Picking Petals Off the Value Flower
- The Need to Consider Insurance Value for New Medical Technologies

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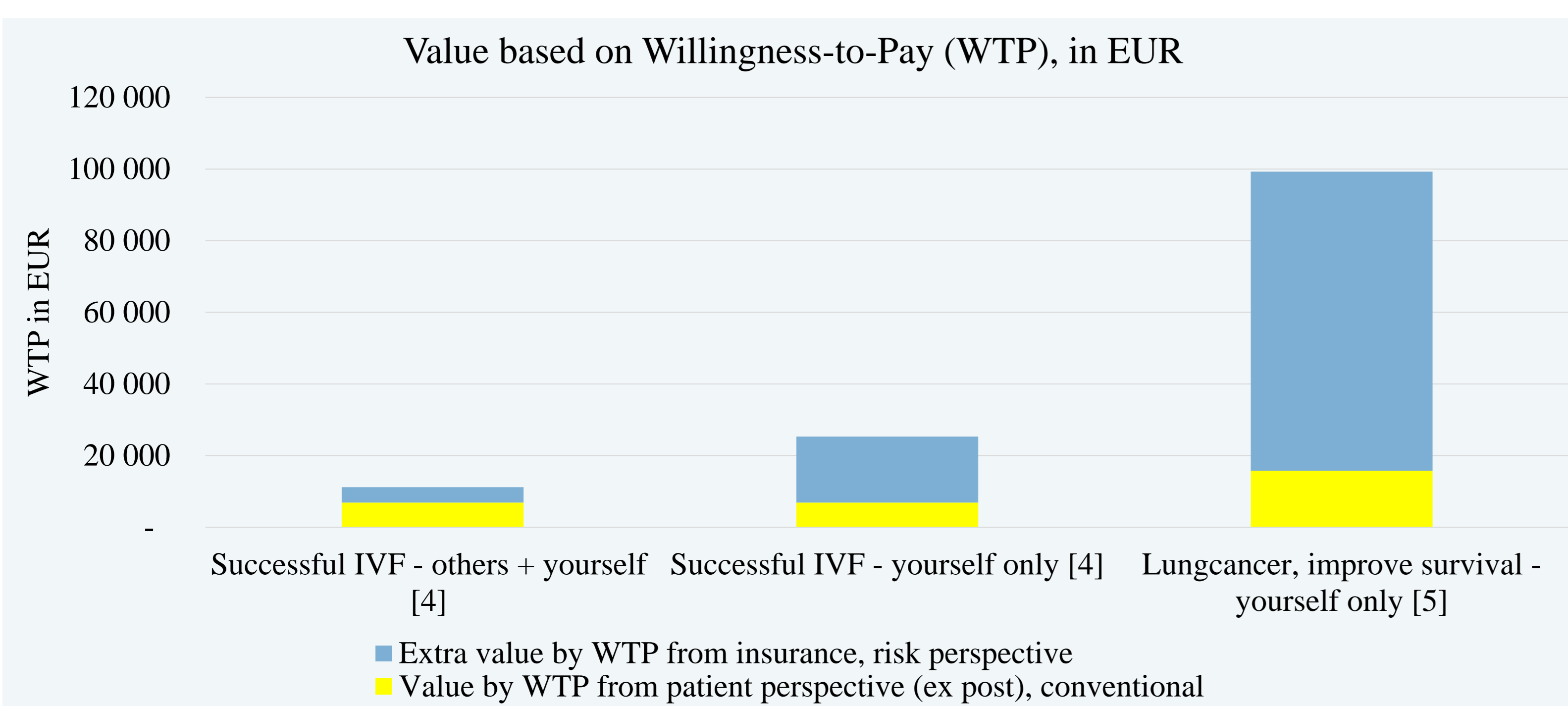
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Background

"Why is health economics the only application of economics that does not use the discipline of economics?" (Torrance GW., Pharmacoeconomics 2006 [1])

- The conventional way of mapping the value of medical technologies, i.e., QALYs and cost savings, does not capture the total value from an economic perspective.

- Values that are not captured by conventional methodology have gained importance for new types of medical technologies, such as advanced therapy medicinal products (ATMP) and precision medicine.

- The "ISPOR Value Flower" presents a total of 12 value attributes of relevance for economic evaluations of healthcare interventions, of which 8 are potentially novel values not included in the conventional model [2], see adapted version in **Figure 1**.

- **Figure 1** differentiates between value elements that can be measured using traditional established value methods (yellow), i.e., QALYs or market prices, and value elements that require innovative new approaches to demonstrate value (blue).

- **Objective:** To review published, empirical studies of the novel value elements in order to assess their relative importance and potential overlap. This poster focuses on the result related to insurance value.
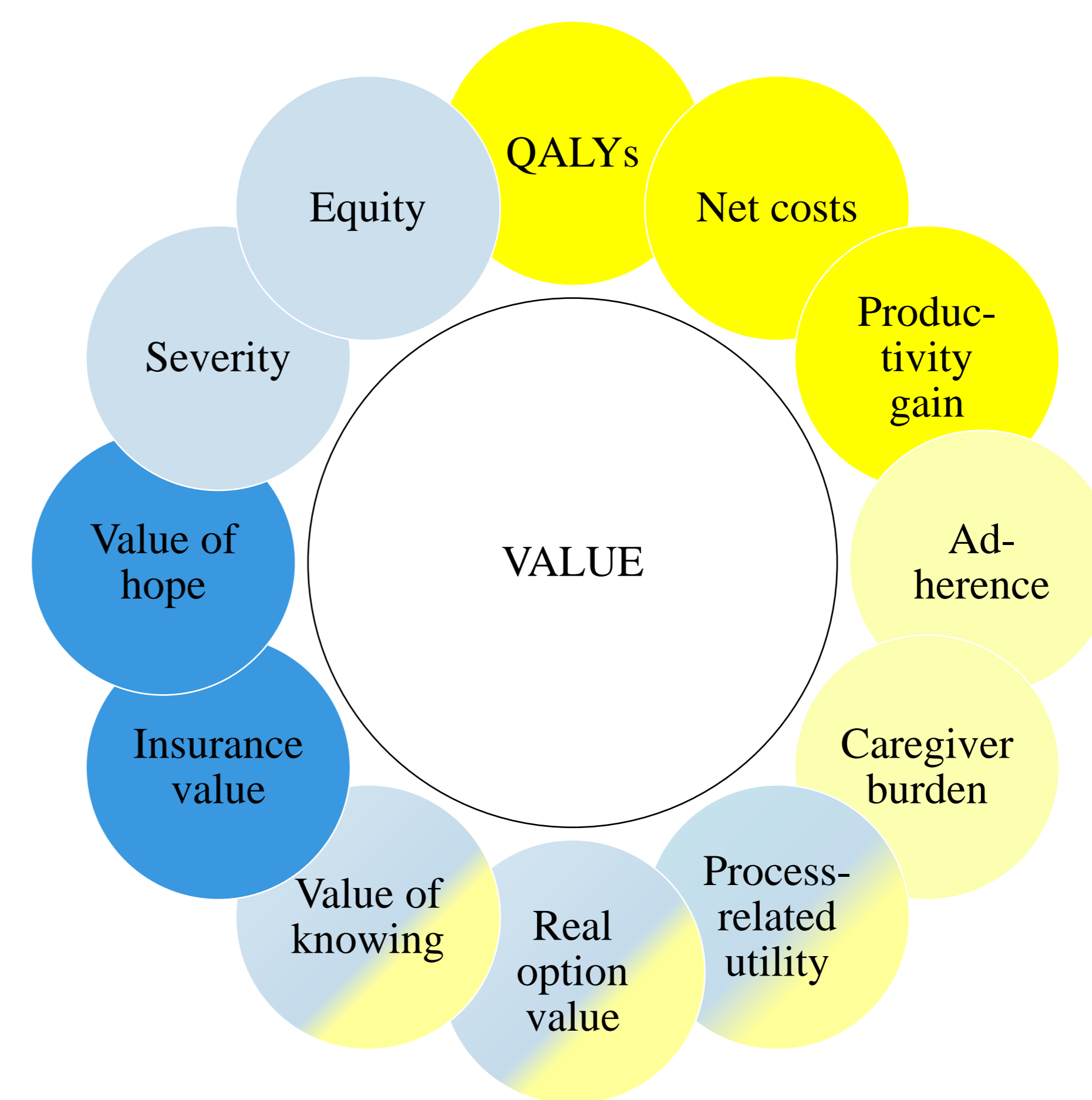
Methods

- We searched for studies providing information on the value of risk reduction.

- A literature search was performed by applying iteratively defined search terms found in articles, in addition to searching for cross-references ("snow-balling").

- A narrative review of the literature was performed, discussing methods applied, estimating size and validity as well as potential overlap across value elements.

Figure 1. Value Flower, *adapted from Lakdawalla et al. 2018 [2] and Neumann et al. 2022 [3]*

Yellow = Standard value elements, measured using traditional established value methods. i.e., QALY, market prices.
Light yellow = "Influencers", values for these elements can also be measured using traditional value methods but generally not included.

Blue = Value elements that require innovative new approaches to demonstrate value, patient preference studies, trade off studies, WTP-studies are examples that may be used.
Dark blue = Value elements which may be measured by studies on individual preferences related to uncertainty, e.g., WTP.

*Adaptations compared to original version in Lakdawalla et al. 2018: "Caregiver burden" and "Process-related utility" added. "Fear of contagion" (assumed to be part of insurance value) and "Scientific spillovers" removed.

Results

Figure 2. Value based on Willingness-to-Pay, in EUR divided into the value based on a risk-neutral patient perspective (conventional) and the extra value based on a risk scenario/insurance perspective

Figure 3. Value based on Willingness-to-Pay, in EUR divided into the value based on a risk-neutral value by QALY (conventional) and the extra value based on a risk scenario/insurance perspective

*Values accepted by the Swedish Transport Administration (Trafikverket).

- The insurance value has been estimated in several studies using willingness-to-pay (WTP) from a risk scenario/insurance perspective, i.e., "ex ante WTP".

- One group of studies compare this to the (conventional) value estimated using a risk-neutral/patient perspective, i.e., "ex post WTP" (examples shown in **Figure 2**).

- Another group of studies compare this to the (conventional) value estimated using the QALYs gained multiplied by an assumed accepted threshold value of a QALY (examples shown in **Figure 3**).

- All studies reveal that the conventional value is only a part of the total value.

- There are also studies that have estimated insurance value by mathematical modeling, assumptions, and data from previous studies. These studies also show that conventional value is only a small share (18-24%) of the total value [8, 9].

- Why is the total value, including insurance value, so much higher than the conventional value? Possible explanations include:

(1) Insurance value may also capture all or parts of *other novel value elements*, see blue and blue-shaded petals in **Figure 1**.

(2) The preferences of *currently healthy individuals* are included which means that more people pay (burden is shared) and preferences for reducing *risk* is included.

(3) The preferences is often derived *using a personal perspective*, i.e., paying for yourself. This may lead to a higher value as personal benefits tends to be more meaningful and easier to understand and value.
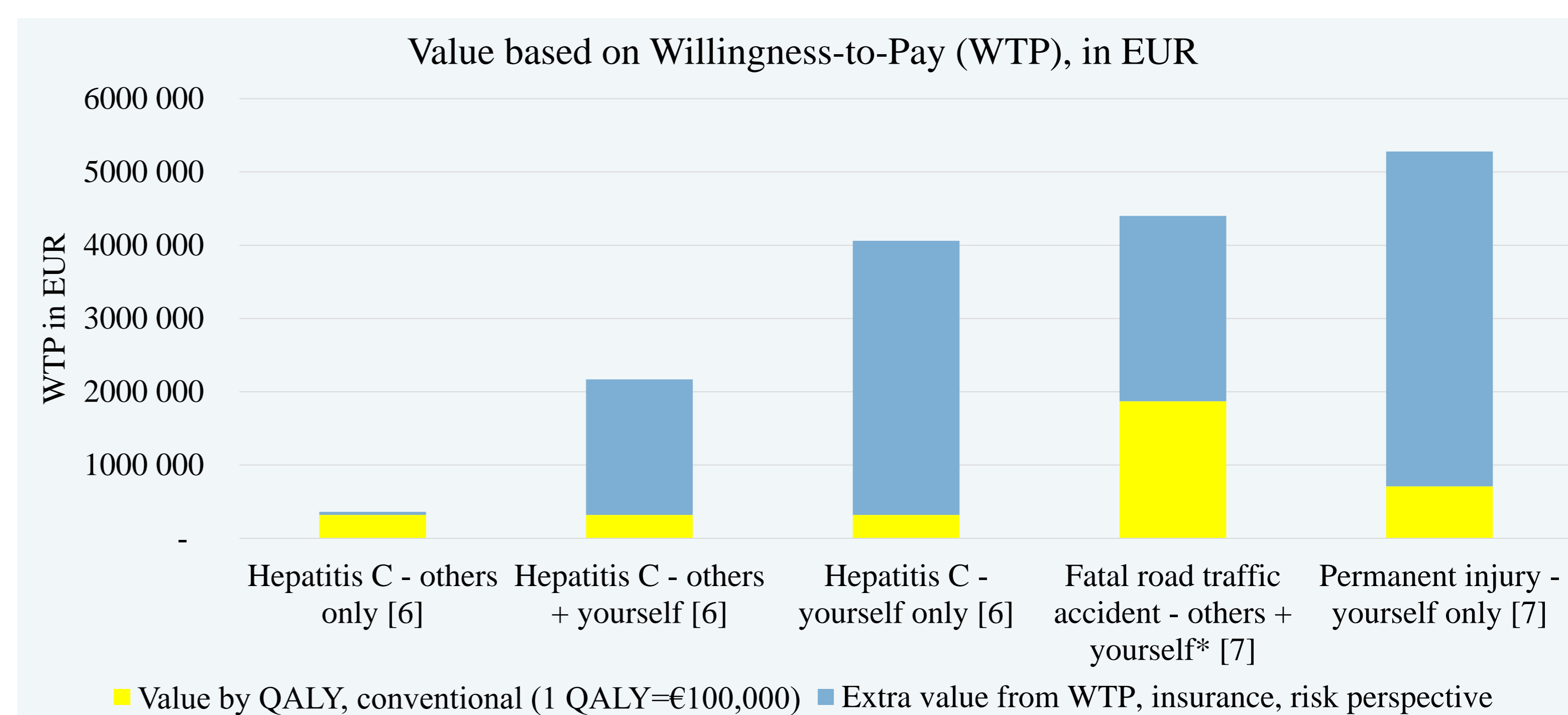
Conclusion and Discussion

- A societal perspective based on economic theory implies the inclusion of insurance value. This review shows that including insurance value may lead to a much higher value for some medical technologies.

- How to incorporate insurance value into the conventional model remains to be solved. Whether to adjust QALY estimates (e.g., using GRACE [10]), adding separate values in addition to QALY estimates ("augmented CEA"), or replacing QALY estimates with WTP.

- Mapping the value from an economic perspective has the potential to minimize the risk that large welfare gains for society may be overlooked and that the transparency of the HTA process increases.

- Higher value may put pressure on limited health care budgets, but decision-makers should consider distinguishing between the question *"What is of value?"* and *"Should that be funded?"* [11].

References
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