Foundation

Global Safety Evidence Centre

Valuing Global Safety Topic Note #2: Health and Wellbeing Approaches

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The Lloyd's Register Foundation Global Safety Evidence Centre is a hub for anyone who needs to know 'what works' to make people safer. The Centre collates, creates and communicates the best available safety evidence from the Foundation, our partners and other sources on both the nature and scale of global safety challenges, and what works to address them. It works with partners to identify and fill gaps in the evidence, and to use the evidence for action.

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About Lloyd's Register Foundation

Lloyd's Register Foundation is an independent global safety charity that supports research, innovation, and education to make the world a safer place. Its mission is to use the best evidence and insight to help the global community focus on tackling the world's most pressing safety and risk challenges.

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Contents

Summary

Many safety interventions save lives or prevent injury. Others reduce fear, build confidence, strengthen trust, or improve people's ability to live and work safely. They also prevent major economic and environmental harm. The valuation method should follow the kind of outcome being assessed.

This is the second in a series of three topic notes examining how to measure and value global safety within a value for money framework. Topic Note 1 sets out the overall framework for using monetary valuation in safety appraisal. This note compares two approaches to valuation: health and wellbeing.

Health valuation is the natural starting point, especially where safety interventions prevent death, injury or illness. It offers mature and widely used methods for valuing life, life expectancy and health-related quality of life. These approaches are embedded in UK institutions such as the National Institute for Health and Care Excellence (NICE), and in global health practice through measures used by the World Health Organization.

But safety has much broader effects on our lives: Lloyd's Register Foundation defines safety not only as the absence of harm, but as the conditions that allow people and communities to thrive. That *wider conception* includes how safe people feel, how confidently they can work and live their lives, and whether they trust the systems and infrastructure around them.

Wellbeing valuation offers this broader lens. It measures how outcomes affect overall life satisfaction, going beyond health-related quality of life.

Health economics and wellbeing economics are not rivals. They answer different parts of the same question: what does safety make possible for people? A framework for global safety valuation should therefore draw on both. This note explains the main metrics used in each approach, considers their strengths and limitations for safety valuation, and sets out practical guidance to support their use.

Health valuation

Health valuation focuses on two questions: how long people live, and their health-related quality of life.

For safety interventions, it is most useful where the main outcomes are deaths prevented, injuries avoided, illness reduced or life expectancy improved. These are precisely the kinds of outcomes for which health economics has developed mature and widely used methods.

Three measures are particularly relevant:

Value of a Prevented Fatality (VPF) estimates the social value of reducing the risk of death. It is not the value of an identified person's life. It is the value people place on small reductions in fatality risk across a population.

Statistical Life Years (SLYs), sometimes expressed as the Value of a Life Year (VOLY), estimate the value of changes in life expectancy. These measures are useful where an intervention affects how long people are expected to live, rather than only whether a fatality is prevented at a particular point in time.

Quality-Adjusted Life Years (QALYs) combine length of life with health-related quality of life. One QALY represents one year lived in perfect health. QALYs are useful where safety interventions affect day-to-day health, as well as length of life.

A practical rule of thumb is therefore: use VPF where the main outcome is preventing deaths; use SLYs where the intervention affects life expectancy; and use QALYs where the intervention also affects physical or mental health in daily life. The most common choice is QALYs.

How QALYs are measured and used

QALYs are usually estimated using standardised health instruments. The most common is EQ-5D, developed by the EuroQol Group. It asks people to describe their health across five dimensions: mobility, self-care, usual activities, pain or discomfort, and anxiety or depression.

These responses are converted into a health-related quality-of-life weight, usually on a scale where 0 is equivalent to death and 1 is perfect health. Multiplying this weight by the number of years lived gives the QALY estimate.

QALYs can then be used in two main ways, as we outlined in Topic Note 1:

In cost-effectiveness analysis (CEA), the analyst compares the cost of an intervention with the number of QALYs it is expected to generate. This produces a cost per QALY, which can then be compared with a threshold or benchmark. This is the approach commonly used by NICE when assessing whether healthcare technologies should be funded, typically using thresholds of around £20,000 to £30,000 per QALY.

In cost-benefit analysis (CBA), the QALY gain is converted into a monetary value, allowing health benefits to be compared with other benefits and costs expressed in money. This approach is more common in wider public policy appraisal, including under the UK Green Book. In this case, a QALY is currently valued at £70,000, representing people's "willingness to pay" for improved health.

Topic Note 1 explains cost-effectiveness analysis and cost-benefit analysis in more detail. The important point here is that health metrics can support decision makers to assess value for money, given that the resources to invest in health and safety are limited.

QALYs and DALYs

Internationally, the Disability-Adjusted Life Year, or DALY, is widely used, particularly by the World Health Organization and in global health.

QALYs and DALYs are both health metrics used to assess the impact of medical and public health interventions, but they measure different things. QALYs measure gains in healthy life years, so higher is better. DALYs measure years of healthy life lost through illness, injury or early death, so lower is better. QALYs are more common in clinical and high-income settings, while DALYs are often used in global health.

For a global safety framework, the choice is a practical one. Where partners, datasets or decision systems already use DALYs, it may be sensible to work in DALYs. Where evidence is already built around QALYs, especially in UK or European appraisal, it may be more practical to use this metric.

Health economics is rigorous, standardised and deeply embedded in decision-making. It remains the usual starting point for most safety valuation. However, in recent years an alternative approach has emerged that can offer some advantages in a safety context - wellbeing valuation.

Wellbeing valuation

Wellbeing valuation starts from a broader question: how satisfied are people with their lives?

The main economic measure is the **Wellbeing Year**, or **WELLBY**. One WELLBY is a one-point change in life satisfaction, measured on a 0 to 10 scale, sustained for one person for one year. For example, improving one person's life satisfaction from 6 to 7 for one year would generate one WELLBY. Improving 100 people's life satisfaction by 0.1 points for one year would also generate 10 WELLBYs.

The UK Government's *Wellbeing Guidance for Appraisal* recommends a central monetary value of approximately £13,000 per WELLBY in 2019 prices, with a range of £10,000 to £16,000. Internationally, the WELLBY approach has been developed and promoted by wellbeing economists including *Layard and Oparina* (2021), who set out its advantages in the World Happiness Report.

The key distinction from health valuation is scope. Health is one important determinant of life satisfaction, but it is not the only one. People's wellbeing is also shaped by relationships, trust, work, and the community, institutions and environment around them.

This matters for safety. For example, workers who feel psychologically secure, communities that trust infrastructure, or families who worry less when relatives are at sea may experience real benefits. Wellbeing valuation can capture these wider effects more directly than health valuation.

The challenge is usually not the concept of wellbeing valuation. It is the evidence. To use WELLBYs well, analysts need a credible estimate of how an intervention changes life satisfaction, for whom, and for how long. In some areas, such as unemployment, mental health or social connection, the evidence base is relatively developed. In others, including some safety interventions, the evidence may be thinner or more indirect.

This does not mean wellbeing valuation should be avoided. It means it should be used transparently, with clear assumptions, sensitivity analysis where possible, and appropriate caution about attribution. Used well, it adds something important to safety valuation: a way of recognising that safety is not only about avoiding harm, but also about enabling people to live with confidence.

Applying these approaches to safety

For many safety interventions, health valuation and wellbeing valuation will point in the same direction. The boundary between the two approaches is also not fixed. For example, there are efforts to broaden health measures - Brazier et al. (2022) developed the EQ-HWB to include dimensions such as exhaustion, loneliness, concentration and control over daily life.

Nevertheless, wellbeing valuation retains some advantages where safety changes how people experience risk. Objective and perceived risk often diverge, and both matter. People may suffer before an event because they anticipate danger, and afterwards because fear, trauma or insecurity persists. An unsafe workplace can erode morale even when no accident occurs. A serious incident can affect workers, families or communities long after physical injuries have healed.

This is particularly important where mental health is central. QALYs include anxiety and depression, including through the EQ-5D framework. But standard health valuation may understate the impact of poor mental health, especially where members of the public are asked to imagine conditions they have not experienced. Where safety interventions work by reducing trauma, anxiety, chronic stress or fear, wellbeing valuation may give a fuller account of the benefit.

Choosing between health and wellbeing metrics

Neither approach is universally better. The choice should follow the outcomes, the evidence and the decision context. As a rule of thumb we recommend the following.

Use health valuation when:

- the primary outcome is preventing death, injury or illness;
- there is established evidence to estimate QALYs, DALYs, or other health-related metrics;
- decision-makers already use health valuation and prefer value for money analysis in familiar terms.

Use wellbeing valuation when:

- safety outcomes extend beyond health-related quality of life;
- psychological safety, confidence or mental wellbeing are central;
- the intervention works mainly by reducing worry, increasing trust or perceived safety;
- the value of the intervention depends on how people experience risk, not only on whether harm occurs.

Use both approaches when:

- triangulation would strengthen confidence in the findings;
- different audiences prefer different metrics;
- the scale or importance of the decision justifies extra analytical effort.

The main caution is double counting. Health is a major component of life satisfaction. An avoided injury should not be valued once as a QALY gain and then again as a WELLBY gain if both estimates are capturing the same underlying benefit. Where both approaches are used, the analysis should be clear about which benefits are being counted under each method.

Looking ahead

Many safety interventions are still not consistently assessed through rigorous value for money frameworks. Where they are applied, health economics often dominates[1]. That is understandable. Health valuation is mature, standardised and widely embedded in decision-making.

But the benefits of a safer world go well beyond health - wellbeing valuation adds breadth in how we capture the benefits of safety on people's lives.

The Global Safety Value Bank therefore provides both health- and wellbeing-based values. Used transparently, and with care about overlapping benefits, they provide complementary ways to understand the value of safety.

Safety valuation cannot stop with assessments of health and wellbeing values: beyond these improvements, safety interventions can prevent economic and environmental harm. The Global Safety Value Bank includes a full range of safety outcomes the Foundation is seeking to value: health, wellbeing, economic, fiscal and environmental impacts.

The remaining challenge is geographic. Many monetary values underpinning both health and wellbeing valuation are derived from the UK or other high-income countries. Applying them globally raises questions of transferability. Topic Note 3 addresses how these values can be used responsibly across borders.

1. Structured economic approaches to safety are well established in some regulated sectors, including the UK Health and Safety Executive's ALARP framework and the International Maritime Organization's Formal Safety Assessment (FSA), both of which incorporate risk analysis and cost-benefit reasoning. However, their application is uneven across domains, and many safety interventions are not assessed using comparable or standardised value-for-money approaches.

Key terms

Term	Definition
Cost-benefit analysis (CBA)	A method of appraisal that estimates the main social costs and social benefits of options in monetary terms, allowing them to be compared directly. (See Topic Note 1.)
Cost-effectiveness analysis (CEA)	A method of appraisal that compares the cost of achieving a defined unit of benefit, such as a QALY gained, across options. (See Topic Note 1.)
Disability-adjusted life year (DALY)	A measure of the burden of disease, expressed as one year of healthy life lost. Used by the World Health Organization and widely applied in global health. DALYs measure life-years lost; QALYs measure life-years gained.
Double counting	Including the same benefit or cost more than once in an appraisal. A particular risk when both health and wellbeing values are used, since health is one component of overall life satisfaction.
EQ-5D	A standardised questionnaire that measures health-related quality of life across five dimensions: mobility, self-care, usual activities, pain or discomfort, and anxiety or depression. Produces the quality-of-life weights used in QALY calculations.
Global Safety Value Bank	An experimental digital tool published alongside this series, providing unit values for safety-relevant outcomes and guidance on how to use them.
Green Book	The UK Government's central guidance on appraisal and evaluation, published by HM Treasury. Recognises both health valuation and wellbeing valuation as methods for valuing non-market outcomes.

Term	Definition
Health valuation	An approach to valuing outcomes based on their effect on health-related quality of life and life expectancy. Key measures include the QALY, DALY, SLY and VPF.
Life satisfaction	A person's overall assessment of how satisfied they are with their life, typically measured on a 0-10 scale. The basis for wellbeing valuation.
Quality-adjusted life year (QALY)	A measure that combines length of life and health-related quality of life. One QALY equals one year of life in perfect health.
Statistical life year (SLY) / Value of a life year (VOLY)	The social value of a small change in the probability of losing or gaining a year of life expectancy.
Value for money (VfM)	A balanced judgement about the optimal use of resources to achieve a proposal's objectives. Draws on monetisable and unmonetisable impacts, equity and risk. (See Topic Note 1.)
Value of a prevented fatality (VPF)	The social value of a small reduction in fatality risk across a population. Not the value of a named individual's life.
Wellbeing valuation	An approach to valuing outcomes based on their effect on overall life satisfaction, typically using statistical relationships from survey data. Recognised as a non-market valuation method in the Green Book.
Wellbeing year (WELLBY)	A one-point change in life satisfaction on a 0-10 scale, sustained for one person for one year. The principal measure used in wellbeing valuation.

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Annex: Case studies

Two examples below illustrate why safety valuation should consider both health and wellbeing impacts, while also recognising wider economic, fiscal and environmental effects. The purpose is to show how a fuller benefits map can prevent important impacts from being missed.

Flood prevention and natural hazard early warning systems

Flooding is a useful example because the costs of natural disasters are often measured using the data that are easiest to collect: insured losses, damage to physical assets and public spending on recovery. These are important, but they do not capture the full cost to society[1].

Evidence suggests that *uninsured wider damage costs range from 40% to 200%* of the insured damage costs. For example, research in Australia estimated that a monetised estimate of the total social costs could be *around 110% the economic costs*. The study assessed the prevalence of injuries, mental health conditions, and other adverse outcomes following disaster events, and translated these impacts into monetary terms by estimating associated productivity losses and additional government expenditures, including increased benefit payments.

Wellbeing evidence adds a further layer. *Luechinger and Raschky* (2009) estimate that experiencing a local flood event reduces life satisfaction, even after controlling for economic factors such as GDP per capita and unemployment growth. This suggests that floods affect people not only through market losses, but also through the experience of insecurity, disruption and distress. Some longer-term impacts on the natural environment and cultural heritage may also fall outside shorter-term wellbeing estimates.

One appraisal of investment in early warning systems in New Zealand illustrates how this can influence benefit-cost metrics (Krekel and MacLennan, 2026, forthcoming). When only market impacts were included, the benefit-cost ratio was estimated at around 2.4:1. This estimate more than doubled when wider economic, social and wellbeing benefits were included - the investment was estimated to have benefits of around five times the costs.

1. E.g. AON (2024) Climate and Catastrophe Insight, Retrieved March 2026, from https://assets.aon.com/-/media/files/aon/reports/2024/climate-and-catastrophe-insights-report.pdf;

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This matters: including health and wellbeing impacts may change which safety interventions appear to offer greatest value. Measures that reduce trauma, improve preparedness, support mental health or help communities act before an event may not always look strongest if only physical damage is counted. They may look more valuable once the wider social and wellbeing costs of disaster are included.

The table below summarises the main categories of benefit that may be relevant when appraising natural hazard early warning systems. The point is not that every category can or should be monetised in every appraisal. It is that a narrow focus on insured losses and physical damage will often miss important benefits, especially those relating to health, wellbeing and community resilience.

Type of value	Potential benefits
Economic	Reduced damage to homes, businesses and assets; fewer disruptions to work and supply chains; lower productivity losses linked to injury, mental health impacts and wider adverse outcomes.
Fiscal	Lower public spending on emergency response, recovery, rebuilding public infrastructure, healthcare and longer-term support.
Health	Fewer deaths and injuries; reduced illness; lower need for treatment, care and rehabilitation.
Wellbeing	Reduced stress, anxiety and trauma; improved preparedness, confidence, perceived safety and community resilience; less disruption to family and community life.
Environmental and cultural	Avoided or reduced damage to ecosystems, habitats, cultural heritage and places of community significance.

Fishing safety

For fishing safety, some benefits, such as deaths and injuries avoided, fall naturally within health valuation. Others, such as worry, confidence, bereavement and caring impacts, may be better captured through wellbeing valuation. Fishing safety can also protect boats and equipment, support livelihoods and reduce environmental damage. These benefits each require different valuation approaches.

The table below begins to map out these benefits, showing the range of outcomes that may need to be considered when assessing the value of fishing safety interventions.

Potential benefit	Type of value	Potential valuation approach
Deaths avoided	Health	Can be monetised using the Value of a Prevented Fatality (VPF).
Injuries avoided	Health	Can be monetised using health valuation, such as QALYs, or suitable average workplace injury values.
Wellbeing impacts on bereaved partners and family members	Wellbeing	Not usually included in standard safety appraisal, but there is evidence on the wellbeing losses associated with bereavement and widowhood. This may be relevant in addition to the value placed on the prevented fatality, provided double counting is avoided.
Wellbeing impacts associated with caring responsibilities after serious injury	Wellbeing	Serious injury can impose wellbeing costs on family members and carers. Existing evidence on the wellbeing impacts of unpaid caring may be relevant.
Worry when a friend or family member is at sea	Wellbeing	This may be important, especially in communities where fishing risks are high and persistent. Direct valuation evidence is limited, so this may need to be recorded qualitatively.
Feeling of safety at work	Wellbeing	There is evidence linking job quality, including safety at work, with wellbeing. This may support valuation where an intervention credibly improves perceived safety.
Avoided damage to ecosystems	Environmental	Ecosystem service values may be available for some habitats and countries, but coverage is uneven.
Loss of, or damage to, boats and equipment	Economic	Can usually be monetised using market prices, replacement costs or insured losses where available.
Increased value of catch through improved practices	Economic	Can be monetised using market prices where there is evidence that safer practices increase the quantity, quality or reliability of catch.