MONASH University
Business and Economics

Centre for Health Economics

Inquiry into Serious Injury
28 October 2013

Presentation to the Road Safety Committee at the Parliament of Victoria

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Terms of Reference 1

- Determine the appropriate methodology to identify the cost of serious injury
- Purpose of ‘cost’ estimate
  - How much should we pay to avoid serious injury

Topics covered

A. Social vs Individual Decisions

B. Measuring Willingness to Pay

C. The QALY Approach

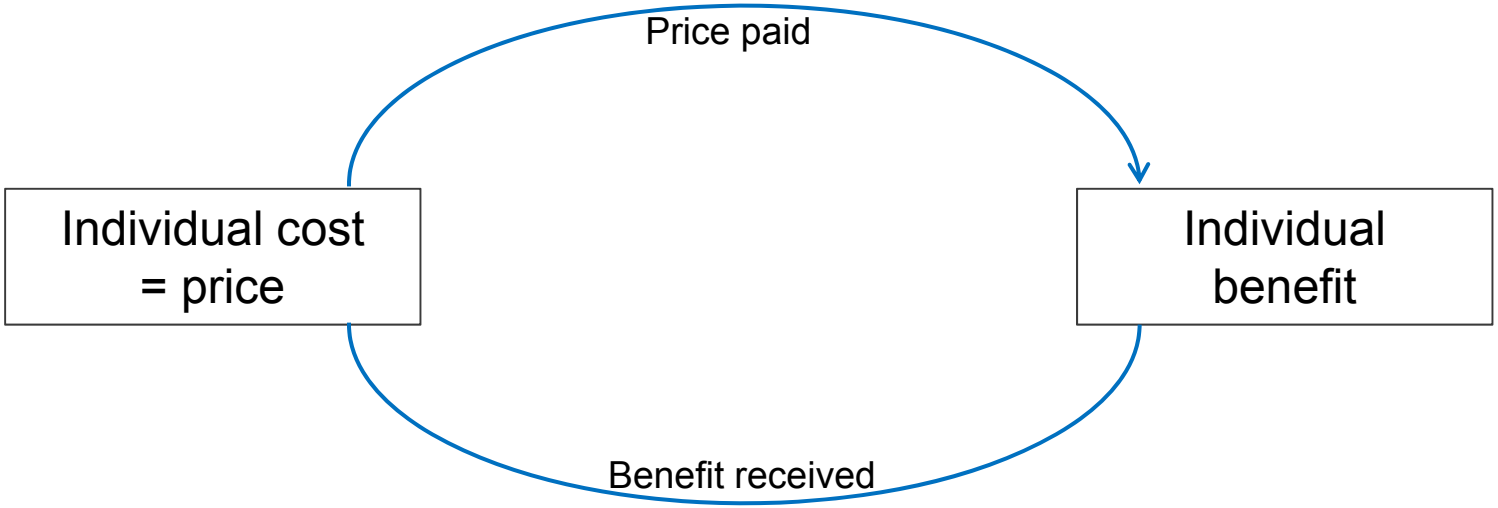
D. Suggested Methodology

Summary of conclusions

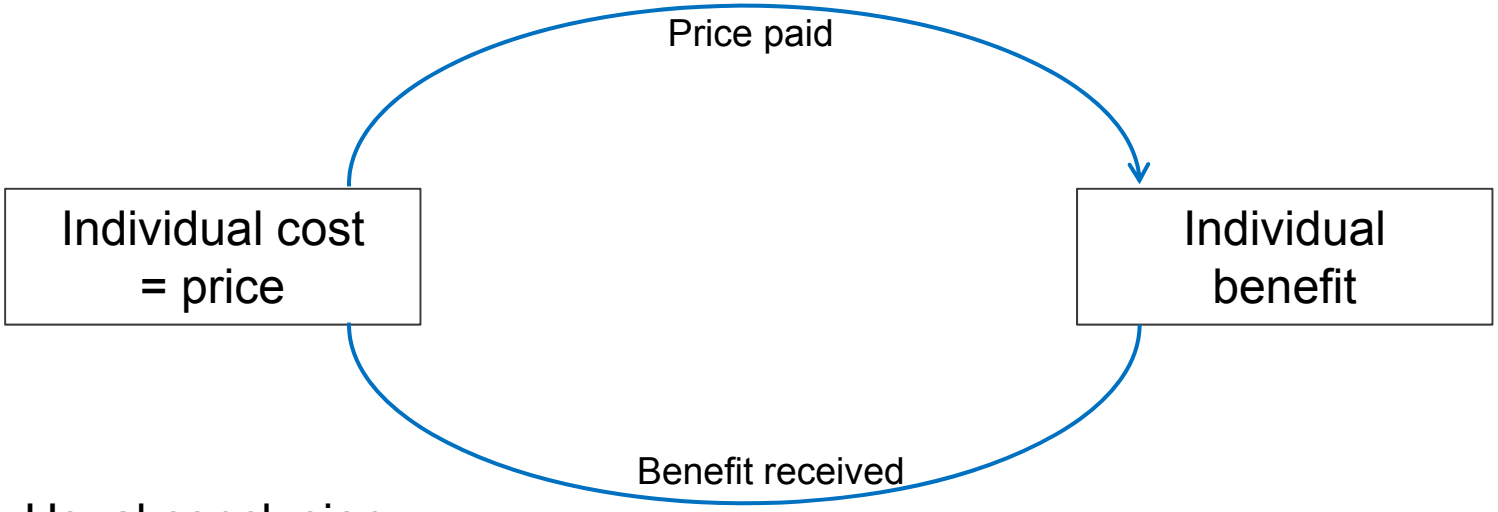
- Negative messages
  - There is not a technical answer
  - Economic analyses often:
    - (Wrongly) Implies there is a correct answer
- Positive message:
  - QALY/DALY less problematic
  - 'Correct' WTP = ← social decision making (ultimately Parliament) analyses
  - Suggested method
    - Incremental adjustment informed by comparative expenditures
- Best practice principles 'Australian Safety and Compensation Council' (2008) … sensible (reservation with respect to risk based VSLY principles 6, 8, 9)

A. Social vs Individual Decisions

Individual decision making (embedded in Economic Theory/Methods)



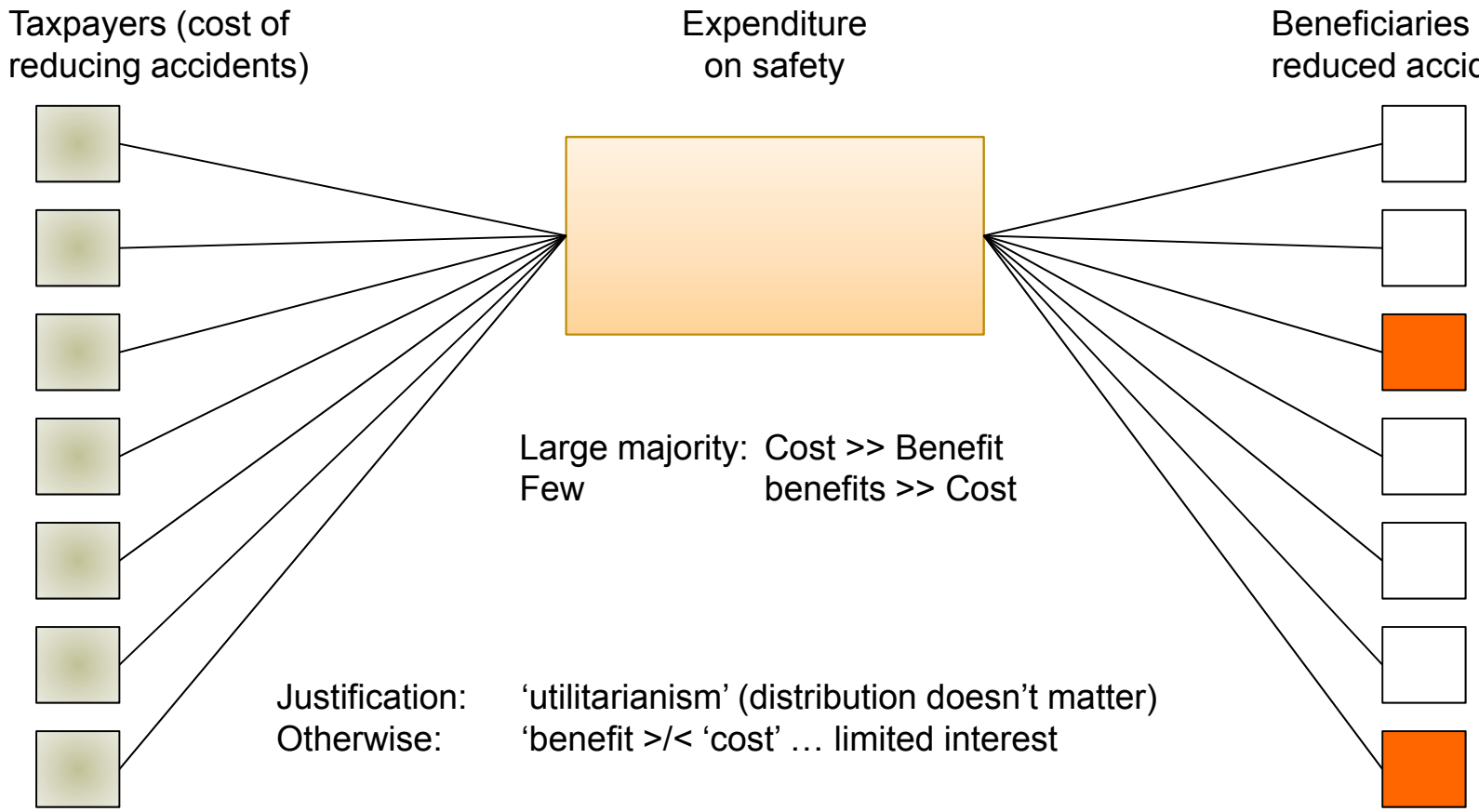
Individual decision making (embedded in Economic Theory/Methods)



Usual conclusion

If	Individual benefit > individual cost (price)
Then	Wellbeing rises
Hence	Compare individual costs – Individual benefits

The Social Decision



The individual question

- Are ***my*** costs $\gtrless$ ***my*** benefits
- Relevant analysis: compare costs-benefits

The social question

(to those asked)

- How much are…we/you willing to pay for ***others*** subject to very small probability it affects you personally?
- Relevant analysis
  - Generosity of one group
  - Costs to another group
  - Distribution (fairness) costs/benefits

B. Measuring Willingness to Pay (WTP)

Measuring WTP

- Transport economics
  - WTP = Payment to lower risk
    - Jones-Lee
    - Abelson
    - Hensher et al 2009
    - Mason et al 2009

Logic of orthodox WTP

If	1 person	WTP	$1,000 to reduce risk 1/2,000
Then	2000 people	WTP	$2,000 x $1,000 to reduce risk 1.00
		WTP	= $2 million

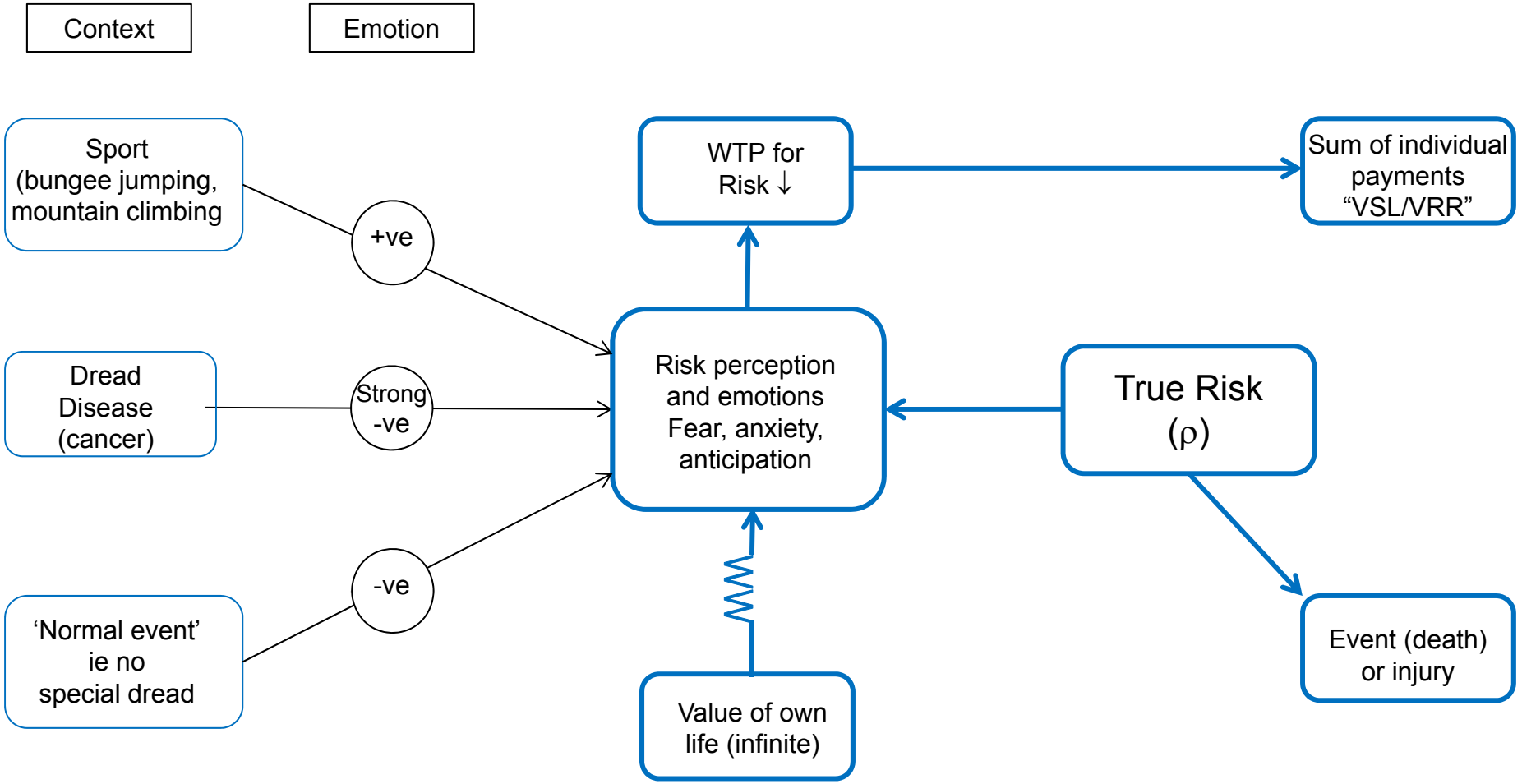
Semantic Fudge

- WTP = WTP for ↓ risk
  ≠ WTP for a person
- Terminology
  - VSL: Value of a statistical life
  - VPF: Value of preventing a statistical fatality
- Correct terminology: 'Value of risk reduction'
- Labels compel!

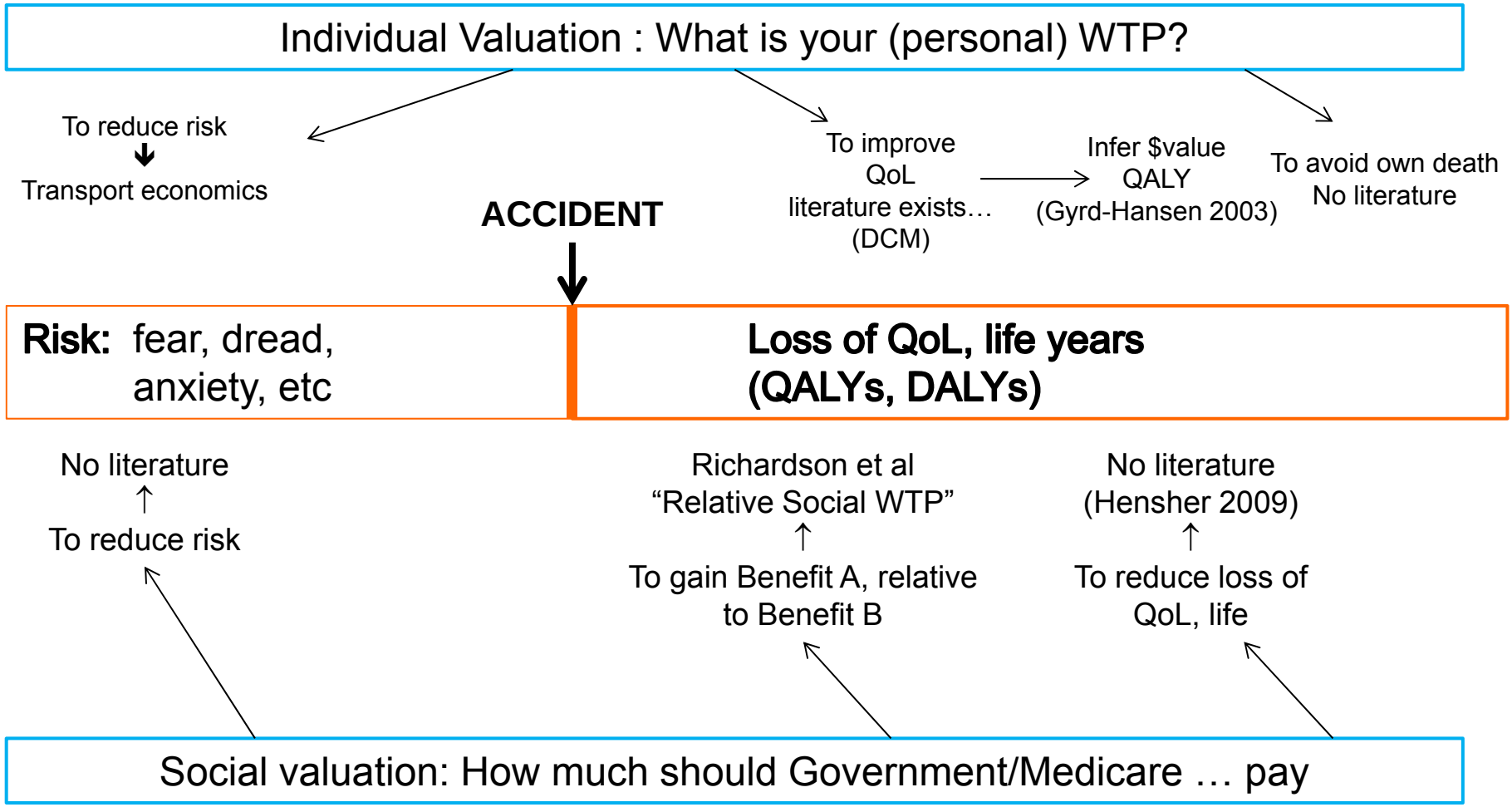
Risk

- Risk ≠ QoL, Life years
  - Risk $\overset{\leftarrow}{\rightarrow}$ fear, dread, excitement, anxiety and possible outcome
  - People understanding/processing of probabilities extremely poor

Valuation of risk versus valuation of real event



Measurement of willingness to pay



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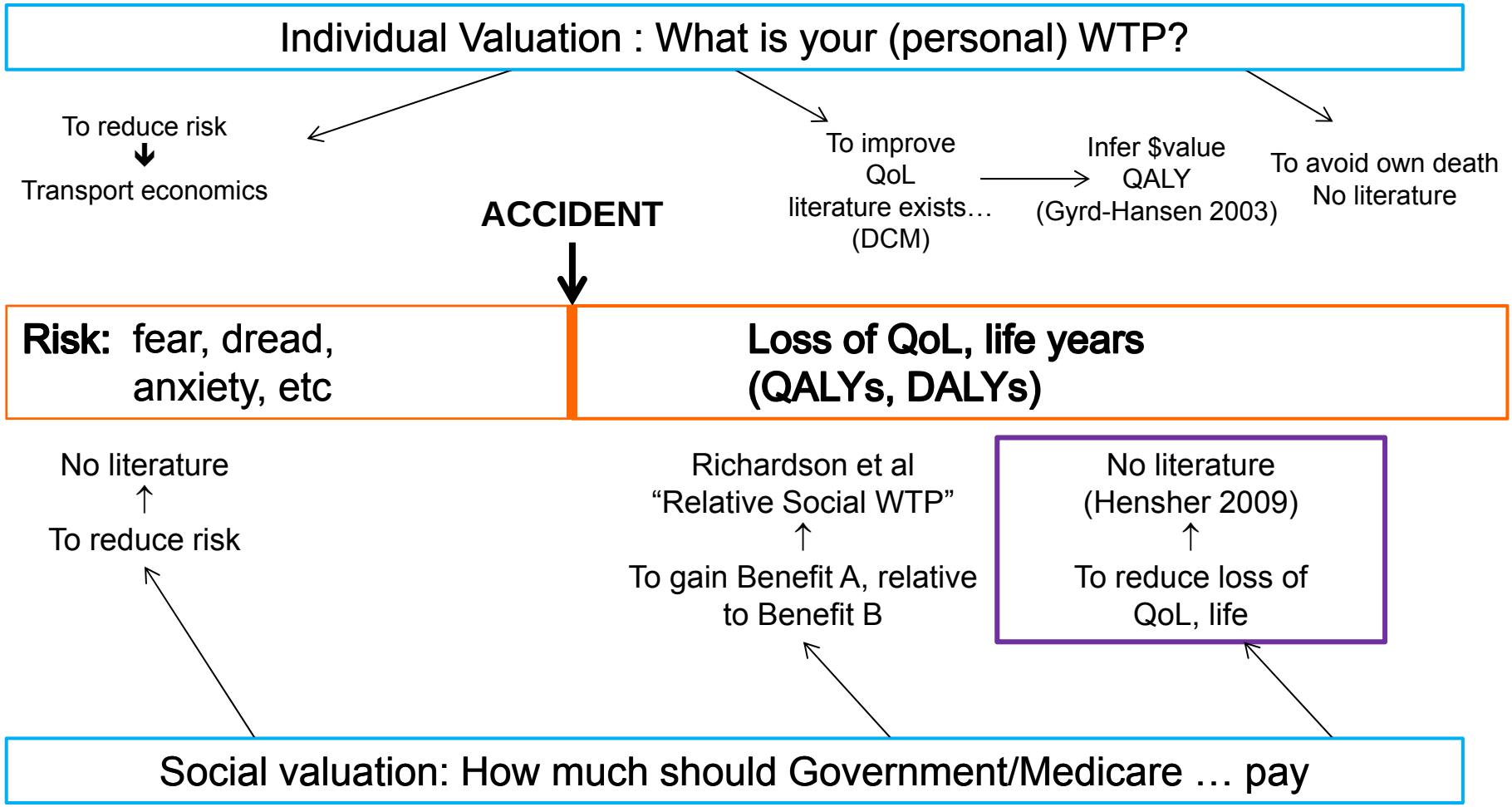

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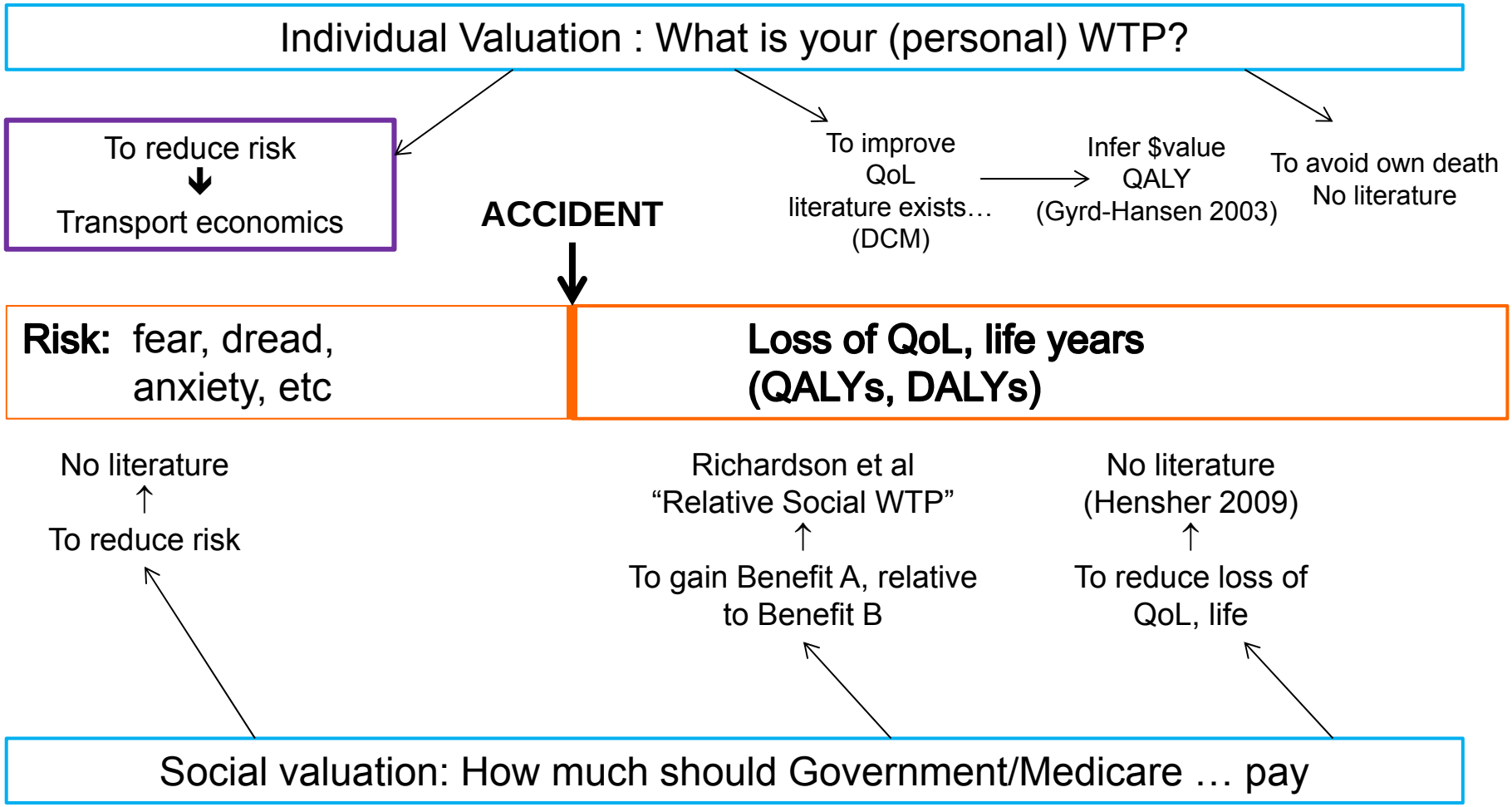

C. The QALY Approach: An Alternative

QALYs/DALYs

- QALY = Quality Adjusted Life Year
  Index of QoL x life years
  (0-1 scale) ← health economics literature
- DALYs = Disability Adjusted Life Years
  Index of 'disability' x life years
  Disability (QoL) ← WHO
- Cost utility analysis
  Rank Cost/QALY gain
  (Cost/DALY gain)
  Chose minimum cost
  Missing data: funding threshold
  ← discretion
- Context Health services (MSAC)
  Pharmaceuticals (PBAC)
- Potential Any gain in QoL, life, for any reason (transport, environment)

Contrasting WTP, QALY approaches

WTP

Cost ($) ↑ cost of project $\geq$ Benefit ($) ↑ WTP

Advantage: Unambiguous answer

Disadvantage: WTP values risk not life

QALY

Cost ($) ↑ cost of project / Cost/QALY $\leq$ threshold ↑

Advantage: Measures QoL, life gained

Disadvantage(?): Threshold undefined (by economists)

Suggested methodology

See Australian Safety and Compensation Council (2006)

- Status quo + adjustment
  - Adjustment ←
    a) Chosen objective: risk or life LY
    b) Evidence on expenditures elsewhere, eg
       - Benefit/cost of other social programs
       - Cost /QALY elsewhere
       - Relative Social Willingness to Pay
    c) Current generosity (budget priorities)
       - Pragmatism
       - Highlights need for social judgement
       - Equalising expenditure/benefits

Conclusion

- Economics
  - Measure the measurable,
    OK, *BUT*
    Then sold as a solution to grateful decision makers
- Ethical decision
  - What do you want to measure
  - Is it what economists have measured?
  - How should it influence your decision

Comment on Hensher et al

- VSL (Jones-Lee) = (WTP for ↓ risk by ρ)(.1/ρ)…eq (1)

  eg pay $1,000 for ↓ risk of 1/ 2,000

  VSL ($1,000).2,000 = $2m

Comment on Hensher et al

- VSL (Jones-Lee) = (WTP for ↓ risk by ρ)(.1/ρ)…eq (1)
  eg pay \$1,000 for ↓ risk of 1/ 2,000
  VSL (\$1,000).2,000 = \$2m
- Hensher et al Part 1 (WTP for ↓ death) … choice experiment
  Part 2 (Estimate risk, ρ) … NSW data
  VSL = WTP x (1/ρ) … eq (1)

Critique

Choice experiment

→ 11 x 2 pieces of data
→ heuristic will be used

WTP : respondent unaware of risk

eg deaths … 4
costs $1.13
low time cost

vs

deaths … 0
costs $6.88
high time cost

Importance of deaths: 4/100 ??
4/10 million??

Assumes people know objective risks when assessing WTP

Equation (WTP/per trip) / (x 1/risk per trip)

References

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