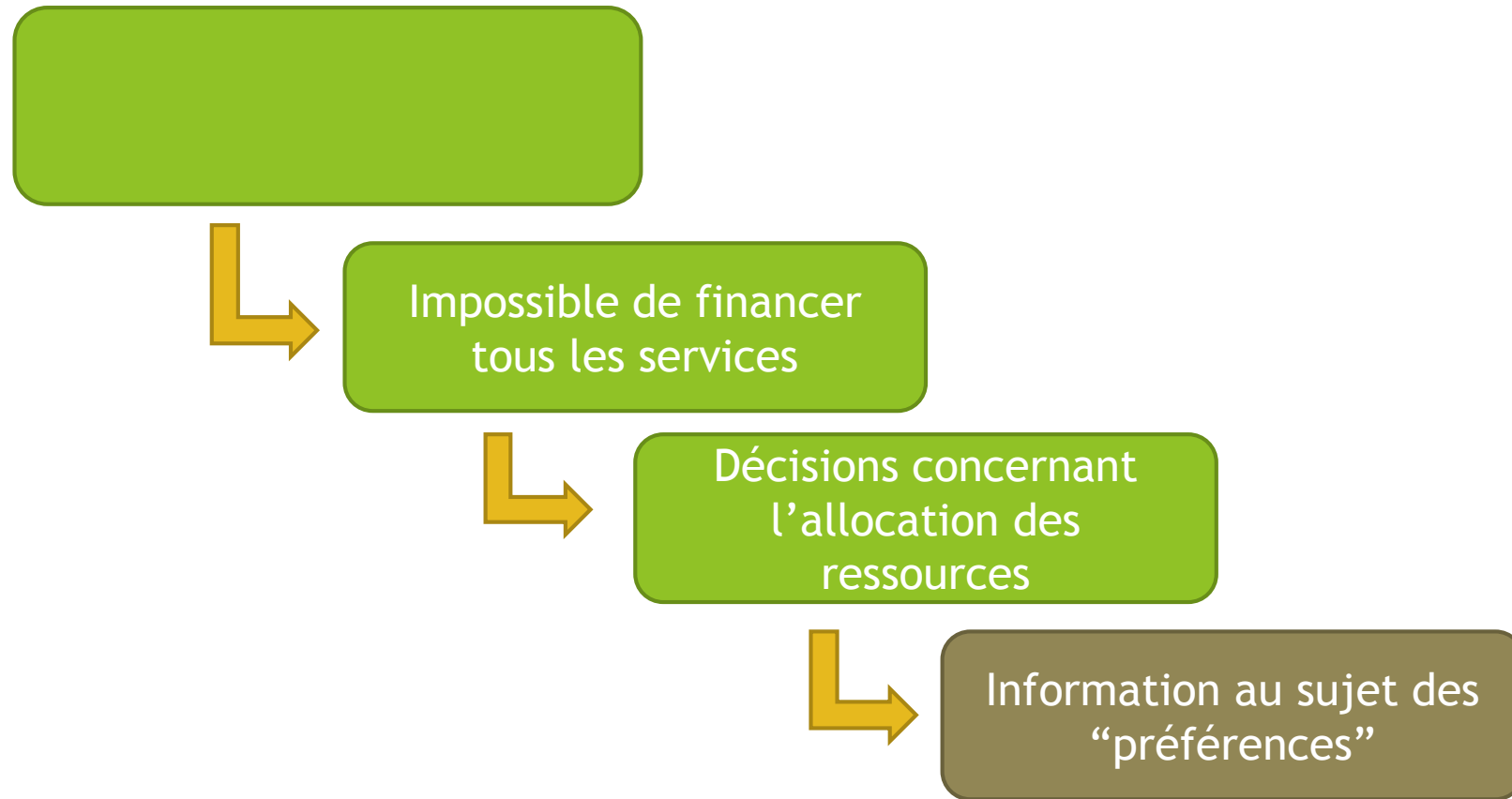# Méthodes de révélation des préférences et application à la question de la qualité de l'offre de soins de premier recours

Séminaire de recherché

Policlinique Médical Universitaire

Lausanne, 07/12/2017

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Introduction a la méthode des choix discrets

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Pourquoi?

Impossible de financer tous les services
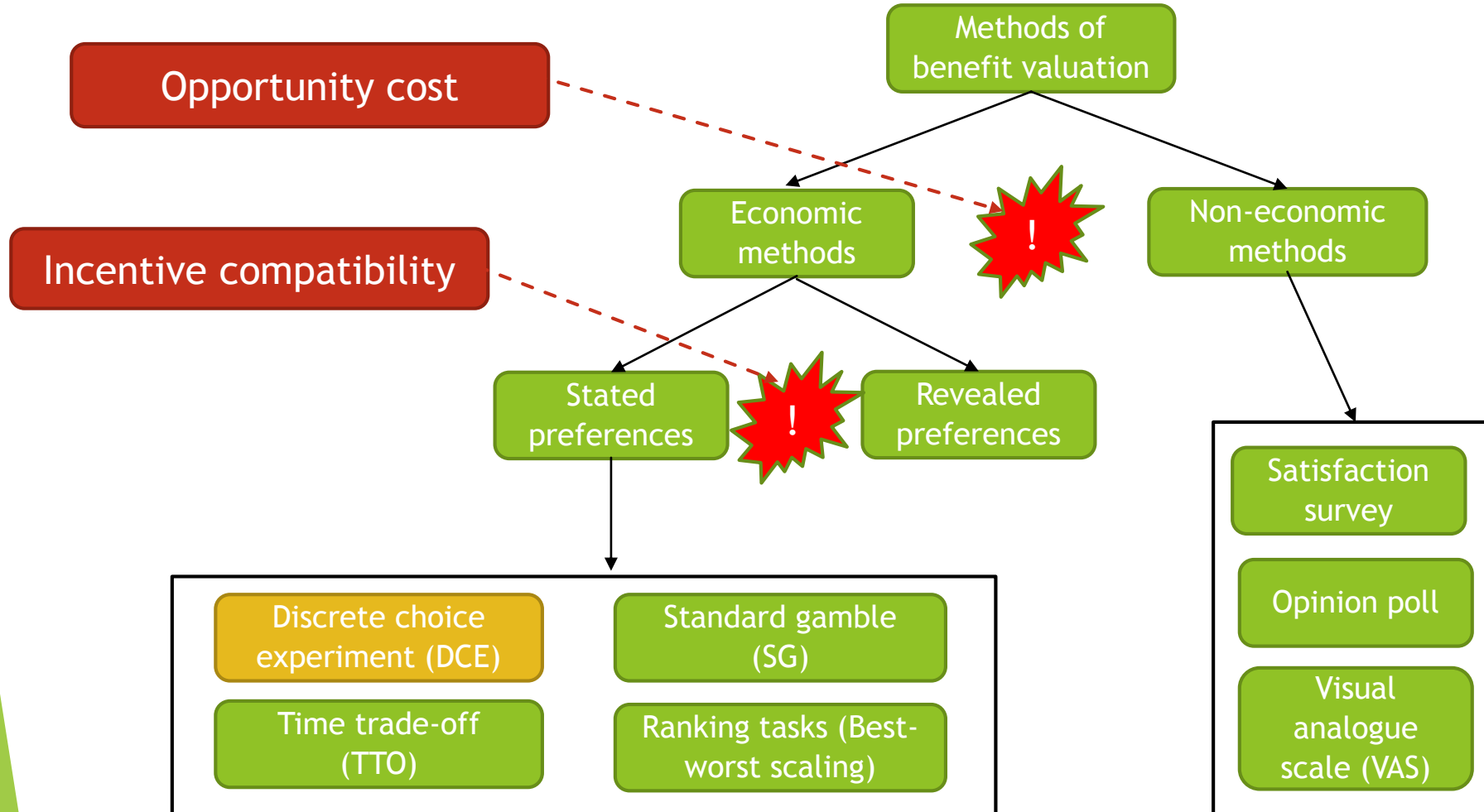
Décisions concernant l'allocation des ressources

Information au sujet des "préférences"

Méthodes de révélation de préférences

Stated vs. Revealed preferences (SP/RP)

▶ RP est base sur les **choix réels** (e.g. supermarché)

▶ SP est base sur les **choix hypothétiques** (e.g. questionnaire)

Pros	*Cons*
RP Validité des résultats	**RP** Disponibilité/Fiabilité des données
SP Contrôle du contexte de choix	**SP** Validité des résultats

« *once we give up the assumption that observing choices is the only source of data on welfare, a whole new world opens up, liberating us from the informational shackles of the traditional approach* » (A. Sen, 1977)

???

Contingent valuation (Payment card)

Characteristics of the screening	
Place of screening	Family Planning Clinic
Type of Screening	Urine test
Chance of developing Pelvic Inflammatory Disease (PID) if you are not screened	10% (1 in 10)
If there is support and further information when results are received	Yes – a trained Health advisor

Contingent valuation (Payment card)

What is the maximum amount of money you would be prepared to pay for the test?

Amount per attempt	Willing to pay?	
	Yes	No
£0		
£1		
£2		
£4		
£6		
£8		
£10		
£12		
£16		
£20		
£30		
£50		
£75		
£100		

Please tick (√) YES if you are sure you would be willing to pay the amount

Please tick (√) NO if you are sure you would not be willing to pay the amount

Please CIRCLE the maximum amount you would be willing to pay

If you were willing to pay at least £100 per test please state the maximum amount of money you would be willing to pay £_____

Time trade-off (TTO)

PAUL

- I am **completely** blind with **one** eye
- I have **moderate** problems walking about
- I have **moderate** problems with self care
- I have **moderate** problems performing my usual activities
- I have **some** pain or discomfort
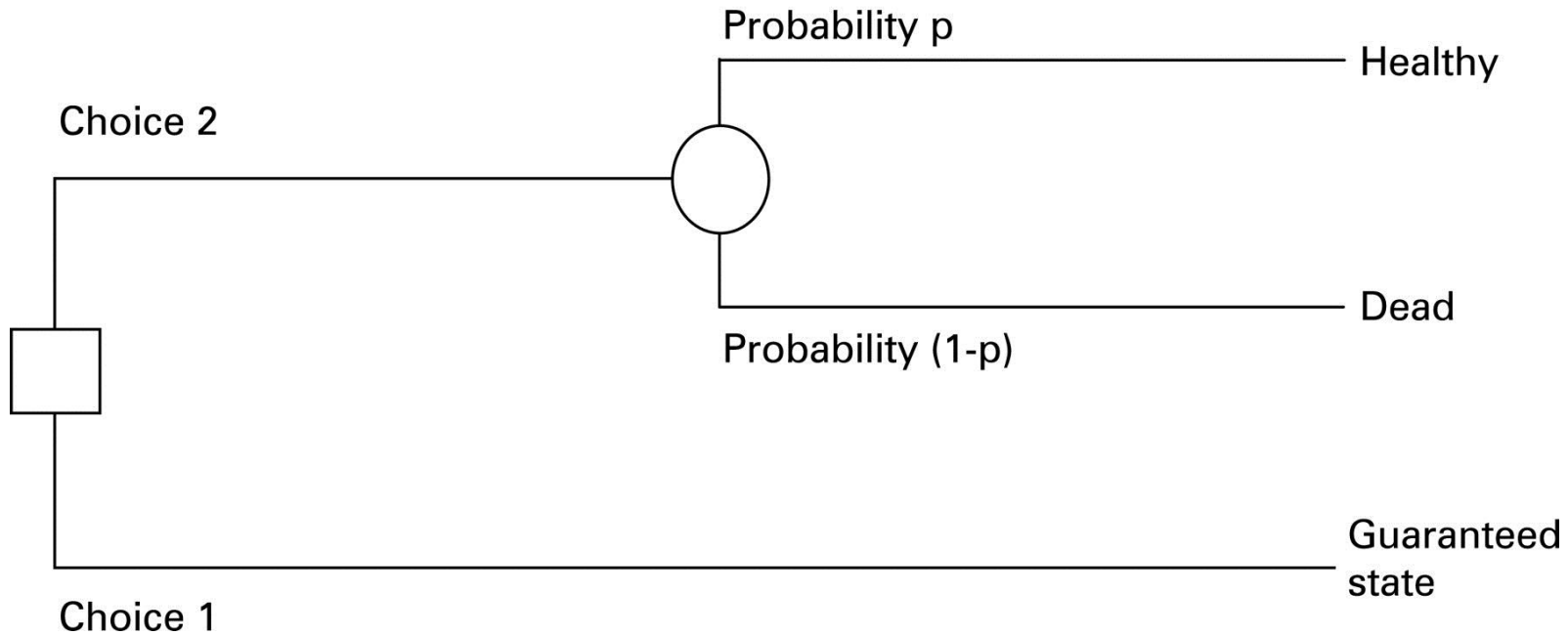- I am **moderately** anxious or depressed

Imagine you have a choice:

- You can either live like Paul for the rest of your 36 years of life ...

- ... or take a treatment that would guarantee you perfect health but you will lose **9** year of your life ...in other words you would live in perfect health for **27** years.
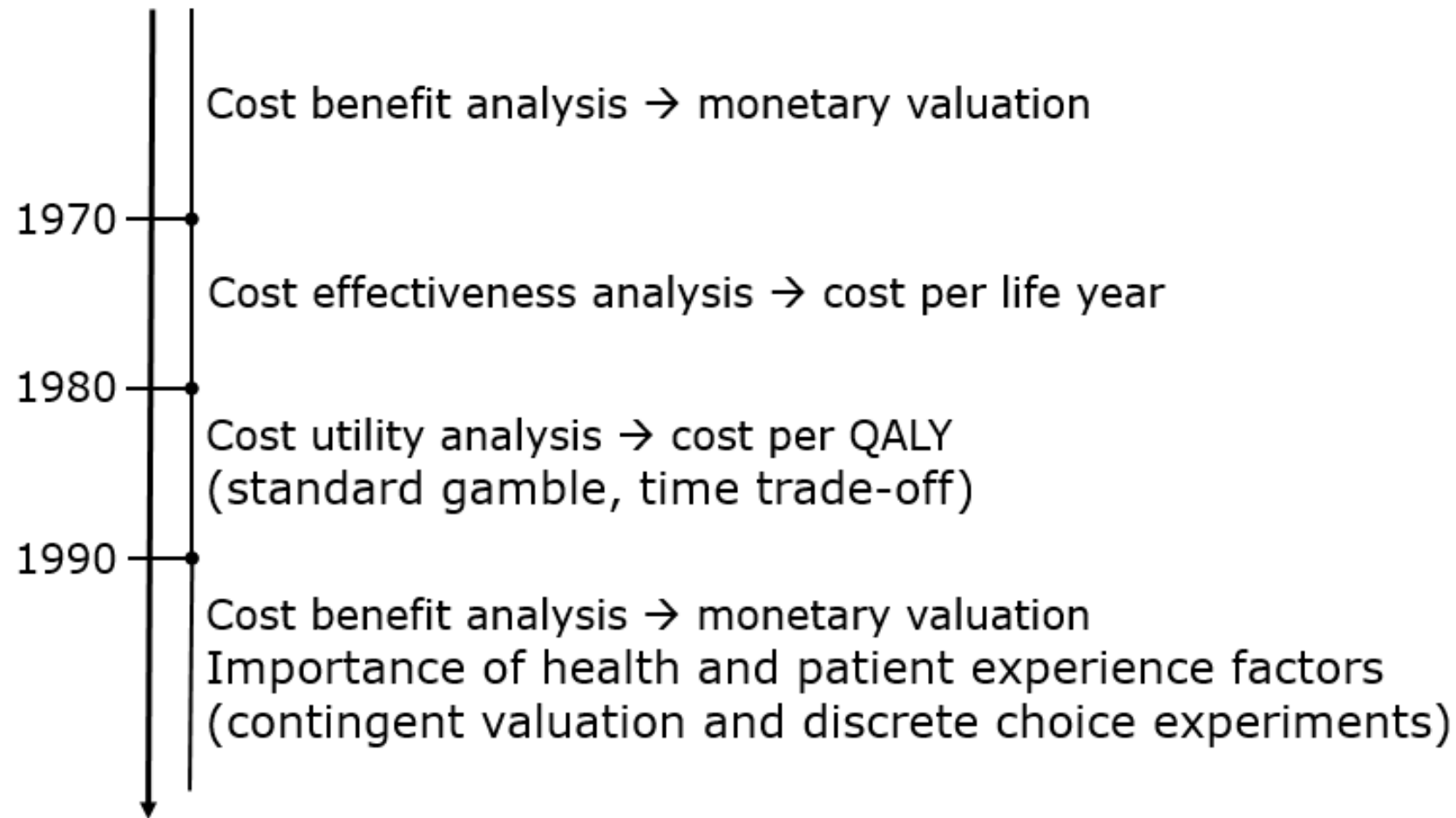
Would you take this treatment?
<u>Yes</u>   <u>No</u>

Standard gamble (SG)

Probability p is varied
At the point of indifference ⟶ p = value for state i

```
                                    Probability p
                                   ┌──────────────── Healthy
              Choice 2             │
        ┌──────────────────────  ◯ ┤
        │                          │
      ┌─┴─┐                        └──────────────── Dead
      │   │                    Probability (1-p)
      └─┬─┘
        │
        │
        └───────────────────────────────────────── Guaranteed
              Choice 1                              state
```

Evolution historique

Cost benefit analysis → monetary valuation

1970 —●

Cost effectiveness analysis → cost per life year

1980 —●

Cost utility analysis → cost per QALY
(standard gamble, time trade-off)

1990 —●

Cost benefit analysis → monetary valuation
Importance of health and patient experience factors
(contingent valuation and discrete choice experiments)

De nos jours

- QALYs still dominate health policy making (e.g. NICE)
- Recognition QALYs don't work in some areas (e.g. end-of-life)
- Patient preferences widely recognised as important
  - Shared medical decision making
  - Person-centered care
  - Personalised medicine
  - Realistic medicine
- DCE is now accepted => Risk-Benefit trade-offs (e.g. FDA, iQWIG, EMA)

Discrete choice experiment (DCE)

Key information

▶ Survey (also called stated choice survey)

▶ Choice-based

▶ Attribute-oriented
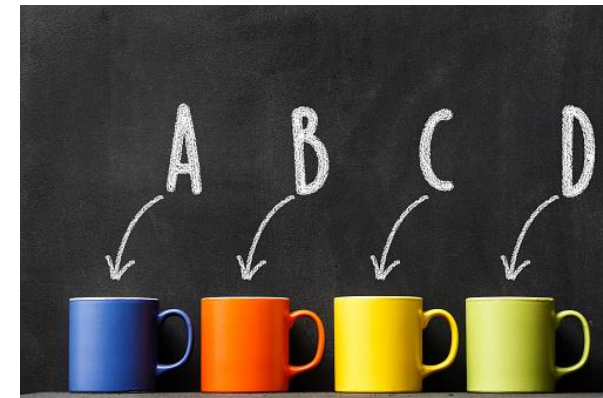
"Fathers of DCE"

▶ Based on 3 theories of human behaviour

1. Random utility theory (Thurstone, 1927)

$U = V + e$

2. Characteristics demand theory (Lancaster, 1966)

$V = f(X,b)$

3. Revealed preference theory (Samuelson, 1938)

$A > B$ then $U(A) > U(B)$

➜ **Random Utility Maximisation** (McFadden, 1974)

Différentes étapes

1. Identifying attributes and their values

2. Creating the choice sets

3. Collecting data

4. Analysing data

Etape #1: Identifier les attributs

Medical treatment of Lower Urinary Tract Symptoms (LUTS) caused by benign prostatic hyperplasia (BPH)

Day-time frequency

Night-time frequency

Urgency

Sexual side effects

Non-sexual side effects

Number of tablets

Monthly cost

Etape #2: Générer les épreuves de choix

Please click here if you want to remind yourself of the situation.

	Medicine A	Medicine B	No Medicine
Day-time frequency of urination	12 times	10 times	14 times
Night-time frequency of urination	2 times	3 times	4 times
Urgency: When you need to urinate you usually	Cannot postpone and have to rush to the toilet in order to not wet yourself	Have to rush to the toilet and leak before you get there	Have to rush to the toilet and leak before you get there
Sexual side effects of medicine	Decreased sexual desire	No fluid during ejaculation	You do not have any side effects
Non-sexual side effects of medicine	Dry mouth	Dizziness	You do not have any side effects
Number of tablets per day	One tablet	One tablet	You do not take any medicine
Cost per month	£40	£20	£0

Please select your answer here: ☐ ☐ ☐

Etape #4: Analyser les données

Primary outcomes

▶ Does it matter? (yes/no)

▶ Which influence? (positive/negative)

Secondary outcomes

▶ Ranking of the attributes in terms of influence/importance

▶ Marginal rates of substitution (e.g. WTP values)

▶ Uptake probabilities ("Market share")

▶ Welfare analysis / compensating variation

Applications en sante

- ~ 1,000 études (PubMed; Nov 2017)
- Rapide augmentation (~250 études on 2012)
- Principalement préférences des patients pour des traitements médicaux, mais pas que ...
  - Patient experiences
  - Health state valuation
  - Going beyond QALYs in RCTs
  - Preferences for health system changes
  - Determining workforce decisions
  - Priority setting
  - Behavioural change
  - Preference-based weights for index measures

Example #1: Health-state valuation

SITUATION A	SITUATION B
No difficulty with: • Central and near vision • Lighting and glare • Mobility **Some difficulty** with: • Activities of daily living • Eye discomfort • Other effects of glaucoma and its treatment	**No difficulty** with: • Central and near vision **Some difficulty** with: • Lighting and glare **Quite a lot of difficulty** with: • Activities of daily living • Other effects of glaucoma and its treatment **Severe difficulty** with: • Mobility • Eye discomfort
(Tick one box only) **Situation A**	**Situation B**

Exemple #2: Going beyond QALY in RCT

	Dental Care Package A	Dental Care Package B	No Dental Care Package
Dental Advice	Detailed and personalised Provided by the dentist	No detailed and personalised advice	None
Scale and Polish	None	Two per year Provided by the hygienist	None
In three years time, your gums will bleed	Very often	Occasionally	Very often
Your teeth will look and feel	Unclean	Very unclean	Very unclean
The cost to you	£10 per year (Total cost: £30 over 3 years)	£100 per year (Total cost: £300 over 3 years)	£0 per year (Total cost: £0 over 3 years)

Exemple #3: Healthcare system organisation

The staff at the clinic/hospital are kind and treat me with respect.

The staff at the clinic/hospital do not examine me.

The staff at the clinic/hospital do not explain what is wrong with me or what I need to do to get better.

When I go to the clinic/hospital, I get the medicine I need.

When I go to the clinic/hospital, I first see a nurse who is trained to treat most illnesses and only see a doctor if the nurse cannot treat my illness.

I spend a whole day in the clinic/hospital before I go home.

Transport to and from the clinic/hospital costs about R5.

Exemple #4: Worforce

Choice 1 of 9: Which position would you prefer?

	Position "A"	Position "B"
Geographical Location	Desirable location	Not so desirable location
Familiarity with hospital/unit	Unfamiliar	Very familiar
Opportunities for partner/spouse	Limited opportunities	Good opportunities
Potential earnings	5% above average	Average earnings
Working conditions	Good conditions	Poor conditions
Clinical/academic reputation	Indifferent reputation	Good reputation
Please tick one box	☐	☐

Exemple #5: Healthcare priority setting

	A	B
Location of care	Dumfries and Galloway Royal Infirmary	Outside Dumfries and Galloway
Public consultation in decision making	No consultation	Public and Patients were consulted at the final stage
Use of latest technology	Not using the latest technology	Using the latest technology
Service Availability	Office Hours only	Office hours and out-with office hours
Patient's involvement in own care decision	No opportunity	Has the opportunity
Management of care	Care is managed by a single individual	A group of professionals working as a team
Evidence of clinical effectiveness	Clinical Studies	At least 1 RCT
Health Gain	Large Gain to a Small Number Small Gain to a Large Number	Large gain to a large number
Risk Avoidance	Reduction from a high risk to a low risk	Reduction from a medium risk to a low risk
Priority Area	National priority	Local and National Priority

Service A

Service B

Which service do you prefer?

☐ ☐

Exemple #6: Behavioural change

Lifestyle	Lifestyle A	Lifestyle B
What the programme contains	Healthy eating with support for management of weight changes	Physical activity
Weight change in 2 years	Stay the same	Lose half a stone
Short term goals	Feeling better	Looking better and feeling better
Improvement in type II diabetes	No reduction	Small reduction
Improvement in blood pressure	Small reduction	Moderate reduction
Time per day	30 min/day	120 min/day
Costs per week	£10	£1

Which option would you choose?
(tick one box only)

Choose Lifestyle A ☐

Choose Lifestyle B ☐

Current Lifestyle ☐

DCE conclusion

Pros	Cons
• Very powerful • Elegant approach	• External validity • Cognitive difficulty • Limited #attributes • Results transferability • Analytical skills