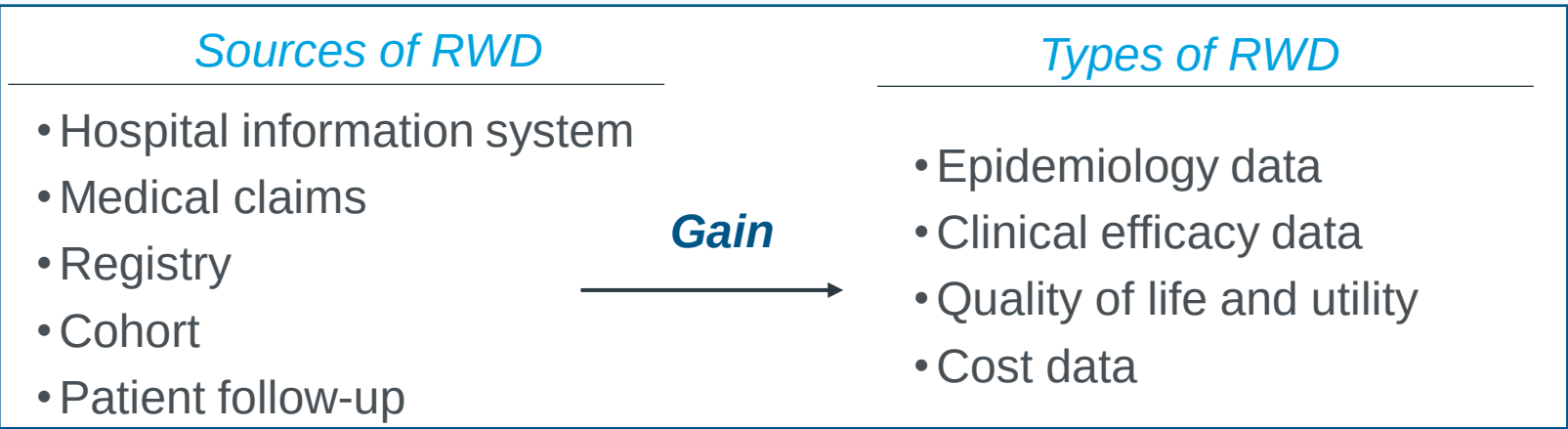


BACKGROUND

There has been increasing application of real-world data in the health economic evaluations in recent decades, but there lacking studies to synthesize current evidence on the application of real-world data in China

Real-world data (RWD) is data derived from several sources that are associated with outcomes in a heterogeneous patient population in real-world settings, including but not limited to electronic health records, health insurance claims and patient surveys (figure 1).

Figure 1. Sources and types of RWD in literatures



Due to the RWD can provide more realistic description of costs and benefit of health interventions, RWD has become increasingly important in field of healthcare, especially in the application of health economics and outcomes research in recent years. RWD could provide stakeholders more information to make decisions on health choices about the value, allocation, and use of healthcare resources.

However, there lacking studies to synthesize current evidence on the application of RWD in health economic evaluation in China. It is unknown that the status of the RWD application in economic evaluation and the quality of the RWD data sources.

OBJECTIVES

This study aims:

- To evaluate the landscape of RWD
- To identify the data sources
- To assess the quality of the economic studies involved with RWD in China

METHODS

- SEARCH STRATEGY.** We conducted a systematic review on local economic modeling that used RWD and published from January 2019 to December 2021 in English and Chinese databases, such as PubMed and CNKI.
- DATA EXTRACTION.** Detailed information including study design (model type, intervention, therapeutic area), type of RWD sources of different model input, and other findings were extracted to conduct descriptive analyses.
- QUALITY OF STUDY.** Consolidated Health Economic Evaluation Reporting Standards (CHEERS) 2022 checklist, an assessment including 28 items and each item need to given a value between 0 and 1 , was applied to assess the quality of the included studies.

RESULTS

- IDENTIFIED ARTICLES FOR ANALYSIS.** A total of 2504 studies on economic modeling were initially identified, 61 mentioned the use of RWD, comprised of 1.7%-3.0% of all studies annually (figure 2).
- STUDY CHARACTERISTICS.** RWD was majorly used to support studies in oncology (41.0%) and cardiovascular diseases (16.4%) (figure 3A). Cost-utility analysis accounted for 90% of the studies, with quality-adjusted life year measured as clinical outcomes. More studies (40%) were carried out from payer's perspective (figure 3B).
- DATA SOURCE ANALYSIS.** Diverse data sources were identified by different data types inputs in economic evaluation studies. For example, we identified clinical (27.9%) and utility (37.7%) data inputs used regarded as RWD in our study. Data sources of cost data inputs including hospital information system (n=32), survey (n=14), and open websites and public data (n=9) (Table 1). The application of RWD was most frequent to support the effectiveness and cost inputs.
- QUALITY OF EVIDENCE.** Only 15% of the studies (n=9) met at least 80% of CHEERS criteria.

Figure 2. Flow chart

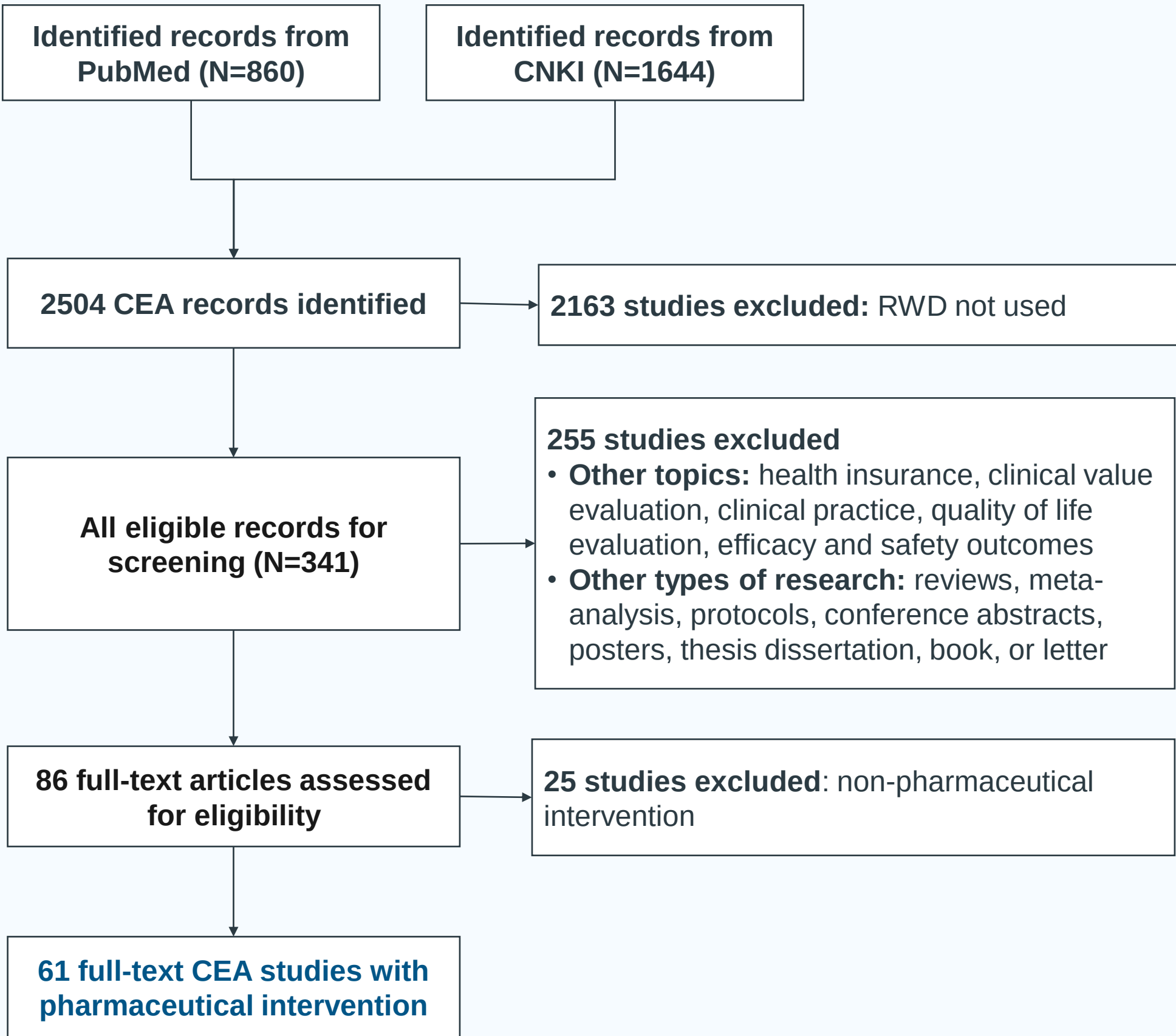


Figure 3. Characteristics of health economic evaluation studies using RWD

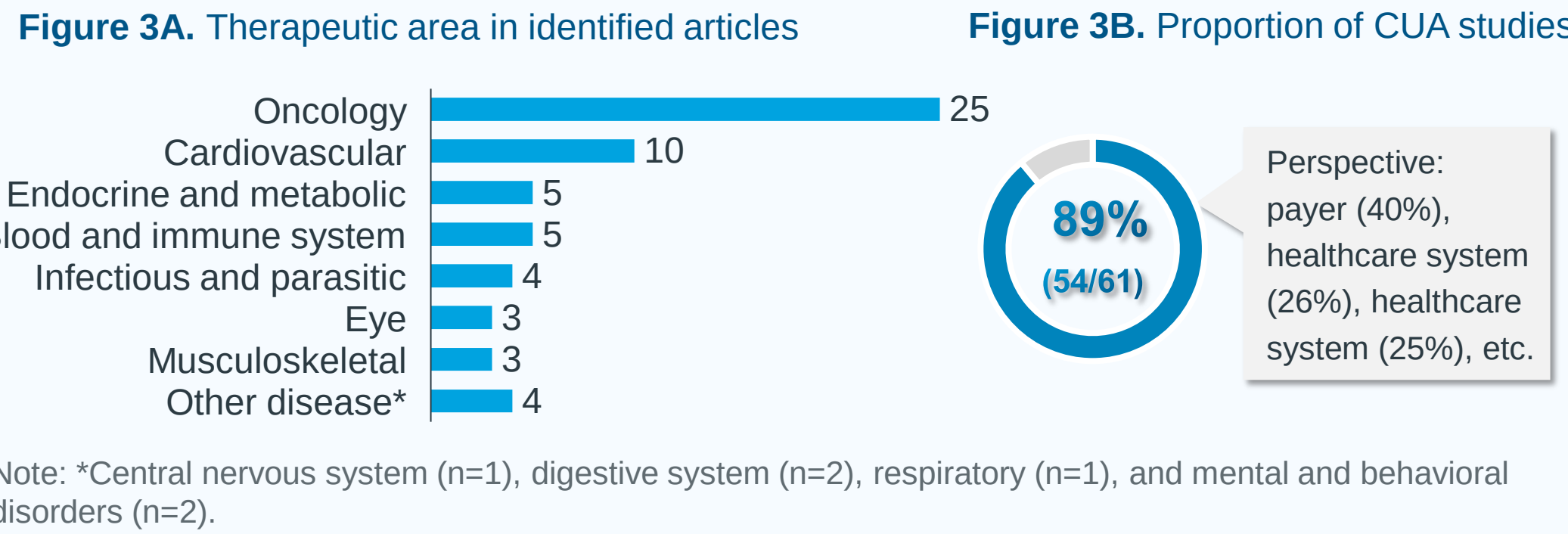


Table 1. Real-world data sources of different model input

	Data source	RWD source information
Clinical data	- Real-world study (28%, 17/61) - RCT (55%, 34/61) - Meta-analysis (17%, 10/61)	The types of real-world study include retrospective (n=10) and prospective studies (n=7).
Utility data	- Real-world study (38%, 23/61) - Other CEA reference (39%, 24/61) - Meta-analysis (13%, 8/61) - No-utility based (10%, 6/61)	The utility-measurement scales include EQ-5D, FACT-L, NDI, VAS, SF-36, etc.
Cost data	Health information systems (n=32), survey (n=14), and open websites and public data (n=9), etc.	

CONCLUSION

- Although the adoption of real-world data was observed in more economic studies, the supportive areas are limited to the cost inputs and the quality of data sources are varied.
- Further researches are encouraged to develop the framework of the generation of real-world data and used in the economic modeling.

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