

Health Economics and Outcomes Research (HEOR)

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What is HEOR?

HE + OR

Health Economics

measuring and valuing the outcomes of healthcare interventions

Outcomes Research

a set of scientific disciplines that evaluate the effect of healthcare interventions on patients

HEOR: powerful data and insights for healthcare decision makers

HEOR

Health Economics

- Cost-Benefit Analysis
- Cost-Effectiveness Analysis

Outcomes Research

- Patient-Reported Outcomes
- HRQoL
- Burden of Injury
- Real-World Evidence



HEOR: Costs versus benefits



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Research questions relevant for CWIS

- Is SSRF better than NonOp treatment for rib fractures?
- Should clavicle fractures be fixed in patients with rib fractures?
- Is SSRF beneficial in patients with rib fracture nonunion?
- What is the best analgesic strategy?



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SSRF vs NonOp: costs

Medical costs:

- Index treatment: diagnostics, materials, personnel, H/IC LOS
- Complications: diagnosis, treatment, FU
- Discharge disposition: rehab facility, nursing home
- Out of hospital care: physio, G.P.

Indirect costs

- Home care: household, medical support
- Work absence



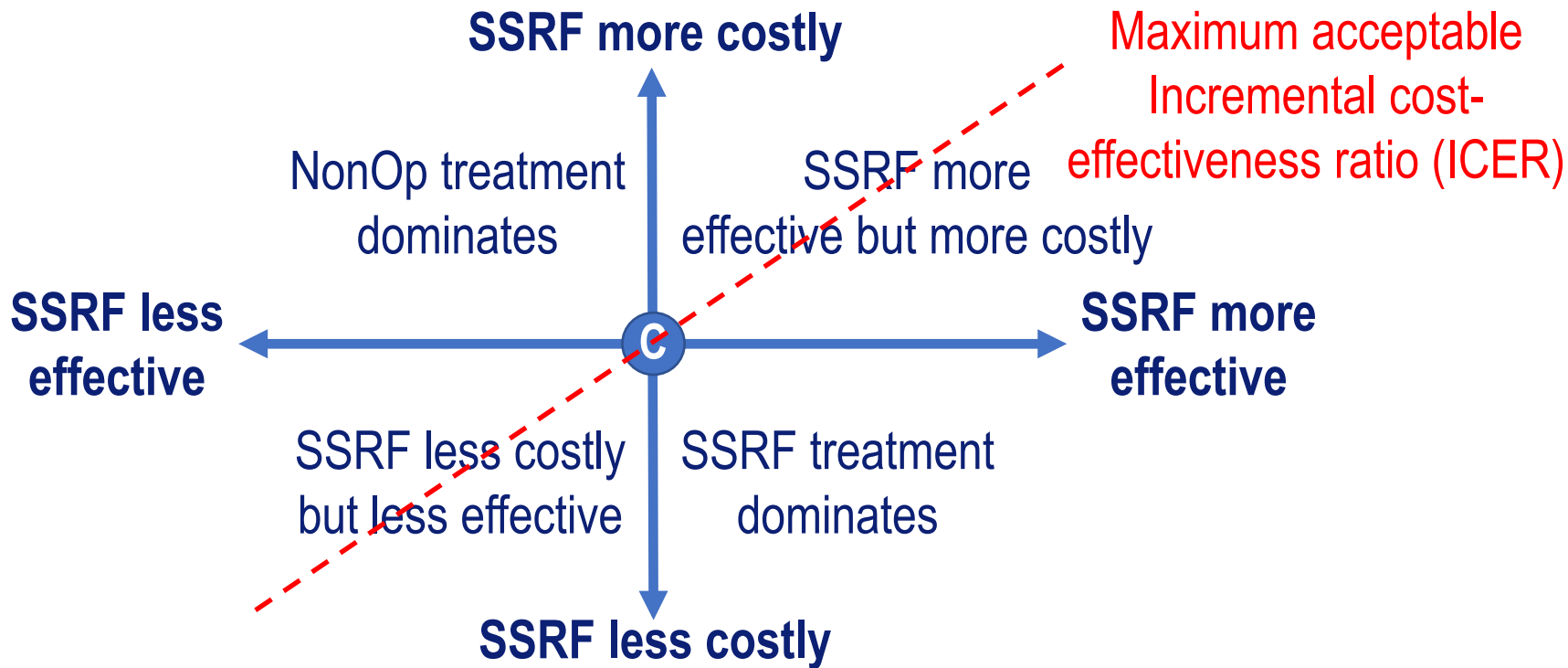
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SSRF vs NonOp: costs versus benefit



Cost (effectiveness) analysis

- Formula: $(\text{Costs}_{\text{SSRF}} - \text{Costs}_{\text{NonOp}}) / (\text{Effect}_{\text{SSRF}} - \text{Effect}_{\text{NonOp}})$

Analysis	Outcome measurement unit	Ratio
Cost-Utility (CUA)	Utility (QALY)	ICUR
Cost-Effectiveness (CEA)	Natural unit (FEV1, MVD)	ICER
Cost-Minimization (CMA)	Assumed equivalent in comparable groups	x

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How does the patient feel?

- Treatment: clinically effective and economically efficient, but also acceptable and desirable to patients
- Acceptability requires patient-based measures of well-being
- PROs: unique insight into how injury or therapy affect a patient



Outcomes for SSRF vs NonOp treatment

Clinical outcomes	Patient-reported outcomes
HLOS, ICU LOS	Pain
MVD, Mech-free days	QoL (EQ-5D, SF-36)
Complications, pneumonia	Pulmonary function/spirometry
Readmission
Mortality	

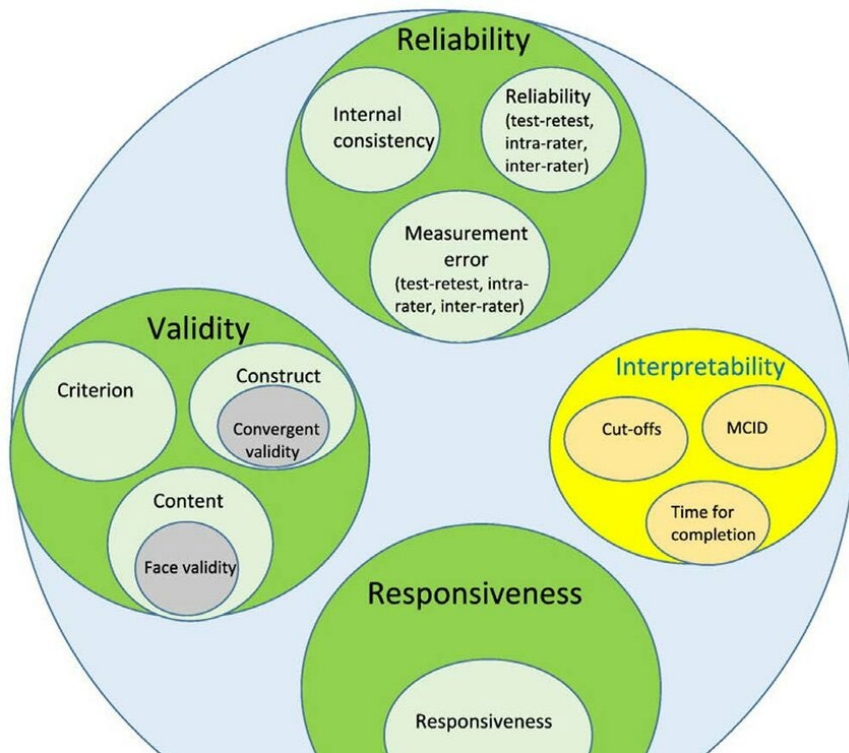
Generic vs. condition-specific PROMs

- **Generic PROMs:** compare across treatments or conditions
 - Health-related Quality of Life: SF-36, EQ-5D
- **Condition- or anatomy-specific PROMs:** more sensitive to changes in health status?
 - Condition: Pain,
 - Anatomy: Constant-Murley, DASH

PROMs, which ones are most relevant?

- That depends ...
- The ones that are 'good'

COSMIN: quality criteria for outcome measures



www.cosmin.nl

Novel PROM: the RibQual study

- Development of a rib fracture / thoracic injury specific PROM
- 28 items, focusing on thoracic complaints and effects on QoL
 - Pain (7)
 - Physical and general complaints (15)
 - Socio-economic consequences (4)
 - Psychologic complaints (2)
- Pilot validation study in 100-300 patients
- Next: multinational elaborate validation



Take home message

- Increased use of Health Economics and Outcomes Research
- Patient perspective equally important as clinical outcome
- PROMs provide insight into:
 - the way patients perceive their health
 - the impact injuries and treatment have to their QoL
- COSMIN: quality criteria to value PROMs
- RibQual: PROM on rib fracture / thoracic injury-specific QoL

