

A Reanalysis of Canada's Drug Agency (CDA) Reports: Do Conclusions from Cost-Effectiveness Analyses Using Quality-Adjusted Life-Years (QALYs) Hold When Evaluating with Equal Value of Life-Years Gained (evLYG)?

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INTRODUCTION

- Quality-adjusted life-years (QALYs) are widely used to evaluate the value of healthcare interventions.
- Concerns about QALYs' discriminatory nature toward less healthy populations have spurred interest in alternative measures, e.g., equal value of life-years gained (evLYG).¹
- The Institute for Clinical and Economic Review (ICER) introduced evLYG in 2018² and has incorporated it in their new health technology assessments (HTAs) in ICER Value Assessment Framework.³
- Unlike analyses using QALYs, evLYG analysis treats additional gains in life years equally, regardless of the improved patients' quality of life by interventions.³

OBJECTIVE

- The objective of this study is to re-analyze cost-effectiveness analyses (CEAs) from Canada's Drug Agency (CDA) reports to determine whether using evLYG results in different conclusions compared to QALYs.

METHODS

- The process of reanalysis is described below:
 - Identify CDA reports with CDA reanalyses of CEAs (see **Figure 1**).
 - Figure 2** shows the distributions of therapeutic areas
 - Re-analyze CDA's CEA reanalyses using evLYGs (see **Figure 3** for evLYGs calculations).
 - Inputs included life-years gained (LYs), QALYs gained, incremental LYs, and Canadian societal norm of utility.⁴
 - Compare results from the reanalysis using evLYGs with CDA's reanalyses.

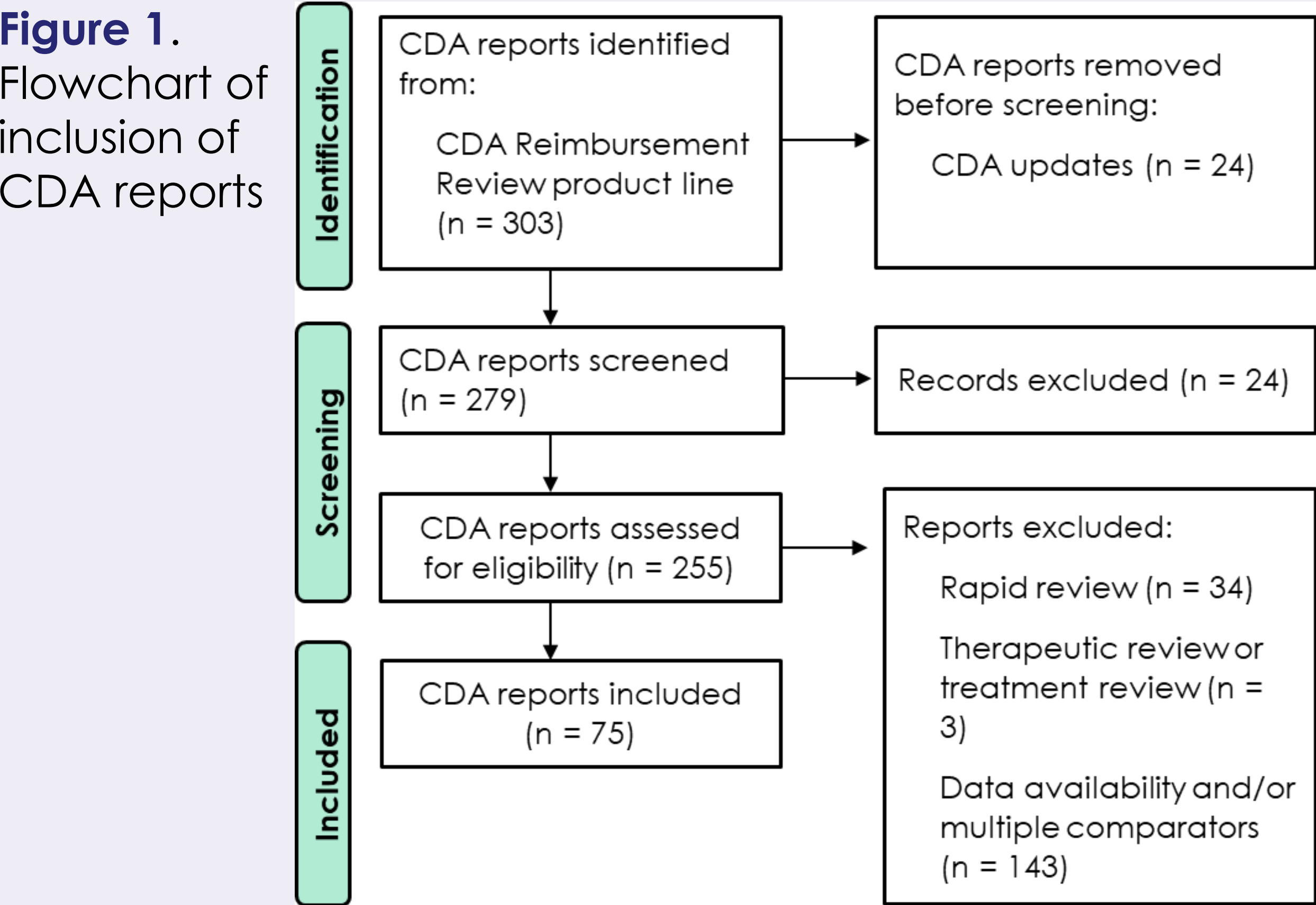


Figure 2. Distributions of therapeutic areas or included CDA reanalyses

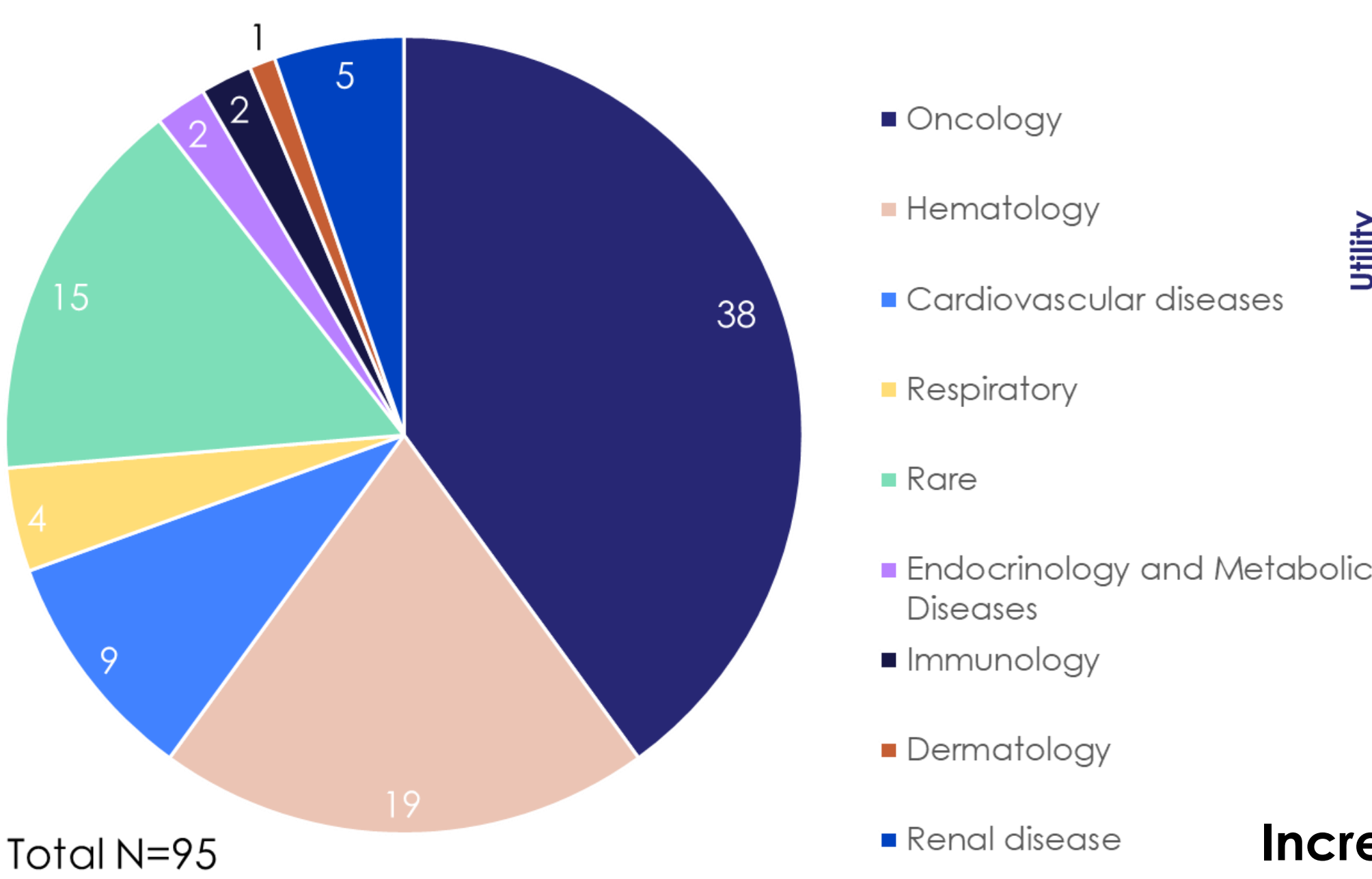
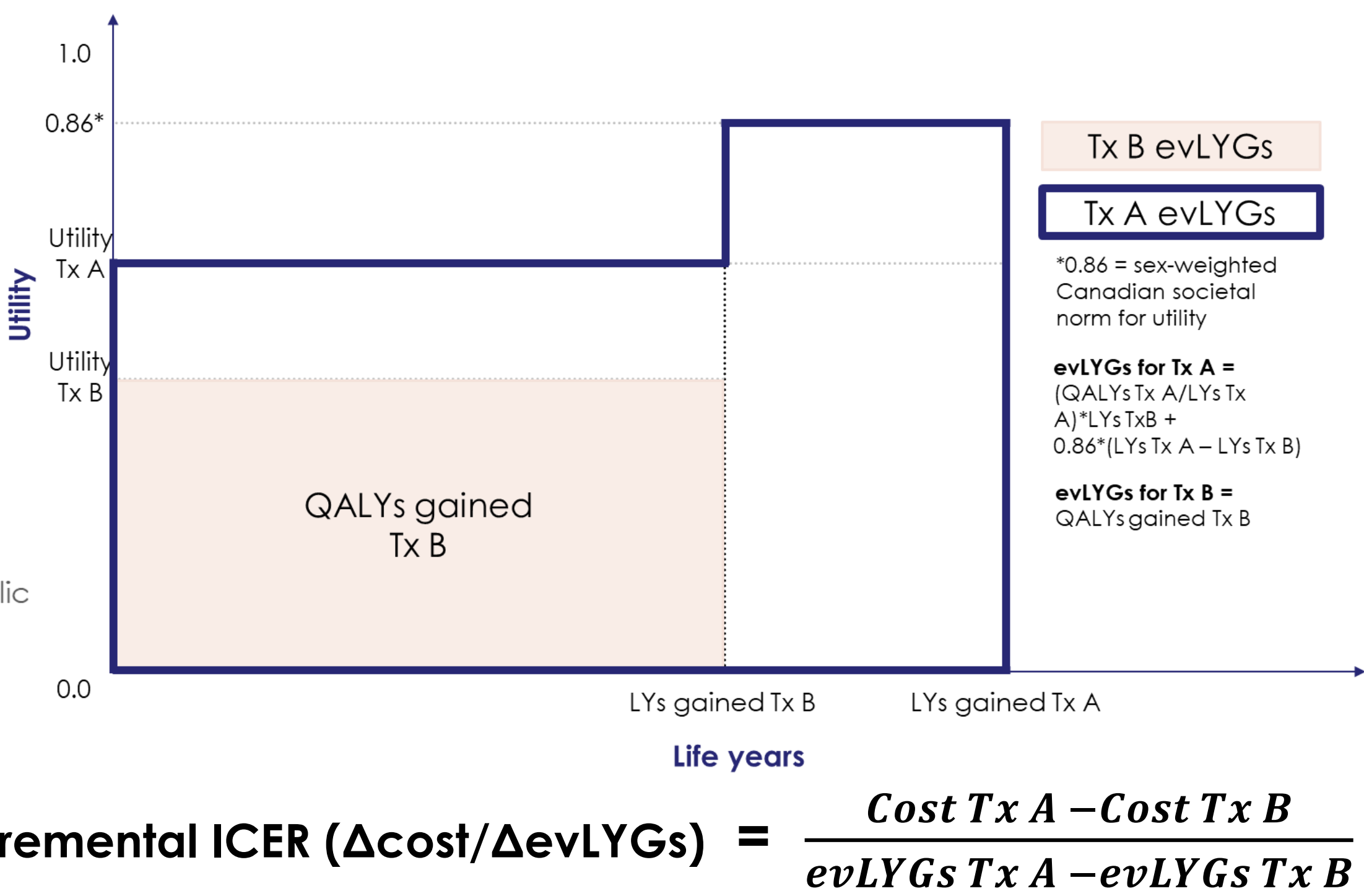


Figure 3. Illustration of evLYG calculation



RESULTS

- 75 CDA reports** including **95 analyses** were reanalyzed. The most common therapeutic area was **oncology**, followed by **hematology** and **rare diseases** (**Figure 3**). The overall trend demonstrated a **reduction** in ICERs (**Figure 4**).
 - CDA analyses with ICERs >100K remained the largest proportion before and after the reanalysis.
 - The number of analyses with ICERs <50K increased from 11 to 14 after the reanalysis.
 - Among these **14 analyses**, **3 of them (all in oncology)** were determined not cost-effective with original ICERs ranging between 50-80K.
 - Six (6.3%) analyses (in respiratory, oncology, and rare disease) had an increased ICER, due to interventions generating utilities greater than the Canadian societal norm (0.86).
- In general, we found that median LYs, QALYs, and evLYGs were approximately 1.5 or lower, except in renal diseases. Most analyses reported median ICERs around or below \$400K. Respiratory disease analyses had the highest ICERs with the smallest incremental clinical benefit, whereas renal diseases showed the greatest clinical benefit with the lowest ICERs (**Figures 5 & 6**).

DISCUSSION & CONCLUSIONS

- This reanalysis demonstrates that evLYG can alter CEA conclusions when comparing against the willingness-to-pay threshold.
- Incorporating evLYG as a complementary metric to QALYs may provide policymakers with a more equitable framework for decision-making.
- Further analyses are needed to confirm trends/patterns in clinical benefits and ICERs across therapeutic areas.

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Figure 4. Numbers of analyses by ICER results

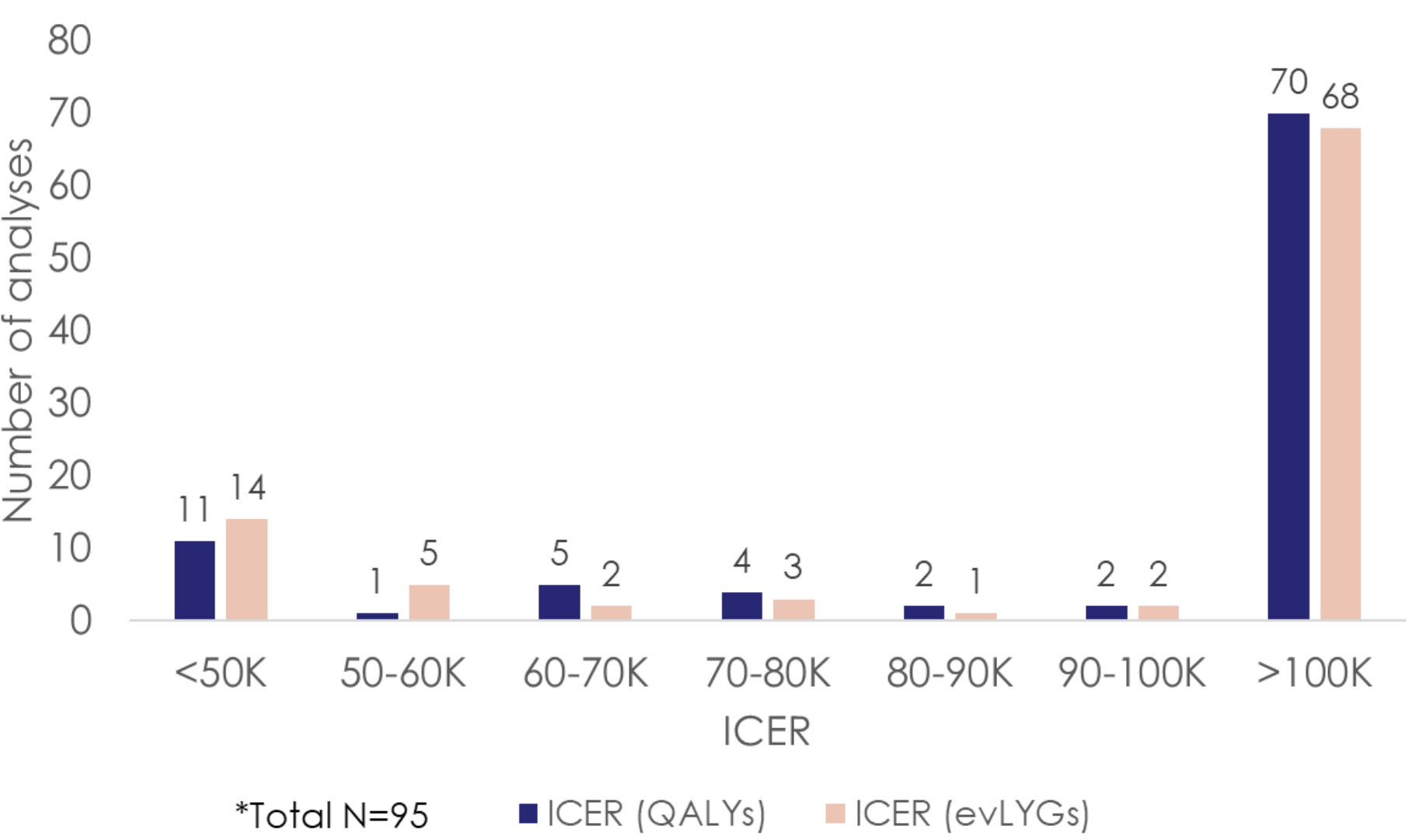


Figure 5. Median incremental LYs/QALYs/evLYGs by therapeutic areas

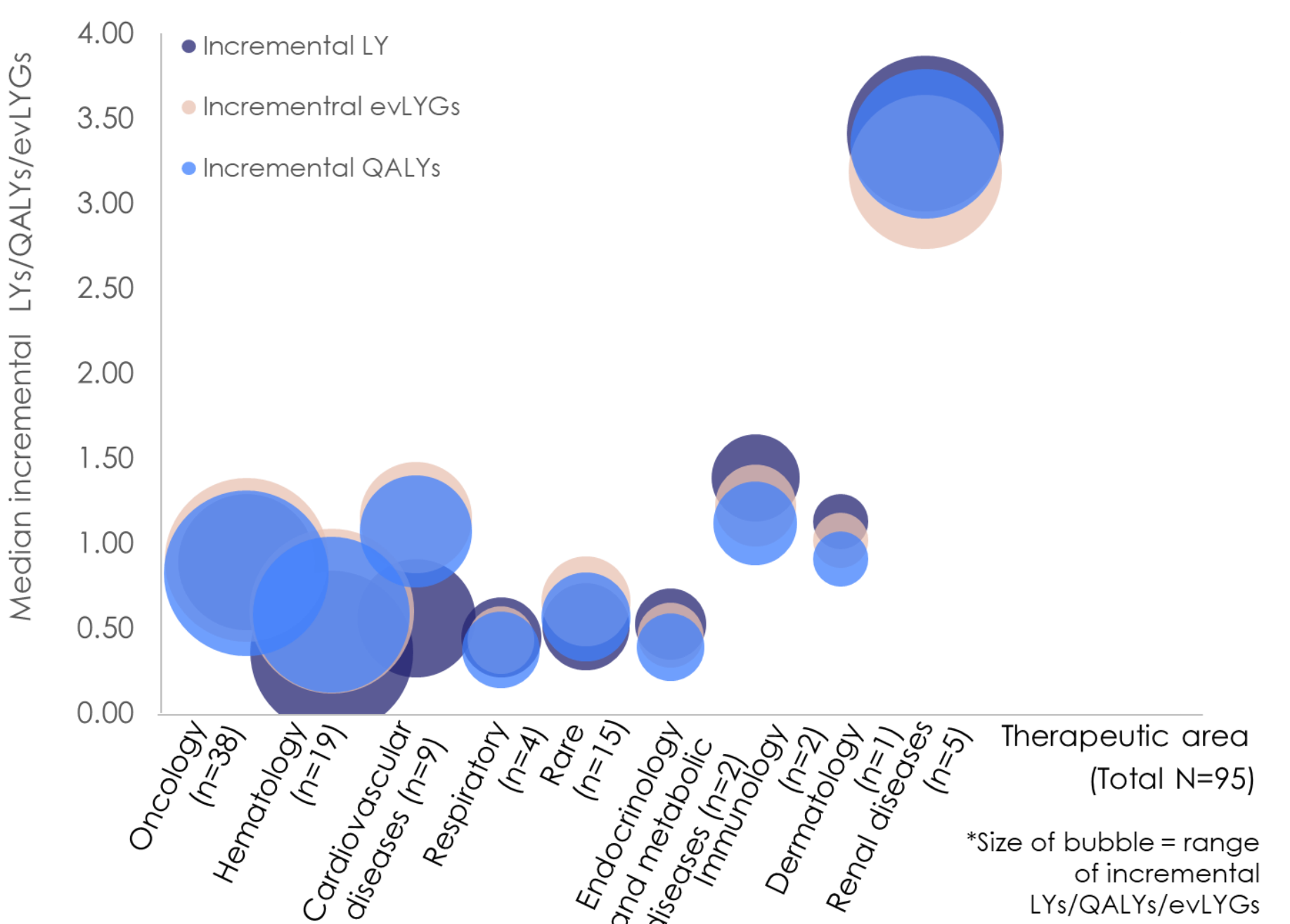


Figure 6. Median incremental ICER by therapeutic areas

