

# Valuing Nonfatal Health Risk Reductions in Global Benefit-Cost Analysis

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# Contents

- Concepts and Context
- Willingness to Pay
- Proxy Measures
  - Averted Costs
  - Monetized QALYs or DALYs
- Summary and Recommendations

# Concepts and Context

- Same conceptual framework as mortality risks.
  - Value per statistical case.
  - WTP for own risk reductions.
  - Revealed and stated preference methods.
  - Use of benefit transfer.
- Issue:
  - High quality WTP studies not available for many health conditions and countries.

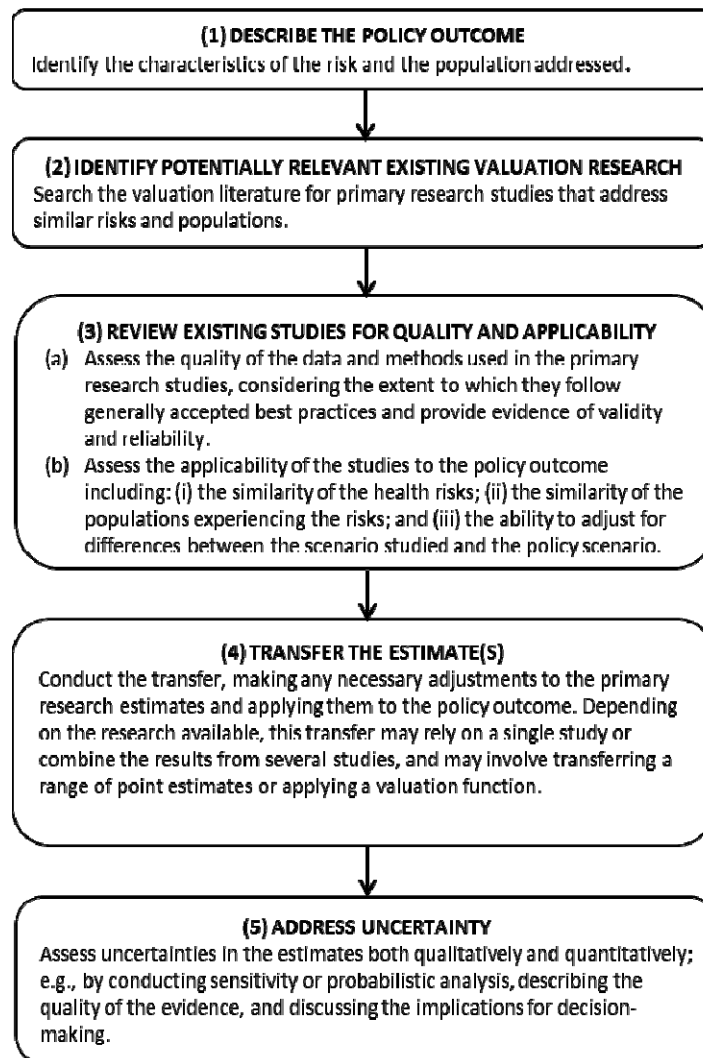
# Willingness to Pay

- No recent, criteria-driven review of empirical research available.
- Use benefit transfer framework to determine whether high quality, suitable estimates are available.\*
- Otherwise, apply proxy measures.

\*Add costs incurred by third parties (e.g., insured medical costs) if not counted elsewhere in the analysis.

# Willingness to Pay

## Benefit Transfer



# Proxy Methods

Imperfect approximations:

- Averted costs (direct and indirect costs of illness (COI)).
- Quality-adjusted life years (QALYs) or disability-adjusted life years (DALYs), monetized using:\*
  - a constant value per statistical life year (VSLY) derived from a VSL estimate; or
  - a valuation function that adjusts for characteristics such as severity and duration.

\*Add costs incurred by third parties (e.g., insured medical costs) if not counted elsewhere in the analysis.

# Averted Costs

- Direct and indirect cost of illness
  - Direct costs of medical treatment.
  - Indirect costs associated with lost productivity
  - Other costs, such as travel, food, and lodging associated with seeking treatment, caregiver time.
- May be incurred by the individual, his or her household or family, or by third parties (government, private insurers, donor organizations).

# Averted Costs

- In theory, expect to understate individual WTP; excludes pain and suffering and other quality of life impacts.
  - Difficulties associated with empirical estimation make relationship uncertain.
- Overlap with WTP estimates or with monetized QALYs or DALYs is also uncertain.
  - WTP estimates likely to include costs borne by ill or injured individual, may include costs borne by household or family members, unlikely to include costs borne by third parties.
  - Combining QALYs and DALYs with WTP estimates complicates issue.
- Requires case-by-case decision-making and assessment of uncertainty.



# Monetized QALYs or DALYs

- QALY and DALY estimates are plentiful and widely-used.
- Consistency with theory depends on how monetized.
  - Represent trade-offs between alternative health states, not between health risks and money that can be spent on other things.
- Valuation using a constant VSLY or value per QALY (or DALY) inconsistent with theory.
  - Calculated by dividing the VSL by (discounted) expected life years or QALYs remaining for average individual.
  - Theory suggests value varies by severity and duration; decreases as gain increases.

# Monetized QALYs or DALYs

- Use of a valuation function may better approximate WTP.
  - More work is needed to develop approach to address DALYs as well as QALYs, and to reflect the (diverse) preferences of populations in low- and middle-income countries.

# Summary

| Option 1  | Option 2  | Option 3  | Option 4   |
|---|---|---|--|
| WTP estimates + third party averted costs   | QALYs or DALYs monetized using a valuation function + third party averted costs   | QALYs or DALYs monetized using a constant VSLY + third party averted costs  | Individual + third party averted costs   |
| <ul style="list-style-type: none"> <li>• Consistent with the benefit-cost analysis framework</li> <li>• High quality, applicable WTP estimates often unavailable</li> </ul> | <ul style="list-style-type: none"> <li>• Accounts for quality of life impacts as well as averted costs</li> <li>• Valuation function needs further development to better approximate WTP</li> </ul> | <ul style="list-style-type: none"> <li>• Accounts for quality of life impacts as well as averted costs</li> <li>• Valuation approach requires strong assumptions</li> </ul> | <ul style="list-style-type: none"> <li>• Relies on easily accessible data</li> <li>• Excludes quality of life impacts</li> </ul> |

# Recommendations

- Rely on WTP estimates if defensible, based on a criteria-driven review of the literature.
  - Describe the policy outcome.
  - Search the literature.
  - Review studies for quality and applicability.
  - Transfer the estimate(s).
- Estimate averted costs, distinguishing between costs incurred by the affected individual, household and family members, and third parties.
  - When WTP estimates are used for valuation, add costs averted by the policy that are not counted elsewhere in the analysis, especially if these costs are expected to be significant.
  - When WTP estimates are not available, sum the costs incurred by the individual, the household and family, and third parties, and use the results for valuation, recognizing that this sum is expected to understate the value of the risk reduction.
- Conduct sensitivity analysis using monetized estimates of the change in QALYs or DALYs, if WTP estimates are not available, particularly if the results are likely to significantly affect the analytic conclusions.
- Address other sources of uncertainty.

# Recommendations

Over the long term:

- Compile a global database of WTP studies and detailed guidance on benefit transfer.
- Further develop valuation function for QALYs and DALYs.
- Conduct additional research on WTP for nonfatal risk reductions.