## Relationship between time horizon, QALYs and ICER: a retrospective analysis in the French context

Monnier R.<sup>1</sup>, Duteil E.<sup>1</sup>, Le Dissez C.<sup>1</sup> 1. Co-founder PASS, France

### **Background and objective**

This study aimed to explore and investigate the relationship between time horizon, Quality-Adjusted Life Years (QALYs), and Incremental Cost-Effectiveness Ratio (ICER) in the Health Technology Assessment (HTA) opinions of the French National Authority for Health (HAS).

ICER is influenced by various assumptions related to the cost and QALY differences between comparators. The time horizon is a key factor impacting ICER. Usually, extending the time horizon tends to reduce the ICER, on the economic dossier submitted to the HAS.

### Method

Extraction of the economic opinions published by the HAS<sup>1</sup> from 2014 to October 2024 227 opinions - 449 analyses

Sample analyses with time horizon

### Figure 1. Flowchart of the selection

Excluded: products with missing or not clear time horizon.

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This poster explores the relationship between time horizon and key outcomes, including ICER and QALYs.



significant differences in ICER values and a Pearson correlation test to evaluate the correlation between time horizon and the difference in QALYs.

### Results

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The economic evaluations issued by the HAS classify time horizons into 'lifetime' and 'restricted' categories. Of the 389 N analyses with a defined time horizon, 177 (46%) used a 'lifetime' time horizon, while 212 (54%) applied a restricted time horizon. This analysis reveals a notable difference in duration between these groups: the average time horizon was 50.1 years (median: 39) in the 'lifetime' group, compared to 14.4 years (median: 10) in the restricted group. Figure 2 illustrates the distribution of analyses based on these time horizons.

Among the 389 analyses, 228 (51%) provided sufficient data for analysis and were not considered outliers. Of these, 89 analyses (39%) used a "lifetime" time horizon, while 139 (61%) used a restricted time horizon. The finding showed differences in QALY, with a **Delta QALY of 2.1** when considering a "lifetime" time horizon, compared to 0.9 for the "restricted" time horizon.

However, the overall analysis suggests no statistically significant difference in ICER values between the two groups, "lifetime" time horizon and restricted time horizon, with a test of Student (p-value: 0,874).



[1, 16] (16, 31] (31, 46] (46, 61] (61, 76] (76, 91] (91, 106] Time horizon (years)

### Figure 2 shows the dispersion of analyses by time horizon. A majority (57%) of analyses uses a time horizon of less than 16 years.

Notably, 18% (70 out of 389 analyses) employ a time horizon exceeding 76 years, largely influenced by the HARVONI economic opinion, which includes 38 analyses.

1. All opinions available on the HAS website between 2014-October 2024

Abbreviation

HAS : Haute Autorité de Santé ; ICER : Incremental Cost-Effectiveness Ratio ; QALY : Quality-Adjusted Life Years;

Health economic evaluation results, such as ICER and QALYs, are influenced by various assumptions and key parameters.

The time horizon is a critical factor that can lead to misinterpretations, particularly when comparing QALY results across different opinions. A longer time horizon leads to a larger Delta QALY. Adjusting QALYs by the time horizon can mitigate these discrepancies.

These findings underscore the **importance of considering** the time horizon in HTA evaluations to ensure accurate and comparable results.

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