

Is Preference Of Elicitation Technique Based On The Disease Area Being Studied?

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BACKGROUND

- Quality of life estimates associated with the different phases or states of a disease are crucial for all kinds of health economic evaluations
- With utilities and QALYs being such an essential part of all economic evaluations, it is of utmost importance to make sure the values being used reflect the real life to the maximum potential
- The methods currently used to elicit the values associated with these health states are mainly categorized as direct methods and indirect methods
- Methods through which human preferences can be mapped directly onto utility scales are classified as direct methods, such as standard gamble and visual analogue scale (VAS)
- Whereas, ordinal tools such as generic or disease-specific questionnaires like European quality of life (EQ-5D), Childhood Health Assessment Questionnaires are classified as indirect methods
- These methods have all been used extensively to calculate utility values for all disease areas, which leads us to the question that how is one method chosen for a study above the others

OBJECTIVES

- Through this review, we aim to test the hypothesis that the choice of the elicitation technique chosen depends on the disease studied
- The primary objective is to understand if a relationship between the choice of utility elicitation technique and the disease area being studied exists
- The utility methods being used for prevalent cancers and infectious diseases are also highlighted

METHODS

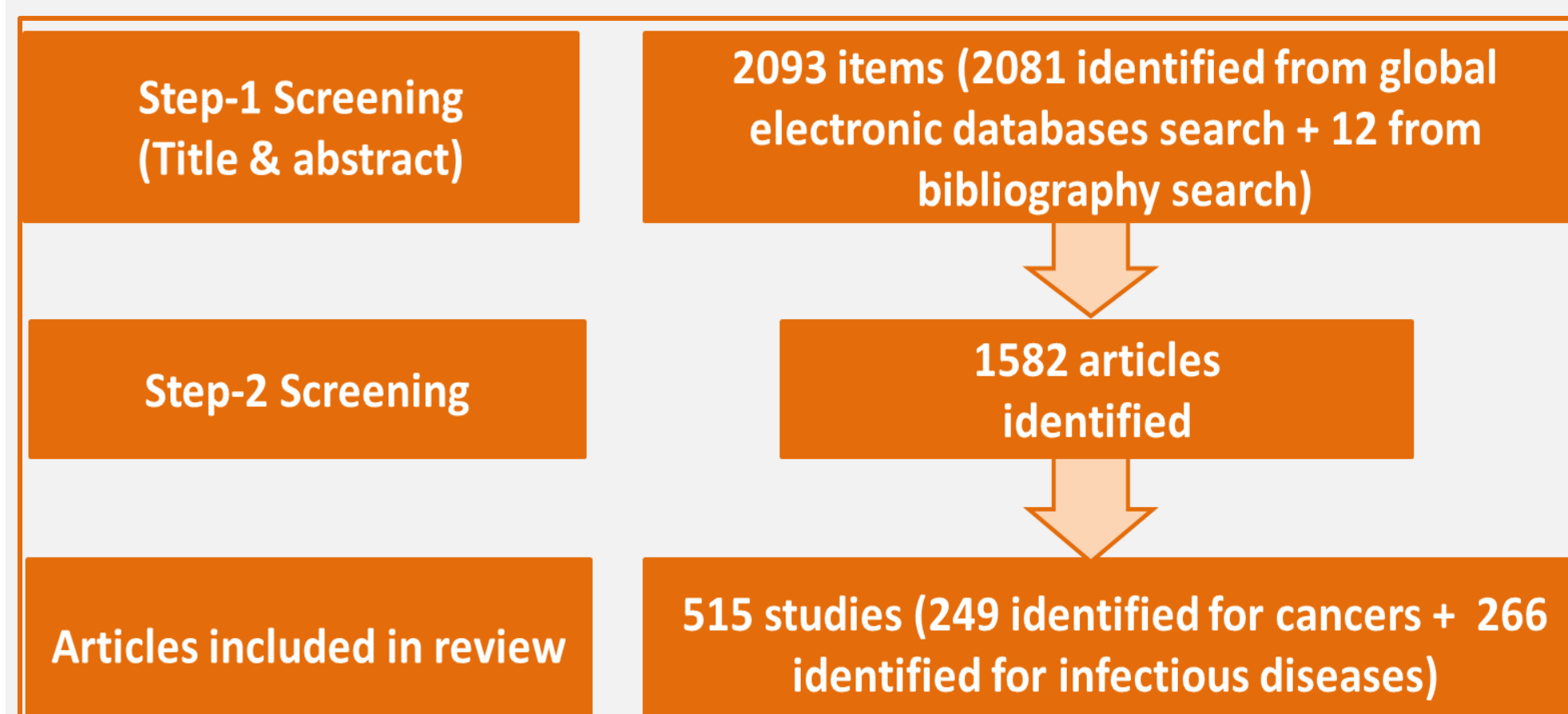
- A targeted literature search of publications from the last 10 years was performed in PubMed, Embase and Cochrane Library databases
- Studies based on diseases under two broad disease categories: oncology and infectious diseases were included. The ten most prevalent cancers and infectious diseases worldwide were looked at for the analysis
- Table 1** provides the details of the eligibility criteria set for the review

Table 1: Eligibility Criteria for the Review

PICOTS Element	Summary of Criteria
Population	- Patients diagnosed with any of the cancers listed (lung, breast, colorectal, prostate, stomach, liver, esophageal, cervical, thyroid, bladder) - Patients diagnosed with any of the infectious diseases listed (acquired immunodeficiency syndrome [AIDS], chronic obstructive pulmonary disease [COPD], tuberculosis [TB], ebola, pneumonia, measles, influenza, malaria, bronchitis, hepatitis)
Intervention	Any intervention
Comparison	Any comparator
Outcomes	Methods used to calculate the quality of life estimates
Time-period	2010 until search September 30, 2019
Study design	- Randomized controlled trials - Observational studies (retrospective, prospective, cross-sectional, case-control, longitudinal)

- Studies based on any of the diseases listed above which provided utility values using any elicitation technique were included
- All techniques used were categorized either as direct or indirect methods:
 - Direct Methods:** standard gamble, time or person trade-offs, and VAS
 - Indirect Methods:** other techniques such as detailed questionnaires or indices, which could either be generic such as EQ-5D, SF-36 or HUI or disease specific such as Saint George's Respiratory Questionnaire for COPD or Chronic Liver Disease Questionnaire for liver diseases were categorized as indirect tools
- The total number of studies identified through this review and the final number included is represented below in the PRISMA flow (**Figure 1**)

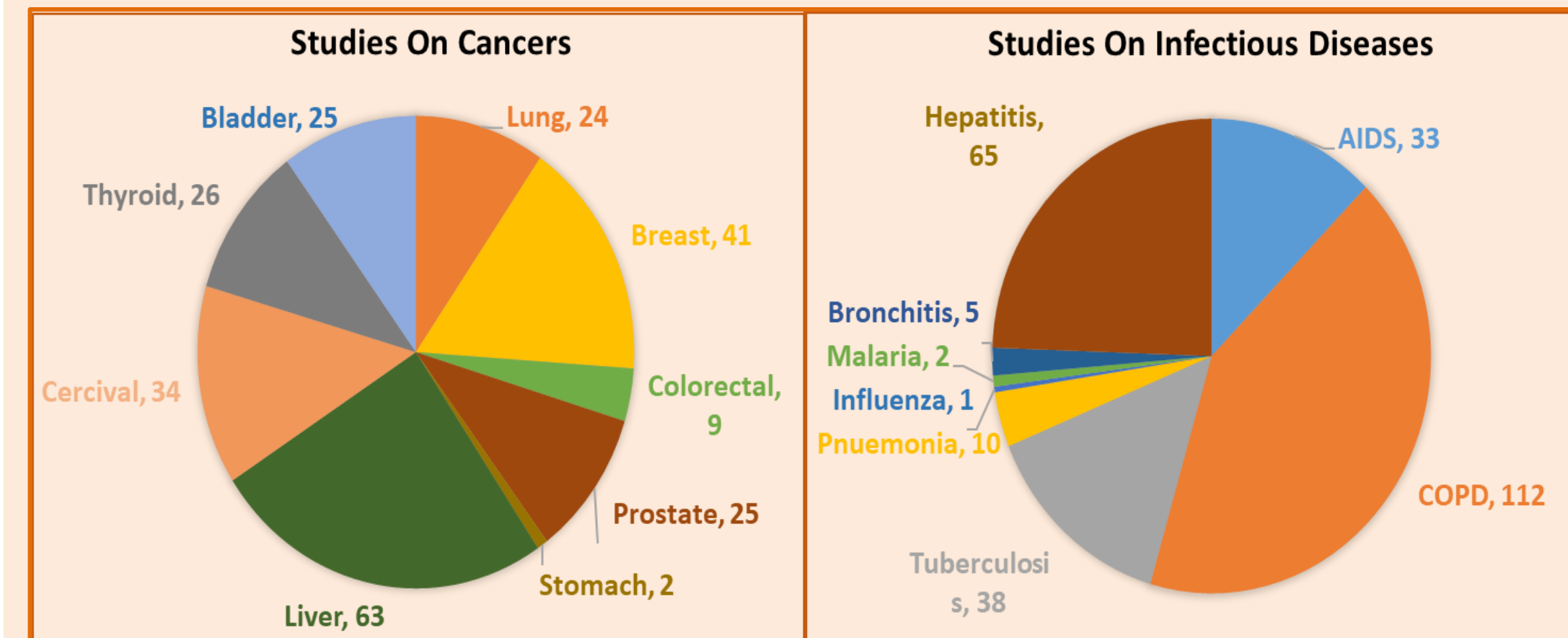
Figure 1: Study Selection for the Review



RESULTS

- After screening 2093 unique citations, a total of 515 full-length peer-reviewed articles were included in this review, 249 of which were based on cancers and 266 were based on infectious diseases
- The number of articles identified for each of the disease area chosen are presented in **Figure 2**
- Among cancers, maximum number of studies were identified for liver cancer followed by breast cancer. While, under infectious diseases, the maximum number of studies were identified for COPD followed by hepatitis

Figure 2: Number of Studies by Disease within Cancer and Infectious Diseases

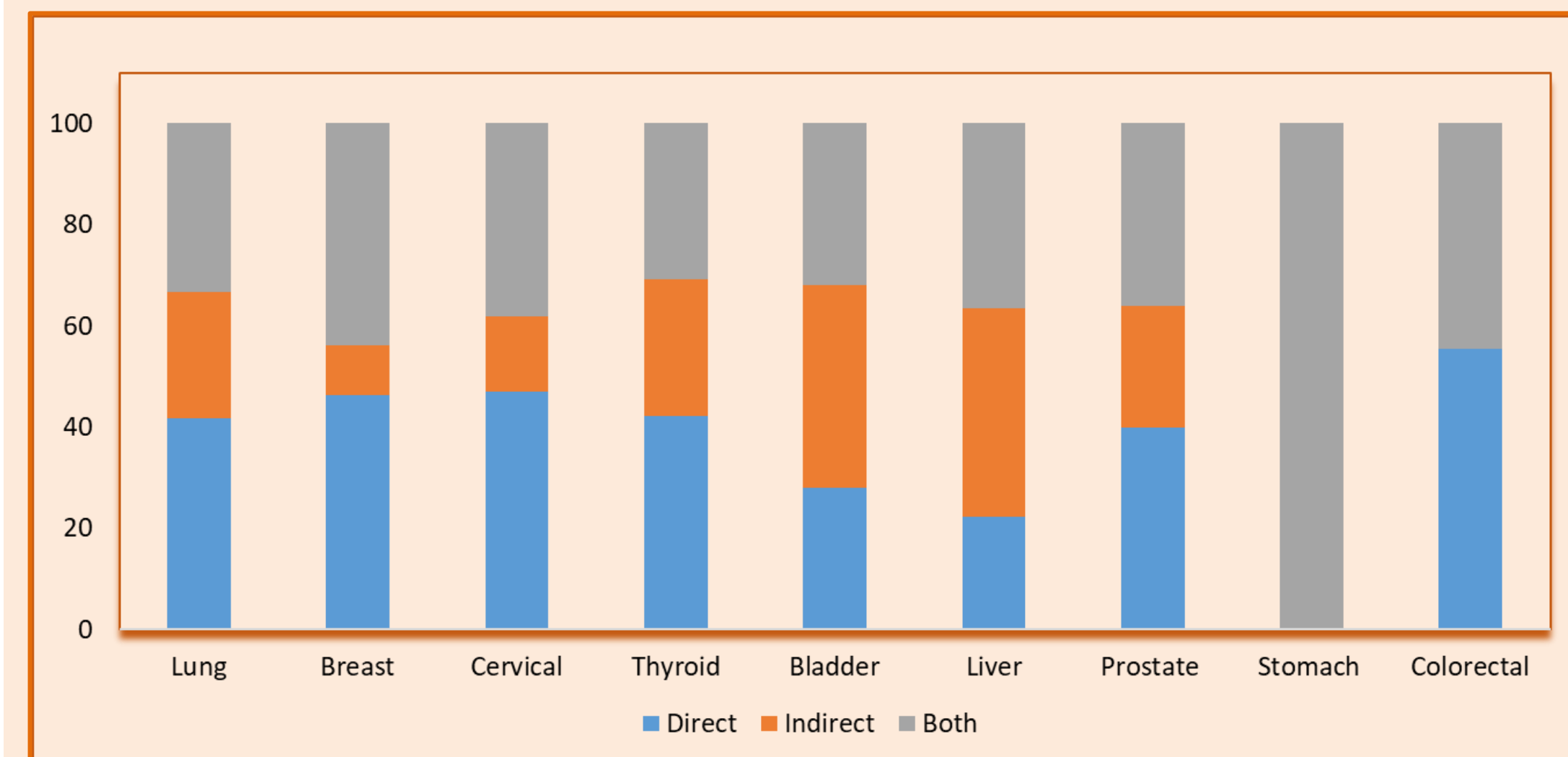


- No studies were found for Esophageal cancer among cancers
- No studies were found for Ebola and Measles among infectious diseases

A) Results for Studies Based on Oncology Indications

- A total of 249 studies were included for oncology indications
- Among these included studies, 37% (n=92) used direct methods to calculate utility values
- A similar proportion of studies (37%; n=93) used a combination of both direct and indirect methods for eliciting utility values
- Indirect methods individually were only used in 26% (n=64) of the studies.
- More than 40% of the studies used direct methods for nearly all cancer types (except for studies based on bladder, stomach and liver cancer)
- For bladder and liver cancer studies, a reverse trend was observed where 40% of the studies for each of these cancers (10 studies of 25 for bladder cancer and 26 studies of 63 for liver cancer) used indirect methods, less than 30% of the studies (28% for bladder cancer and 22% for liver cancer) used direct methods, and more than 30% (32% for bladder cancer and 37% for liver cancer) used a combination of direct and indirect methods
- For stomach cancer, only two studies could be identified, both of which used a combination of direct and indirect methods to evaluate utility values
- The share of the different techniques observed in the cancer studies is presented below in **Figure 3**

Figure 3: Proportion of Cancer Studies and the Methods Used



- No studies met the eligibility criteria for Esophageal cancer

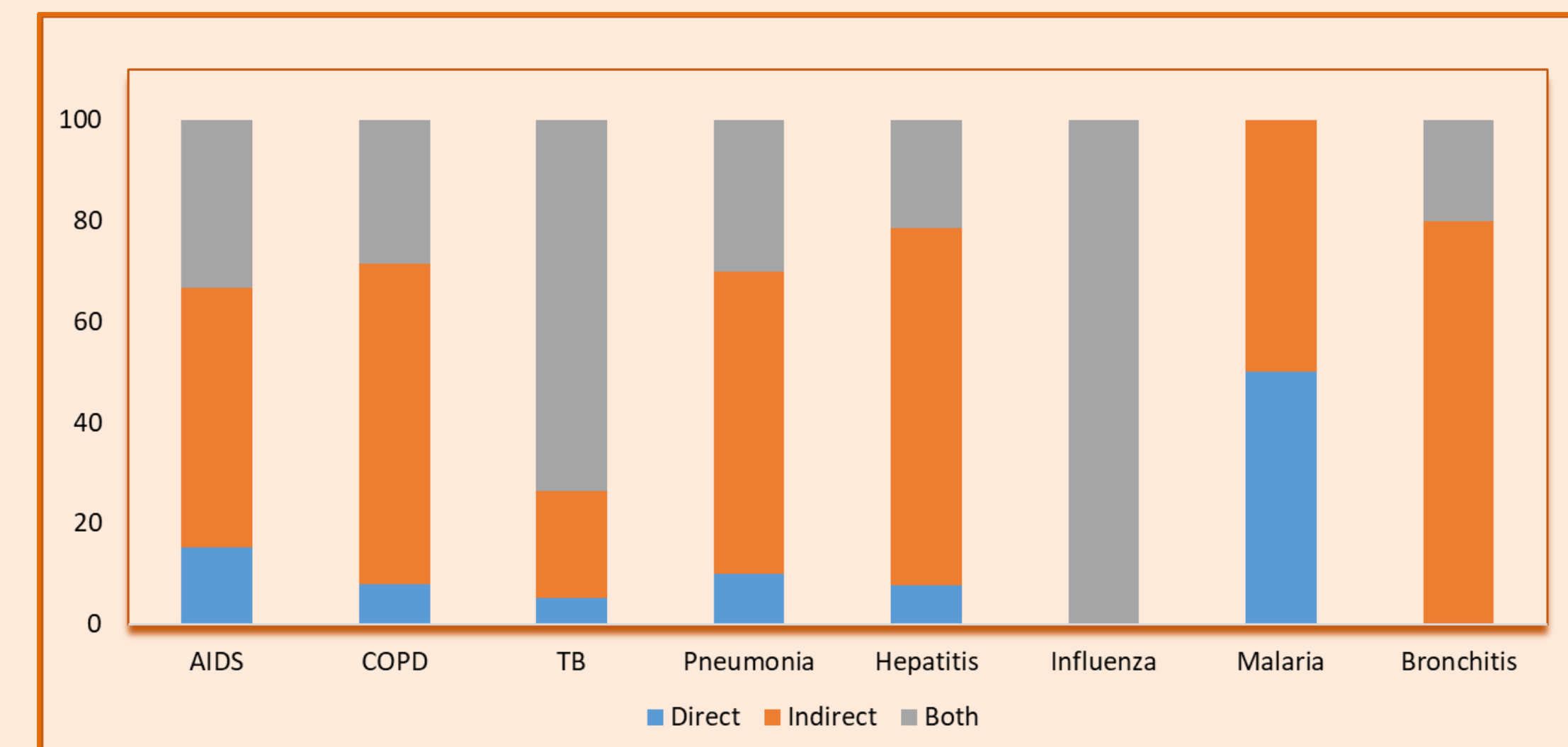
CONCLUSIONS

- Based on the studies reviewed, the preferred method for utility elicitation may differ by disease area
- Direct methods of utility elicitation were more often used for oncology studies, whereas indirect methods such as the various diseases-specific or generic questionnaires were preferred for studies of infectious diseases
- This suggests that some tools may capture the health utilities in some diseases better than the others
 - Diseases with well-defined health states, such as cancer, may be well suited for direct tools, such as standard gamble and time trade-offs, where the comparisons or choices can be made clear
 - For other diseases such as infectious diseases, the health states are not always clearly defined and instead may be driven by a range of individual factors or symptoms. In these situations, indirect methods that use generic or disease-specific questionnaires (based on multiple domains such as mobility, self-dependency or symptoms of the disease) may perform better for utility elicitation
- This potential pattern of choosing health utility elicitation techniques based on the disease area appears to warrant further investigation by expanding the study to include more diseases to better understand the potential reason(s) for difference in the apparent differences in type and frequency of eliciting utilities by disease area

B) Results for Studies Based on Infectious Diseases

- A total of 266 studies were included for infectious diseases
- Of all the studies included, around 58% (n=153) of the studies used indirect methods to calculate utility values
- Ninety studies (34%) used a combination of both direct and indirect methods for eliciting utility values
- Direct methods individually were only used in 9% (n=23) of the studies
- More than 50% of the studies under each infectious disease selected used indirect methods (except studies based on TB and influenza)
- Among studies based on TB, a reverse trend was observed where around 34% of studies (13 of 38) used indirect methods, 5% of the studies (2 of 38) used direct methods, and more than 60% of the studies (23 of 38) used a combination of direct and indirect methods
- For influenza, only one study could be identified and that used a combination of direct and indirect methods to evaluate utility values
- The share of the different techniques observed in the studies based on infectious diseases is presented below in **Figure 4**

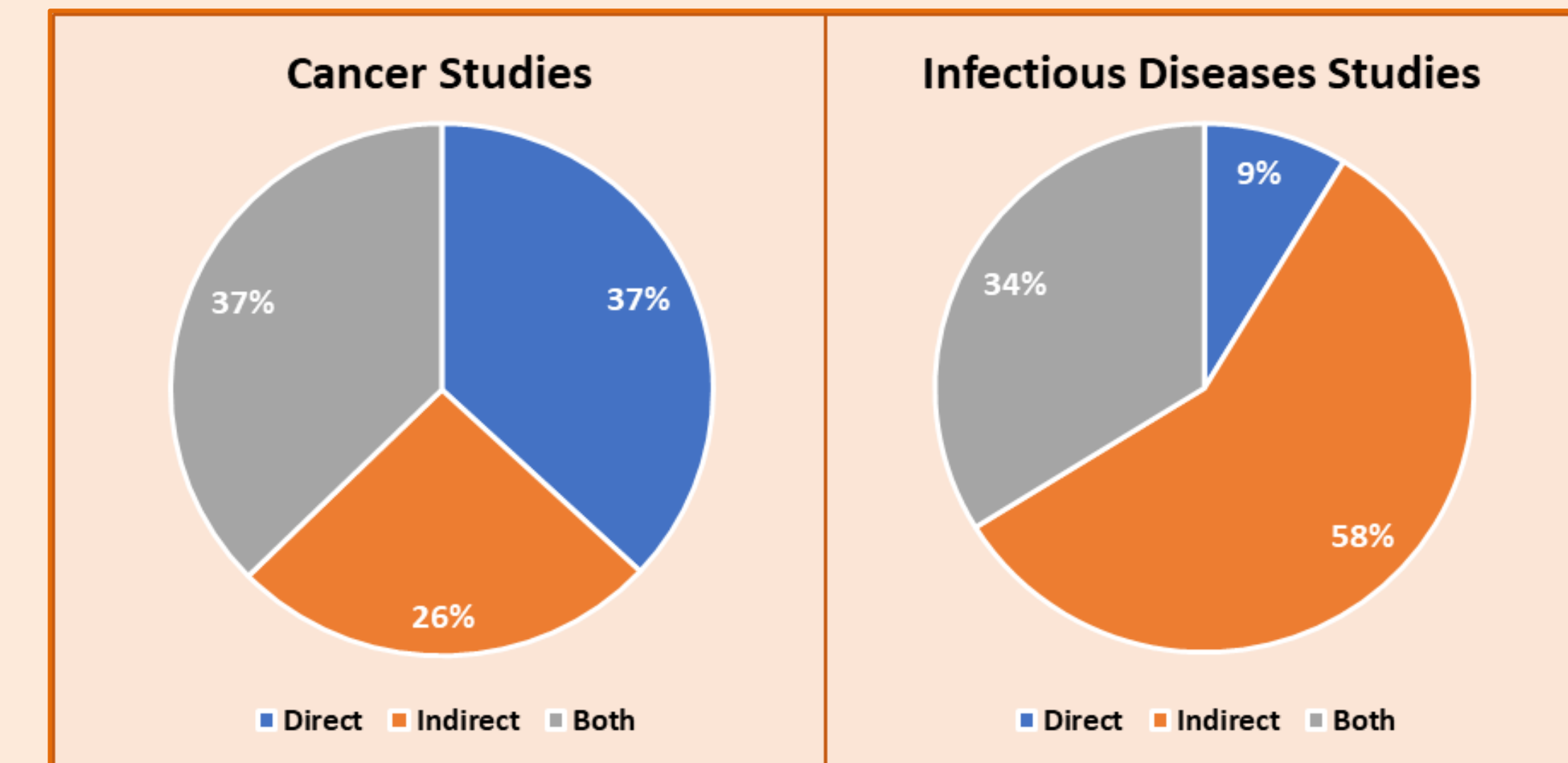
Figure 4: Proportion of Infectious Disease Studies and the Methods Used



- No studies met the eligibility criteria for Ebola and Measles

- The overall distribution of direct and indirect methods was compared across both the disease areas (**Figure 5**)
- It was observed that the use of direct methods to obtain utility values was more prevalent in cancers, as compared to infectious diseases
- While indirect methods were more frequently used in infectious diseases than in oncology indications

Figure 5: Number of Studies by Disease Category & Methods Used



- The most common tools used under each of the disease categories were also observed
- While among indirect methods, EQ-5D and SF-36 were the most frequently used, VAS and TTO were used more often among direct methods

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