

Patient preferences

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- Become familiar with opportunities and benefits of applying patient needs and perspectives to the drug life cycle
- Recognize the difference between patient-preference information and other types of input
- Familiarize the range of methods that are included among stated-preference methods
- Identify the core components in designing and implementing and apply patient preference information

Patient-Focused Benefit-Risk Analysis to Inform Regulatory Decisions: The European Union Perspective

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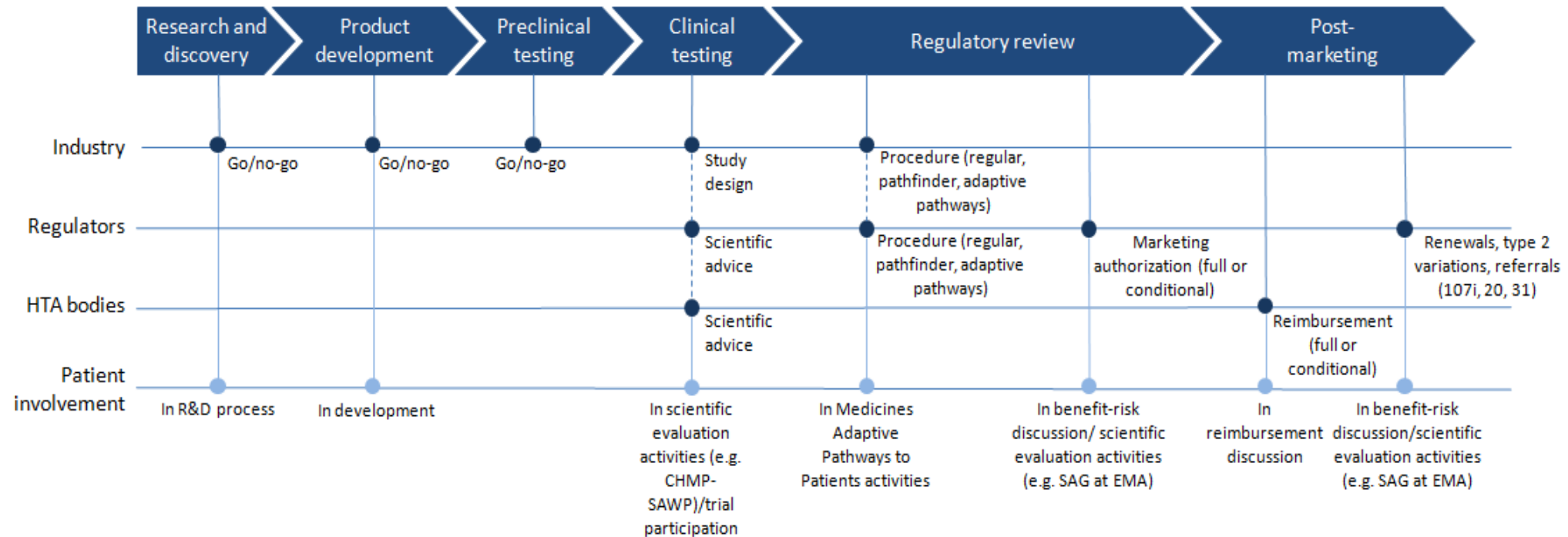
Value in health 19 (2016) 734 - 740

The challenges for public involvement within the regulatory environment are multifold:

- definition of who represents the patient voice; by what means/methods can the patients' views
- be reliably collected; at what point in the decision process should patients' views be integrated.
- decision makers and patient advocates should rely on validated studies to inform them about the trade offs citizens or patients are willing to make.

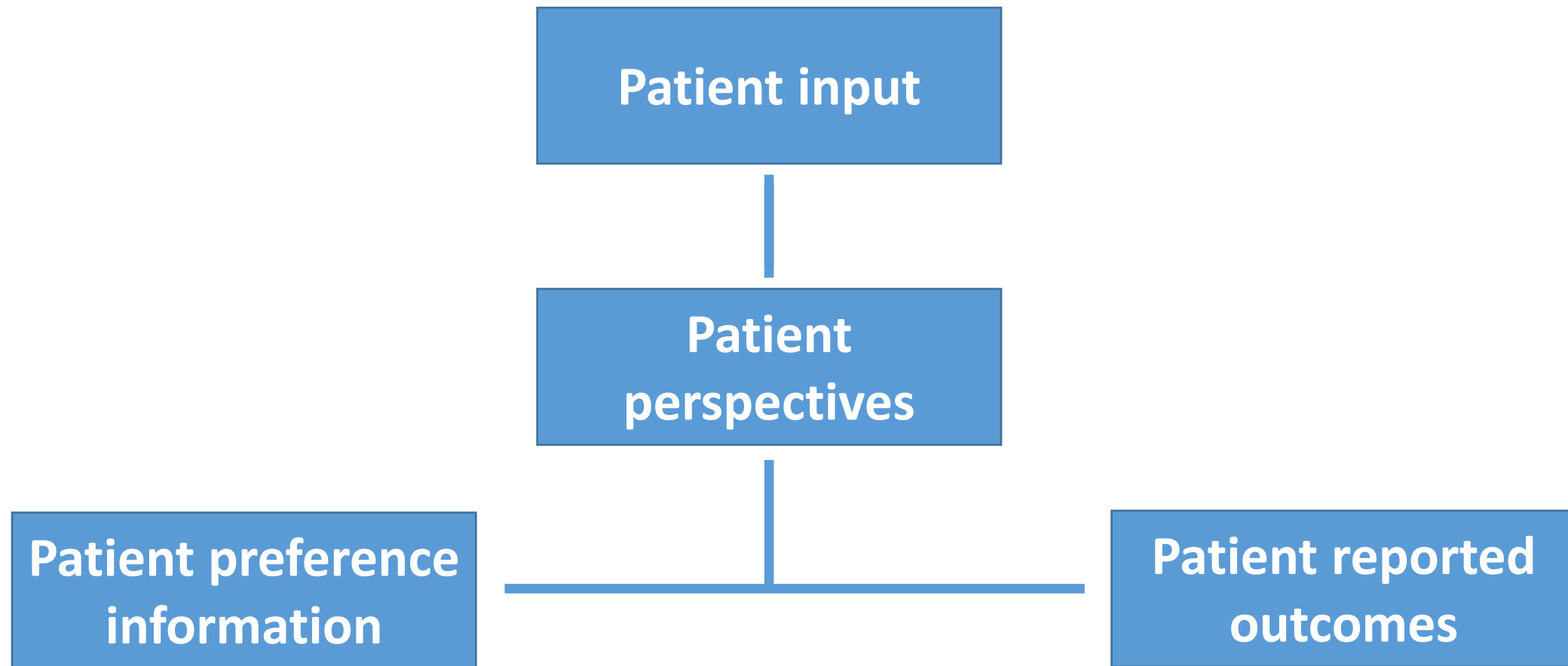
Patients' values and perspectives

$\frac{C \ B \ G}{M \ E \ B}$



Incorporating patient needs and perspectives into regulatory decision making

$$\frac{C \quad B \quad G}{M \quad E \quad B}$$



PPI is Different than Patient Reported Outcomes

$$\frac{C \quad B \quad G}{M \quad E \quad B}$$

PPI

- qualitative or quantitative assessments of the relative desirability or acceptability to patients of specified alternatives or choices among outcomes or other attributes that differ among alternative health interventions
- PPI is an assessment of desirability or acceptability (i.e., what a patient wants) harms, and other aspects (i.e., what a patient wants)

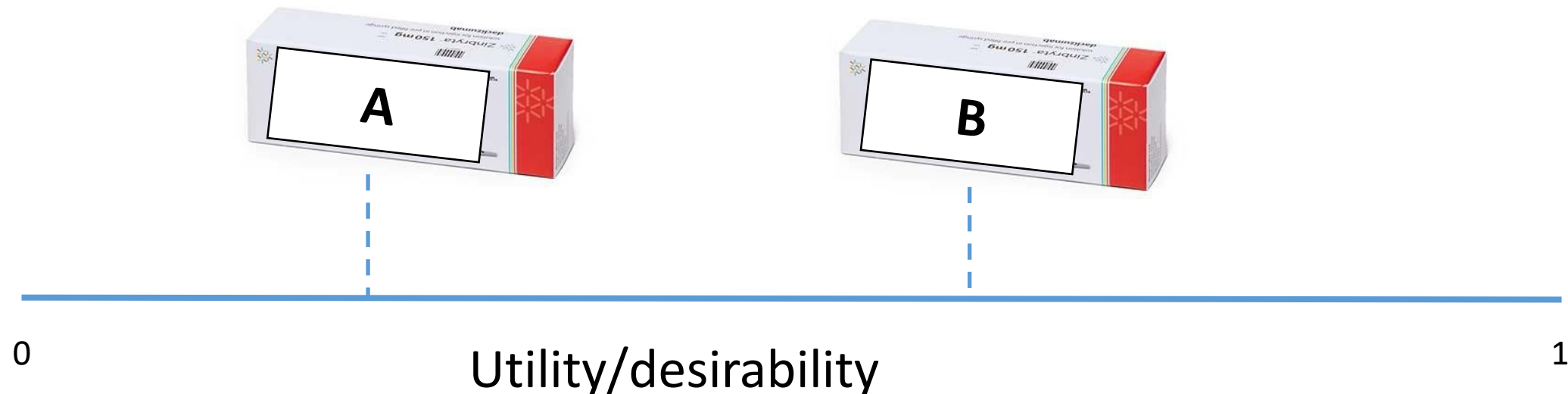
PRO

- any report of the status of a patient's health condition that comes directly from the patient, without interpretation of the patient's response by a clinician or anyone else
- PRO is a measure of a realized outcome (i.e., what it is or what it is like)

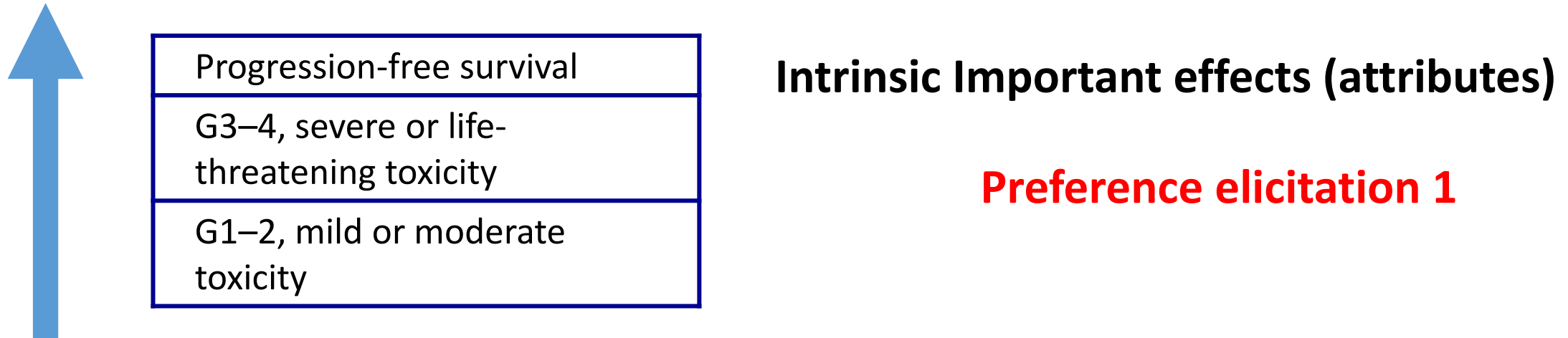
Quantitative B/R assessment: utility scale

$$\frac{C \ B \ G}{M \ E \ B}$$

Patient preferences : “relative desirability or acceptability to patients of specified alternatives or choices among outcomes or other attributes that differ among alternative health interventions.”



An elementary example of quantitative decision making and preference elicitation



An elementary example of quantitative decision making and preference elicitation (scoring)

$$\frac{c \quad B \quad G}{M \quad E \quad B}$$

	Treatment A (%)	Treatment B (%)
Progression-free survival	70 ☐	60 ☐
Severe or life-threatening toxicity	60 ☐	40 ☐
Mild or moderate toxicity	75 ☐	50 ☐

- Intrinsic Important effects (attributes)
- **Attribute levels**

Preference elicitation 2

An elementary example of quantitative decision making and preference elicitation (weighting)

$$\frac{c \quad B \quad G}{M \quad E \quad B}$$

		Treatment A (%)	Treatment B (%)
Progression-free survival	0.60	70 ☐	60 ☐
Severe or life-threatening toxicity	0.30	60 ☐	40 ☐
Mild or moderate toxicity	0.10	75 ☐	50 ☐

- Intrinsic Important effects (attributes)
- Attribute levels (reconsideration of importance)
- **Value judgement (weights)**

Preference elicitation 3

An elementary example of quantitative decision making and preference elicitation (total utility)

$$\frac{c \quad B \quad G}{M \quad E \quad B}$$

		Treatment A (%)	Treatment B (%)
Progression-free survival	0.60	70 1	60 0
Severe or life-threatening toxicity	0.30	60 0	40 1
Mild or moderate toxicity	0.10	75 0	50 1

- Intrinsic Important effects (attributes)
- Attribute levels
- Value judgement (weights)
- **Utility values**

Treatment A	$= 0.60 \cdot 1 + 0.30 \cdot 0 + 0.10 \cdot 0 = 0.6$
Treatment B	$= 0.60 \cdot 0 + 0.30 \cdot 1 + 0.10 \cdot 1 = 0.4$

Assessment through quantification of preferences

$$\frac{C \ B \ G}{M \ E \ B}$$

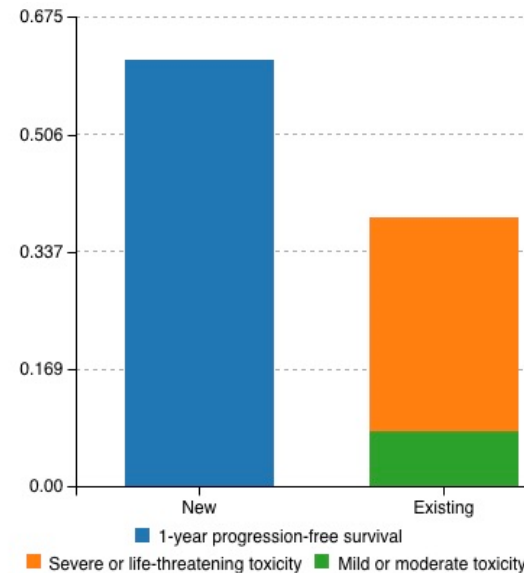
Clinical data on efficacy and safety

Criterion ?	New	Existing
1-year progression-free survival	70 65.7, 74.3	60 55.7, 64.3
Severe or life-threatening toxicity	60 55.7, 64.3	40 35.7, 44.3
Mild or moderate toxicity	75 71.3, 78.7	50 45.7, 54.3

Scale ranges (consequence space)

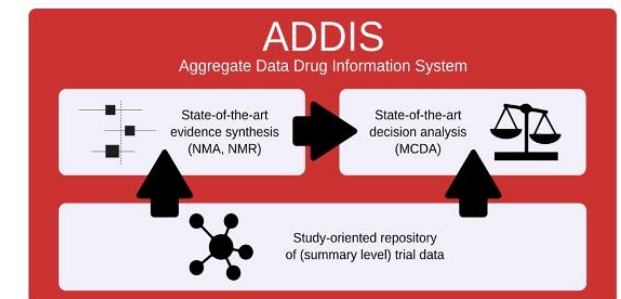


Ranking of the treatments

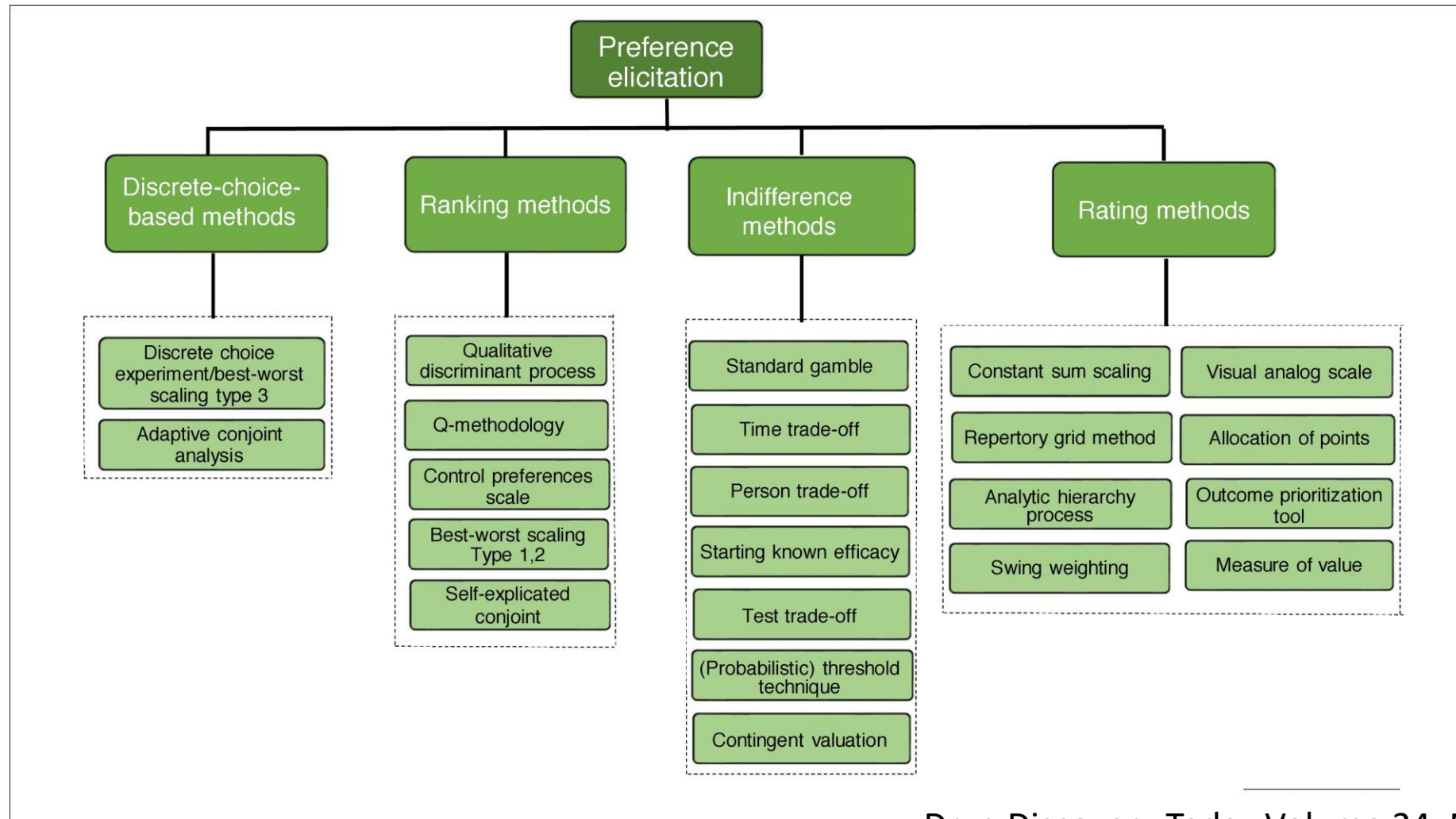


Preferences (importance weights)

Criterion	Unit	Worst	Best	Importance
1-year progression-free survival	%	60	70	100
Severe or life-threatening toxicity	%	60	40	50
Mild or moderate toxicity	%	75	50	13



Preference elicitation methods



Choice based matching

$$\frac{C \ B \ G}{M \ E \ B}$$

Overview

Problem definition

Preferences

Deterministic results

SMAA results

Survey results

Choice-based Matching

Choosing between treatments

Q1 of 8: Please consider the following two treatment options, A and B:

Criterion	Units	Treatment A	Treatment B
1-year progression-free survival	%	74	50
Severe or life-threatening toxicity	%	70	30

Based on this information, which treatment would you prefer?

☒ Treatment A

☐ Treatment B

CANCEL

PREVIOUS

NEXT

Step 1 of 9

Overview

Problem definition

Preferences

Deterministic results

SMAA results

Survey results

Choice-based Matching

Choosing between treatments

Q2 of 8: Please consider the following two treatment options, A and B:

Criterion	Units	Treatment A	Treatment B
1-year progression-free survival	%	66	50
Mild or moderate toxicity	%	80	40

Based on this information, which treatment would you prefer?

☐ Treatment A

☒ Treatment B

CANCEL

PREVIOUS

NEXT

Step 2 of 9

Ranking

$$\frac{C \quad B \quad G}{M \quad E \quad B}$$

Overview

Problem definition

Preferences

Deterministic results

SMAA results

Survey results

Ranking ?

Given the following situation:

- 1-year progression-free survival: 50 %
- Severe or life-threatening toxicity: 70 %
- Mild or moderate toxicity: 80 %

Which of the following improvements is most important?

☒ increasing 1-year progression-free survival from 50 to 80

☐ decreasing Severe or life-threatening toxicity from 70 to 30

☐ decreasing Mild or moderate toxicity from 80 to 40

CANCEL

PREVIOUS

NEXT

Step 1 of 2

Overview

Problem definition

Preferences

Deterministic results

SMAA results

Survey results

Ranking ?

Given the following situation:

- 1-year progression-free survival: 80 %
- Severe or life-threatening toxicity: 70 %
- Mild or moderate toxicity: 80 %

Which of the following improvements is most important?

☒ decreasing Severe or life-threatening toxicity from 70 to 30

☐ decreasing Mild or moderate toxicity from 80 to 40

CANCEL

PREVIOUS

SAVE

Step 2 of 2

Swing weighting

$$\frac{C \ B \ G}{M \ E \ B}$$

Overview

Problem definition

Preferences

Deterministic results

SMAA results

Survey results

Precise swing weighting ?

Given the following situation:

- 1-year progression-free survival: 50 %
- Severe or life-threatening toxicity: 70 %
- Mild or moderate toxicity: 80 %

Which of the following improvements is most important?

☒ increasing 1-year progression-free survival from 50 to 80

☐ decreasing Severe or life-threatening toxicity from 70 to 30

☐ decreasing Mild or moderate toxicity from 80 to 40

CANCEL

PREVIOUS

NEXT

Step 1 of 2

Overview

Problem definition

Preferences

Deterministic results

SMAA results

Survey results

Precise swing weighting ?

You've indicated that improving 1-year progression-free survival from 50 % to 80 % is the most important (i.e. it has 100% importance). Now indicate the relative importance (in %) to this improvement of each other criterion's improvement using the sliders below.

Criterion	Unit	Worst	Best	Importance
1-year progression-free survival	%	50	80	100
Severe or life-threatening toxicity	%	70	30	75
Mild or moderate toxicity	%	80	40	50

CANCEL

PREVIOUS

SAVE

Step 2 of 2

Threshold

$$\frac{C \quad B \quad G}{M \quad E \quad B}$$

Overview

Problem definition

Preferences

Deterministic results

SMAA results

Survey results

Threshold technique elicitation ?

Choose a criterion to use as reference:

1-year progression-free survival ▾

What type of change in 1-year progression-free survival should be used as basis for comparison with other criteria?

☐ Worsening

☒ Improvement

By how much % should 1-year progression-free survival change?

10

10 40

Example: 1-year progression-free survival will improve from 50 % to 60 %

CANCEL

PREVIOUS

NEXT

Step 1 of 2

Overview

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Threshold technique elicitation ?

Given an improvement by 10 % in 1-year progression-free survival, adjust for each other criterion the value so that it answers the question 'how much worsening in this criterion is worth approximately as much as the improvement in 1-year progression-free survival?'

Criterion	
Severe or life-threatening toxicity	25 %
Mild or moderate toxicity	50 %

CANCEL

PREVIOUS

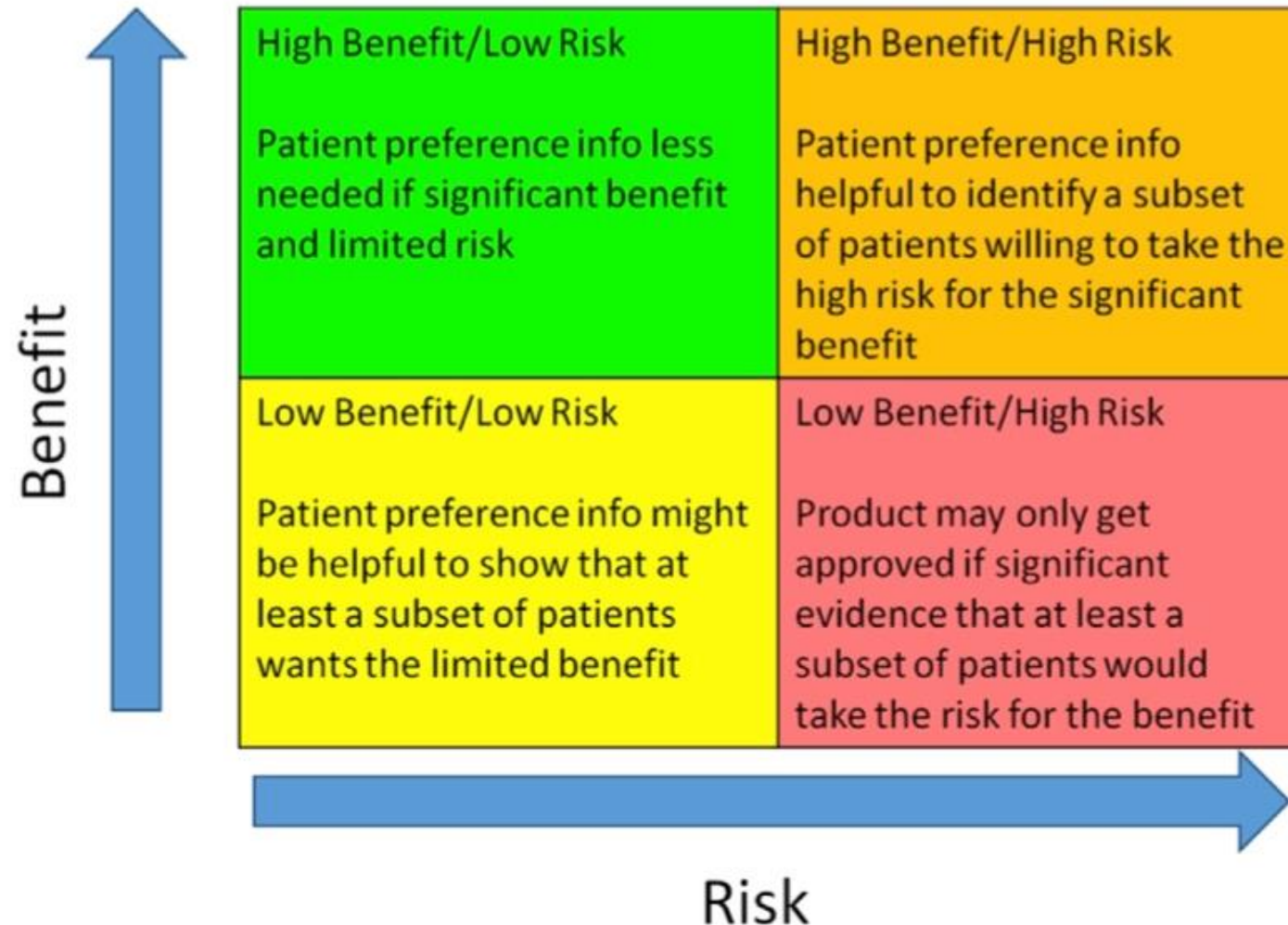
SAVE

Step 2 of 2

- How do we ensure a patient preference study is valid?
- When answering the same research question, do different methods or parameterizations of these methods lead to the same conclusions?
- Which patients' preferences matter and how do we best define the sample? How sensitive are patient preference results to the choice of sample?
- How do we properly determine which attributes should be included/excluded ?
- What is the most appropriate format and level of information to provide when asking patients to make preference decisions?

When and how to use patient preference information

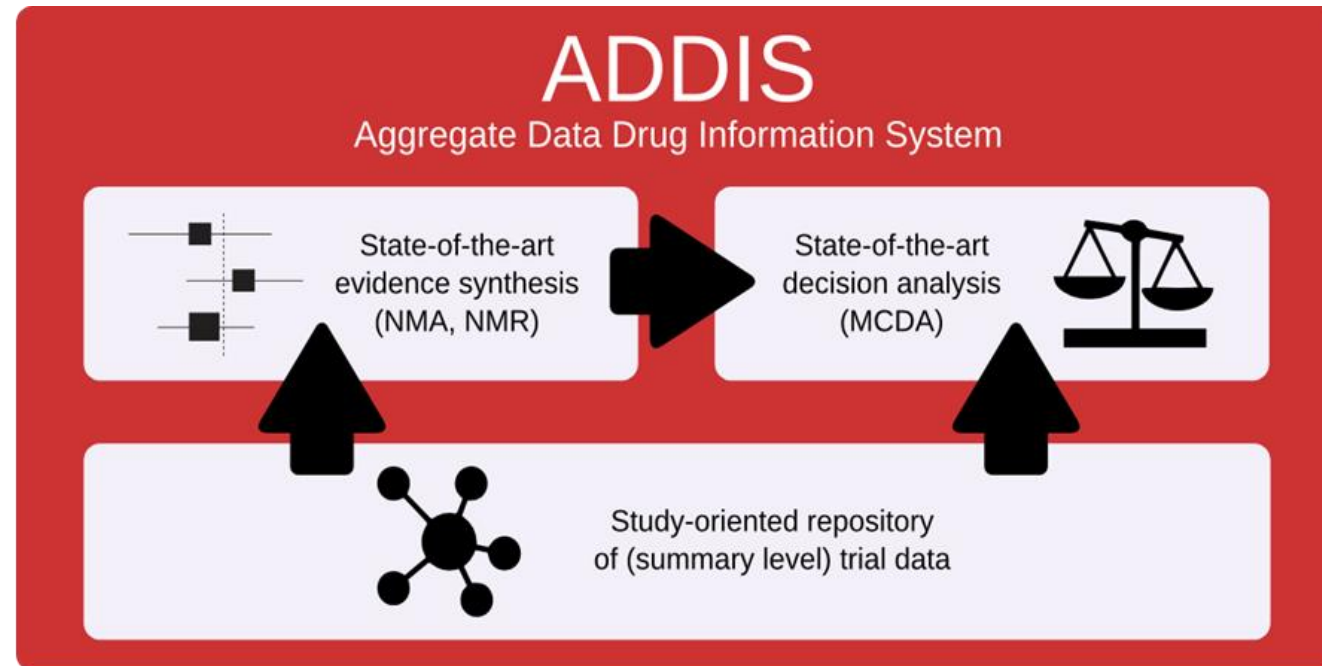
$$\frac{C + B + G}{M + E + B}$$



- Patient preference information is different from other measures of patient input
- There are many methods for eliciting and quantifying patient preferences but further research is needed to increase the added value of patient preference information
- Patient preference information can be an input into other processes or measures like multi-criteria decision analysis (MCDA)
- Understanding patient preferences makes regulatory decision making more patient-centered and improves for that reason the communication of outcome data to health care policymakers, prescribers and patients

Dedicated tooling

$$\frac{C \quad B \quad G}{M \quad E \quad B}$$



More info @ www.drugis.org

Attribute/criteria

$$\frac{C \quad B \quad G}{M \quad E \quad B}$$

<i>Favourable criteria</i>	
CR	Complete response as per RECIST at week 25
PR	Partial response as per RECIST at week 25
DR	Duration of response in patients with CR or PR,
ROM	Increase in how much motion is possible in a joint selected by patient to extend or bend as a percentage of normal at week 25
PROM	Physical function based on 15-item subset covering activities of daily life, functioning of upper, lower and central body, sum of recorded items ranges from 0 (unable to do) to 100 (without any difficulty) at week 25
Stiffness	Patients recorded their stiffness at its worst during the recent 24 hours (ranging from 0 ("no stiffness") to 10 ("stiffness as bad as you can imagine") at week 25
Pain	Percentage of patients with a 30% decrease in intensive pain without analgesic use at week 25
<i>Unfavourable criteria</i>	
Liver function	Percentage of patients with an increase in laboratory values that could be associated with itching, discoloration of the skin, bleeding, bloating, water retention
Liver injury	Percentage of patients with laboratory changes indicate severe liver injury, % of patients with AST or ALT ≥ 3 ULN and TBIL ≥ 2 ULN

<i>Favourable criteria</i>	
	Complete response at week 25
	Partial response at week 25
	Duration of complete or partial response
	Increase in motion in a preference joint; percentage of normal, at week 25
	Physical function; ranges from 0 (unable to do) to 100 (without any difficulty), at week 25
	Stiffness; ranging from 0 (no stiffness) to 10 (stiffness as bad as you can imagine), at week 25
	30% decrease in intensive pain without analgesic use, at week 25
<i>Unfavourable criteria</i>	
	Elevated liver enzymes
	Signs of liver injury