Uptake of the NICE severity modifier: What proportion of applications qualify?

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01. Introduction

The NICE (National Institute for Health and Care Excellence) severity modifier is a quantitative modifier introduced in 2022. It gives greater weight to quality-adjusted life years (QALYs) for conditions meeting predefined absolute or proportional QALY shortfall thresholds.

The aim of this study was to better understand which disease areas are more likely to qualify for the modifier, and whether eligibility for the modifier has changed over time.

What is the severity modifier?

The severity modifier is a weighting that NICE applies to QALYs in the ICER (incremental cost-effectiveness ratio) calculation:

$$\text{ICER} = \frac{\text{Incremental costs}}{\text{Incremental QALYs} \times \text{Severity weight}}$$

When incremental QALYs are positive, applying a higher severity weight increases the weighted QALYs in the denominator of the ICER calculation. All else being equal, this decreases the ICER, potentially improving the likelihood of a positive recommendation.

Calculating severity modifier eligibility

Eligibility for the modifier is dependent on QALY shortfall. Broadly, this is defined as the difference between the expected future QALYs of people living with the condition receiving current treatment and those of an age- and sex- matched general population. If the QALY shortfall meets or exceeds pre-specified thresholds, the NICE topic may qualify for the severity modifier.

Eligibility can be established using either absolute or proportional QALY shortfall, calculated as shown below. **Table 1** presents the QALY shortfall thresholds and corresponding severity weights.

- **Absolute QALY shortfall**: Expected total QALYs of the age- and sex-matched general population without disease (**A**), minus expected total QALYs of people living with the condition receiving current treatment (**B**).
- **Proportional QALY shortfall**: Absolute QALY shortfall divided by expected total QALYs of the age- and sex-matched general population (**A**).

Absolute shortfall = A – B
Proportional shortfall = (A – B)/A

Table 1. QALY shortfall thresholds and severity weights used by NICE

QALY weight	Proportional QALY shortfall	Absolute QALY shortfall
1 (does not qualify)	<0.85	<12
x1.2	0.85 to 0.95	12 to 18
x1.7	≥0.95	≥18

Importantly, **eligibility calculations reflect not only the impact of the condition, but also the effectiveness of the currently available treatments**.

02. Methods

Searches and screening

We used the TAcrawlR/Shiny tool to search NICE technology appraisals from the introduction of the severity modifier (February 2022) until June 2026, using the terms "severity modifier" and "QALY shortfall", with additional sensitivity searches for "absolute shortfall" and "proportional shortfall". Following deduplication, 183 unique appraisals were identified, with a further 19 identified through manual supplementary searches (202 in total, before exclusions).

Highly specialised technology evaluations (n=2), terminated appraisals (n=2), and appraisals assessed under the previous modifier (end of life) framework (n=3) were excluded. Appraisals superseded by subsequent guidance (n=3) were also excluded to avoid double counting. Following these exclusions, 192 appraisals were included in the analysis. Appraisals were not restricted to positive NICE recommendations.

For each appraisal, we reviewed the NICE guidance and, where necessary, supporting documentation to determine:

- If the severity modifier was assessed
- If NICE accepted that the topic qualified for the modifier
- If use of the modifier was accepted, the weighting that was applied (x1.2 or x1.7)[a]
  The common reasons for non-acceptance
- Any other patterns of interest

[a] Mixed' indicates use of both x1.2 and x1.7 severity weights within an appraisal. 'Partial' indicates use of severity weighting for some, but not all, relevant populations or comparisons.

Classification and analysis

An appraisal was classified as having assessed the severity modifier if any of the following were identified:

- A quantitative QALY shortfall assessment, OR evidence within the committee papers that the severity modifier had been raised by the company, EAG or committee.
- An explicit evaluation of eligibility against NICE's severity thresholds (irrespective of whether an additional weighting was accepted)

For objective variables, we present results as frequencies and percentages. For the analysis of subjective outcomes, such as rationale for acceptance and non-acceptance, we created high-level categories. Disease areas were classified using a two-level categorisation system. For example, breast cancer was categorised as:

- Main category: Cancer
- Subcategory: Breast cancer

Abbreviations
EAG, external assessment group, GEJ, gastro-oesophageal junction; ICER, incremental cost-effectiveness ratio; NICE, National Institute of Health and Care Excellence; NSCLC, non-small cell lung cancer; QALY, quality-adjusted life year; TA, technology appraisal.

03. Results

Severity modifier uptake and qualification

A total of 192 NICE technology appraisals were included in the analysis. For the majority of appraisals (96.9%), there was an assessment of the severity modifier. Among the appraisals where severity was assessed, around a third (28.5%) had the severity modifier accepted by NICE (**Table 2**). Among the 53 appraisals with an accepted severity modifier, 50.9% received a final weighting of x1.2, and 26.4% received a weighting of x1.7. Mixed and partial weightings were applied to 5.7% and 17% of appraisals, respectively (**Table 2**).

Table 2. Assessment and acceptance of the NICE severity modifier, 2022–2026

Outcome	Appraisals (N=192)	Percentage
Severity assessed	186	96.9
Severity not assessed	6	3.1
Among appraisals where severity was assessed (n=186)		
Severity modifier accepted	**53**	**28.5**
Severity modifier not accepted	133	71.5
Among appraisals where NICE accepted the severity modifier (n=53)		
x1.2 severity weighting	27	50.9
x1.7 severity weighting	14	26.4
Mixed severity weighting	3	5.7
Partial severity weighting	9	17.0

Severity modifier qualification by disease area

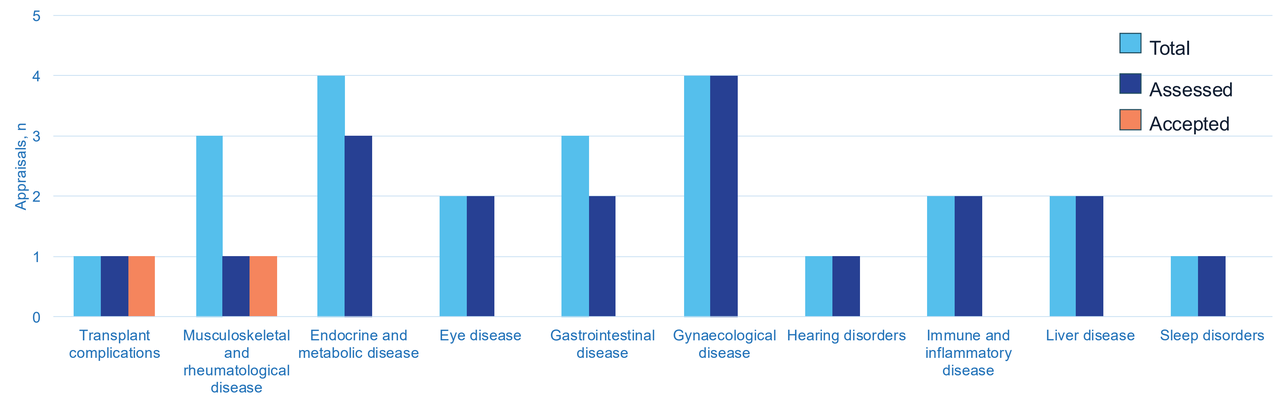
The 192 appraisals included in the analysis addressed a variety of indications, the majority of which were cancer indications (n=102, 53.1%). Among the 186 appraisals in which severity was assessed, the severity modifier acceptance rate was highest for genetic and inherited disorder (50%) and cancer indications (41.6%) (**Table 3**). Overall, acceptance rates were higher for cancer vs. non-cancer indications (41.6% vs. 12.9%, respectively). Of the 23 appraisals categorised as 'other' the majority were in endocrine & metabolic (n=4) or gynecological disease (n=4), each with an acceptance rate of 0% (**Figure 1**).

Table 3. Severity modifier assessment and acceptance by broad disease area

Disease area	All appraisals (N=192)	Severity modifier status		Severity modifier acceptance rate (%)
		Assessed (n=186)	Accepted (n=53)	
Cancer	102	101	42	41.6
• *Gastric and GEJ cancer*	-	5	4	80.0
• *Colorectal cancer*	-	5	4	80.0
• *Breast cancer*	-	7	4	57.1
• *Multiple myeloma*	-	11	3	27.3
• *NSCLC*	-	16	3	18.8
• *Endometrial cancer*	-	4	0	0.0
• *Other cancer*	-	53	24	45.3
All 'non-cancer'	90	85	11	12.9
• *Genetic and inherited disorders*	8	8	4	50.0
• *Neurological disease*	11	10	2	20.0
• *Infectious disease*	6	6	1	16.7
• *Cardiovascular disease*	7	7	1	14.3
• *Other*	23	19	2	10.5
• *Blood disorders*	11	11	1	9.1
• *Kidney disease*	7	7	0	0.0
• *Respiratory & allergic disease*	6	6	0	0.0
• *Skin disease*	11	0	0	0.0

Under the category 'Cancer', the indications listed had ≥4 appraisals in which severity was assessed. Association between cancer stage and severity modifier acceptance was not formally assessed.

Figure 1. Severity modifier assessment and acceptance in 'other' disease category

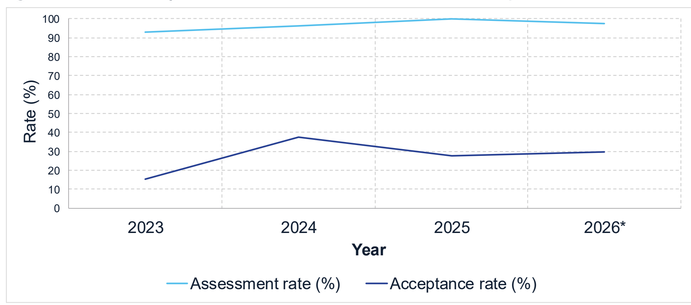


Temporal trends

Assessment rates ranged from 92.9% in 2023 to 100% in 2025, excluding 2022, which included only one appraisal.

Among appraisals where severity was assessed, annual acceptance rates fluctuated, ranging from 15.4% in 2023 to 37.3% in 2024. No consistent upward or downward trend in acceptance rates was observed between 2023 and 2026 (**Figure 2**).

Figure 2. Severity modifier assessment and acceptance over time



*2026 is a partial year.

Reasons for non-qualification

Among the 133 appraisals in which severity was assessed but no modifier was accepted, the most common recorded reason was failure to meet the severity eligibility cut-offs. One appraisal (CDKL5 deficiency disorder; 0.8%) had a severity weighting considered too uncertain to apply and another (COVID-19; 0.8%) was classified as the severity weighting being considered inappropriate (**Table 4**).

Table 4. Reasons for non-acceptance of a severity modifier

Rationale category	Appraisals (N=133)	Percentage
Did not meet severity eligibility cut-offs	92	69.2
Severity modifier assessed but not accepted	26	19.5
Severity considered; no additional weighting	13	9.8
Severity weighting too uncertain to apply	1	0.8
Severity weighting not appropriate	1	0.8
Total	**133**	**100.0**

Note: Categories reflect the recorded primary rationale in the study dataset.

04. Conclusions

NICE assessed severity in 96.9% of the appraisals captured in our study, and the severity modifier was accepted in a substantial proportion of these (28.5%). The most frequently accepted weighting was x1.2. Among appraisals in which severity was assessed, the acceptance rate was higher for cancer (41.6%) than non-cancer indications (12.9%), suggesting that the former are generally more likely to qualify for a severity modifier. Annual acceptance rates showed no consistent upward or downward trend, although future changes in standard-of-care for specific disease areas may influence QALY shortfall estimates moving forward.

While small sample sizes limit data interpretation around disease category, none of the 11 appraisals for skin disorders had a severity modifier accepted. Acceptance rates were also low among blood disorders, cardiovascular disease, respiratory disease, and kidney disease. The most common reason for severity modifier non-qualification was inability to meet QALY shortfall thresholds, and while this highlights the importance of quantitative severity assessments, Committee discretion or consideration of uncertainty also determine whether a severity weighting should apply.

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