeries (cardiac transplant i.e. or mechanical circulatory support)	Treatment	Surgery	(69)
Trade off	Balance of benefits and harms is a close call and determined by individual preferences	-	-	-	(99)
Trade off individual impact and public benefit	Effective care (substantial impact population but less for individual)	Vaccination	Vaccination	Vaccination	(72)
Trade-off	Trade-off in decisions, for which not all patients choose the same, because weighing importance of averting an outcome of decision depends on patients, because patients know best how a symptom will affect their lives	-		-	(99)
Uncertainty	Uncertainty	-	-	-	(28)
Uncertainty	Uncertainty	-	Treatment	Oncology	(48)
Uncertainty	Uncertainty	Lumpectomy with radiation therapy com- pared to mastectomy for early breast cancer, systemic methotrexate compared to laparoscopic salpingostomy for tubal pregnancy, choice generic compared to brand name drug, arm sling or brace for midshaft fracture clavicle.	Treatment	Surgery, oncology	(9)

Table 1. *(Continued)*

Categorization of decision characteristic	Decision characteristic as extracted from the paper [1] *Including the description of "equipoise" and "preference-sensitive" from the paper, if available.*	Example decision	Decision type	Decision setting	Ref
Uncertainty	Implications of findings (of diagnostic tests) uncertain	Diagnostic functional neuroimaging (with incompletely understood implications)	Diagnostic testing	Neurology	(96)
Uncertainty	High level of evidence (NCCN =National Comprehensive Cancer Network category 1) but specific individual patients have strong preferences or there are specific patients for which the evidence is less certain (e.g. patients with comorbidities who might have more toxicities from chemotherapy).	Choices within the class of therapy in newly diagnosed chronic myeloid leukaemia: when the only appropriate choice may be treatment with a tyrosine kinase inhibitor, and in some patients with meta- static prostate cancer, for whom hormone-mediated therapy may be considered the only medically appropriate therapy	Treatment	Oncology	(71)
Uncertainty	Medical uncertainty (low certainty): two or more clinically reasonable alternative exits (the physician is uncertain of the right course of action, or other clinicians might have different recommendations)	-	-	-	(10)
Uncertainty of evidence	When data/evidence is lacking	Decisions about genitoplasty for children with disorders of sex development	Treatment	Paediatric care	(25)
Uncertainty of evidence	Evidence on decisions limited or incomplete or high degrees of uncertainty	Breast cancer and prostate cancer: when the treatment options affected patients' lifestyle and self-image (e.g., treatments for prostate cancer that affected sexual function); and when deciding upon treatments for supportive or palliative care.	Treatment	Oncology	(24)
Uncertainty of evidence	Insufficient scientific evidence to inform decisions	Lung cancer screening	Screening	Primary care	(27)
Uncertainty of evidence	Substantial uncertainty: research insufficient or inconclusive	-	-	Paediatric care (setting article)	(19)
Uncertainty of evidence	Evidence about decision and its utility and efficacy limited	Introduction of technology in children with severe neurologic impairment	Treatment	Paediatric care	(87)
Uncertainty of evidence	Ambiguity uncertainty (conflicting studies or strength of evidence)	-	-	-	(90)
Uncertainty of evidence	Clinical situations with significant uncertainty, such as situations where evidence is conflicting, unavailable, or not applicable to an individual patient	-	-	-	(90)

Table 1. *(Continued)*

Categorization of decision characteristic	Decision characteristic as extracted from the paper [1] *Including the description of "equipoise" and "preference-sensitive" from the paper, if available.*	Example decision	Decision type	Decision setting	Ref
Uncertainty of evidence	Informational uncertainty (lack of available or usable data in particular clinical context that me be a function of ambiguity)	-	-	-	(90)
Uncertainty of evidence	Level of evidence according to NCCN (National Comprehensive Cancer Network) below 2A (category 2A = the recommendation is based on lower level evidence and there is uniform NCCN consensus that the intervention is appropriate)	-	-	Oncology (setting article)	(71)
Uncertainty of evidence	Effective care (recommendations trials/evidence might not apply to individual level)	Colorectal cancer screening colonoscopy, sigmoidoscopy or faecal occult blood test at age 50	Screening (cancer)	Oncology	(72)
Uncertainty of evidence	Effective care (uncertainty about individual risk and benefit, policy groups differ in stratifying individuals into risk categories)	Taking aspirin for primary prevention of cardiovascular disease	Treatment	Chronic care	(72)
Uncertainty of evidence	Available evidence (from guidelines or randomized controlled trials) inconclusive	New surgical technologies are introduced	Treatment	Surgery	(92)
Uncertainty of evidence	Evidence based on different population than patient making patient preferences important	-	-	-	(92)
Uncertainty of evidence	Incomplete evidence	Decisions required when dealing with a cancer diagnosis	Treatment	Oncology	(97)
Uncertainty of outcomes	Outcomes vary in their impact on patients physical and psychological wellbeing	Early stage breast-cancer treatment decision making	Treatment	Oncology	(11)
Uncertainty of outcomes	Several treatment options exist with different possible outcomes and substantial uncertainty	Early stage breast-cancer treatment decision making	Treatment	Oncology	(11)
Uncertainty of outcomes	Outcomes in the individual case uncertain	Early stage breast-cancer treatment decision making	Treatment	Oncology	(30)
Uncertainty of outcomes	Outcomes vary in their impact on patients physical and psychological wellbeing	Early stage breast-cancer treatment decision making	Treatment	Oncology	(30)
Uncertainty of outcomes	Uncertainty outcomes where clinician cannot favour one option over the other	-	-	-	(77)

Table 1. *(Continued)*

Categorization of decision characteristic	Decision characteristic as extracted from the paper [1] *Including the description of "equipoise" and "preference-sensitive" from the paper, if available.*	Example decision	Decision type	Decision setting	Ref
Uncertainty of outcomes	Implications decision hard to measure because, as they potentially affect a child's (patients) social interactions and influence parents' (patients) perceptions of their efficacy as parents	Introduction of technology in children with severe neurologic impairment	Treatment	Paediatric care	(88)
Uncertainty of outcomes	Health decisions that involve uncertain risks and benefits	Cholesterol lowering therapy prevention coronary events	Treatment	Chronic care	(72)
Uncertainty of outcomes	High risk and low certainty	Mastectomy versus lumpectomy plus radiation for small localized breast cancer	Treatment	Oncology	(10)
Uncertainty of outcomes	Low risk and low certainty	Lifestyle changes vs medication hyperlipidaemia	Treatment	Chronic care	(10)
Value sensitive	Medically uncertain and value sensitive (choice is likely to vary with religious, moral, and philosophical beliefs of patient)	Amniocentesis to screen for prenatal genetic effects	(genetic prenatal) Screening	Gynaecology	(10)
Weight decision (heavy)	Major preference-sensitive decisions (major treatment decisions that may be affected by personal values, goals and preferences)	Goals of care (Intensive Care Unit) including withdrawing or limiting life prolonging interventions	Goals of care, life prolonging decisions , treatment	Intensive care unit	(98)
Weight decision (heavy)	Major discrete decisions	Hip replacement for pain, treatment newly diagnosed breast/ prostate cancer	Treatment	Oncology, surgery	(78)
Weight decision (heavy)	Complex decisions	Multiple sclerosis disease modifying therapies (immunomodulatory therapies)	Treatment	Neurology	(88)
Weight decision (heavy)	Complex decisions (multiple treatment options, patient characteristics of multimorbidity, frailty, disability, impaired cognition and preferences both patients and professionals	Symptomatic severe aortic stenosis treatment: surgical aortic valve replacement or transcatheter aortic valve replacement	Treatment	Surgery	(73)
Weight decision (heavy)	Important (clinically important decision)	Conducting additional testing to diagnose carpal tunnel syndrome, the decision to have surgery or whether to perform a steroid injection into the carpal tunnel, distal radius fracture in patients aged greater than 65 years and the decision to have surgery, the decision to remove the implant, the type of pain medication prescribed after surgery	Diagnostic testing, treatment	Surgery	(57)

Table 1. *(Continued)*

Categorization of decision characteristic	Decision characteristic as extracted from the paper [1] *Including the description of "equipoise" and "preference-sensitive" from the paper, if available.*	Example decision	Decision type	Decision setting	Ref
Weight decision (heavy)	Difficulty of the decision being made: meaning the perception individuals hold on how complex the decision is, which can be affected by values, preferences and experience.	-	-	-	(97)
Weight decision (heavy)	Major (treatment) decisions	Defining goals of care, major treatment decisions	Goals of care, treatment	Neurology	(96)
Weight of decision (light)	Both minor decisions and decisions with high stakes (patients and clinicians need to proficient in making shared decisions, to begin with in common problems).	-	-	-	(33)
Weight of decision (light)	Also non-major discrete decisions if more than one reasonable option with different patterns of therapeutic effects and side effects	Cholesterol medication	Treatment	Chronic care	(78)
Decision characteristics for which SDM is deemed NOT appropriate					
Behaviour change needed	Behaviour change needed instead of weighing reasonable options for which SDM would be needed, motivational interviewing could be used here	Committing patient to lose weight (previous to decision how to lose weight)	Chronic care	Primary care	(83)
Patient request for therapy in conflict with clinician's judgment	Cases (decisions) in which the patient/surrogate demands interventions the clinician believes are potentially inappropriate	-	-	.	(98)
Patient request for therapy in conflict with clinician's judgment	Always initiate SDM, but not feasible when agreement cannot be reached: in clinician professional judgement no realistic likelihood of benefit to the patient	Aggressive end-of-life measures in the face of an inevitable prognosis of death, requests of opioid medication when not indicated, requests antibiotics for (child) for viral infection, requests for hospital admission when not indicated	End-of life decisions, treatment, care transition decision	Emergency department	(67)
Patient request for therapy in conflict with clinician's judgment	Challenge SDM: competing views on decision clinician and patient	Opioid prescribing pain management	Treatment	Chronic care	(54)
Patient request for therapy in conflict with clinician's judgment	Decision patient not in best interest patient (due to patient being at risk for self-harm or lacking capacity decision making)	Antipsychotic (medication) management	Treatment	Mental healthcare	(85)

Table 1. *(Continued)*

Categorization of decision characteristic	Decision characteristic as extracted from the paper [1] *Including the description of "equipoise" and "preference-sensitive" from the paper, if available.*	Example decision	Decision type	Decision setting	Ref
Patient request for therapy in conflict with clinician's judgment	Inappropriate parents (of patients) response to medically reasonable options	(parental refusal of) SABAs (Short-Acting Beta Agonists) and corticosteroids for moderate acute asthma exacerbation child	Treatment	Paediatric care	(76)
Immediate life-saving measures needed	Life-saving measures are required	Decisions in surgery (in general)	Treatment	Surgery	(72)
Immediate life-saving measures needed	Short time frame to make decisions	Acutely instable patient on Intensive Care Unit: cardiopulmonary resuscitation	Treatment	Intensive care unit	(56)
Immediate life-saving measures needed	Time decision making limited (acute)	Bacterial meningitis	Treatment	Neurology	(62)
No equipoise	When clinical equipoise is not met, SDM is not appropriate	-	-	.	(21)
No equipoise	No equipoise	Antibiotics viral upper respiratory tract infection	Treatment	Primary care	(59)
One best option	Only one medically reasonable management option, then informed consent and persuasion	Antibiotics for sepsis	Treatment	Emergency department	(32)
One best option	Medical benefit clearly outweighs risks and treatment in line with patient goals of care	Hospital admission for acute myocardial infarction	Care transition decisions	Emergency department	(32)
One best option	Benefits clearly outweigh the harms (no dual equipoise)	Chronic Kidney disease management decisions	Treatment	Chronic care	(81)
One best option	One optimal treatment option (outcomes of test or treatment superior in terms of effects and side effects to alternatives)	Aspirin or cholesterol lowering medication for prevention myocardial infarction in patient with proven coronary artery disease	Treatment	Chronic care	(78)
One best option	Physician guided SDM: one option favourable, medical benefit-burden ratio based on evidence based probabilities, magnitudes of medical benefits and burdens of the options, assessment certainty around those probabilities and burdens	-	-	.	(76)
One best option	Recommendations or strong recommendations for best option	Tympanostomy tubes when recurrent acute otitis media	Treatment	Surgery	(91)
One best option	One realistic option	Lumpectomy for inflammatory breast cancer rather than infiltrating ductal carcinoma, surgery when vital signs alarming, sudden abdominal pain and tubal pregnancy	Treatment	Oncology, gynaecology	(9)

Table 1. *(Continued)*

Categorization of decision characteristic	Decision characteristic as extracted from the paper [1] *Including the description of "equipoise" and "preference-sensitive" from the paper, if available.*	Example decision	Decision type	Decision setting	Ref
One best option	One best option (probable chance of cure or unprecedented on other side of spectrum)	Newly diagnosed Wilms tumour, metastatic osteosarcoma	Treatment, end-of-life decisions	Oncology (paediatric)	(94)
One best option	Only one medically reasonable option (no treatment choice) = not preference-sensitive, note: exception: religious argument against dominant choice	Melanoma resection, thyroid replacement for new born with no thyroid, child with ruptured spleen needing transfusion, person with primary melanoma that needs to be removed, dying steelworker discontinuation intensive treatment and starting palliative care Example exception (religious argument): adult Jehovah's witness with ruptured spleen who believes blood transfusion will jeopardize his chance on eternal life.	Treatment, end-of-life decisions	Oncology, surgery, emergency department (paediatric)	(95)
One best option	Scale of benefits and harms tip soundly to one side, almost all informed patients would make the same choice	Lacerated aorta needing surgery, not offering cardiac catheterization for fear of heart disease healthy 20 year old	Treatment, diagnostic testing	Surgery	(99)
One best option	Clear best practice	Bacterial meningitis	Treatment	Neurology	(62)
One best option (high risk)	Certainty (one clear best choice) with high risk	Laparotomy for gunshot abdomen	Treatment	Emergency department	(10)
One best option (low risk)	Certainty (one clear best choice) with low risk	Lowering diuretic because of potassium level	Treatment	Chronic care	(10)
Options restricted by legal/institutional policies	Challenge SDM: rules and limits (legal requirements) around decision constraining patient involvement in decision making	Opioid prescribing pain management	Treatment	Chronic care	(54)
Options restricted by legal/institutional policies	More than one reasonable option BUT decision constricted by institutional policy (i.e. scarce resources)	Whether or not to use ECLS (extra corporeal life support) for children (scarce resource)	Treatment	Intensive care unit (paediatric)	(93)
Physician implements decision (based on clinical expertise)	Routine care decisions (not preference-sensitive)	Choice of vasoactive drips and rates, laboratory testing, fluid rate	Routine care decisions	Intensive care unit	(98)
Physician implements decision (based on clinical expertise)	A physician is primarily responsible for implementation (towards provider guided SDM)	Ketamine versus propofol sedation for fracture reduction in the emergency department	Technical decision	Surgery	(76)

Table 1. *(Continued)*

Categorization of decision characteristic	Decision characteristic as extracted from the paper [1] *Including the description of "equipoise" and "preference-sensitive" from the paper, if available.*	Example decision	Decision type	Decision setting	Ref
Physician implements decision (based on clinical expertise)	Technical decisions based on technical expertise	Frequency with which vital signs are obtained (technical decisions)	Technical decision	Paediatric care	(93)
Potential threat for public safety	Life-or death decision situation where wrong decision imposes immediate threat to patient or others. Aim is to avoid harm.	Discharging suicidal patient	Care transition decisions	Mental health care	(82)
Potential threat for public safety	Decision in conflict with societal goal of public safety	Antipsychotic (medication) management for psychotic patient	Treatment	Mental healthcare	(85)
Short timeframe to make decision	If too little time exists, and a decision must be made quickly, exception: when lifesaving treatment is not congruent with goals (of prolonging life) patient	Exception (SDM is applicable here): terminally ill and intubation or not respiratory distress	End-of-life decisions	Emergency department	(33)
Short timeframe to make decision	Time lacking	-	-	.	(21)
Trade off individual impact and public benefit	Potential public health benefits outweigh individual burdens particularly in emergencies	Diagnostics for bloody stool child to check whether it can be an e.coli outbreak with consequences for surroundings, however fissure ani most likely diagnosis	Treatment	Paediatric care	(93)
Weight of decision (light)	Not an important decision	Postoperative porous surgical tape strings and bandages (appropriate, but not important), all-cotton elastic compression wrap or soft padding bandage orthosis (feasible but not important)	Treatment	Surgery	(57)

[1] When extracting decision characteristics from the papers, we have tried to stay close to the original wording but have taken the liberty to paraphrase for sake of brevity.

SDM= Shared Decision Making

Supplement 3 – Data extraction sheet

https://www.sciencedirect.com/science/article/pii/S0738399122004347?via%3Dihub#sec0205