Poster Code: B-272

Transparency of Charlson Comorbidity Index (CCI) Code Definitions in Real-World Research: A Systematic Review

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So What?

- *Only 1 in 42 studies published their CCI code list — yet CCI has multiple adaptations with known code variability.*
- *Assume nothing, when interpreting RWE studies.*
- *Always publish complete operational definitions and code lists for every study element, including CCI.*

BACKGROUND

Context

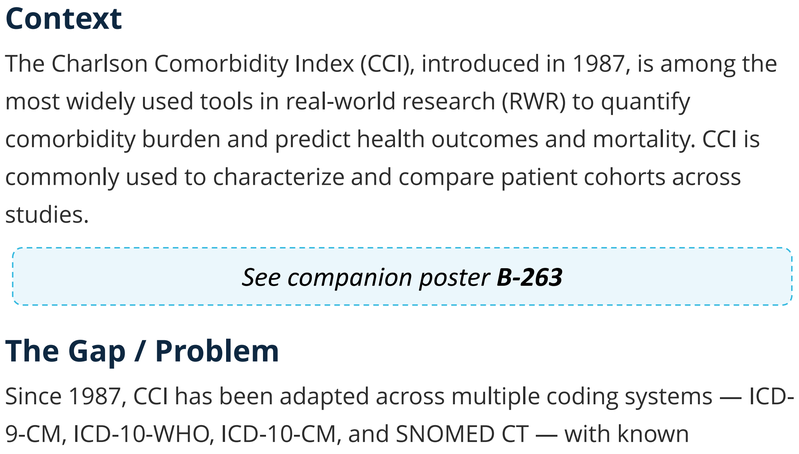
The Charlson Comorbidity Index (CCI), introduced in 1987, is among the most widely used tools in real-world research (RWR) to quantify comorbidity burden and predict health outcomes and mortality. CCI is commonly used to characterize and compare patient cohorts across studies.

*See companion poster **B-263***

The Gap / Problem

Since 1987, CCI has been adapted across multiple coding systems — ICD-9-CM, ICD-10-WHO, ICD-10-CM, and SNOMED CT — with known variability across adaptations. Despite this variability, most RWR studies do not disclose which CCI adaptation or specific code list was used, creating a critical transparency gap.

Figure 1: CCI Adaptations Across Coding Systems



Known variability exists across adaptations – from strict to broad definitions

OBJECTIVES

Primary Objective

To assess the transparency of CCI operational definitions and code lists in published RWR, specifically examining whether specific CCI code lists were explicitly indicated.

Secondary Objectives

- Identify which CCI adaptations and citations were referenced
- Characterize patterns in code list publication vs. omission

LIMITATIONS

- Focused on T2DM/obesity indications; patterns may vary in other therapeutic areas
- Limited to US-based studies (2020–2025)
- Assessment based on published materials only; supplementary files not uniformly available
- CCI citation patterns in broader RWR literature may differ

DISCLOSURES & ACKNOWLEDGMENTS

A Kamauu, J Kamauu, M Buck & C Parker: Employees of Navidence Inc. A Kamauu, C Parker: Co-Founders of Navidence Inc. G Galustjan & K Kallmes: Employees of Nested Knowledge. K Kallmes: Co-Founder of Nested Knowledge.
No conflicts of interest to disclose.

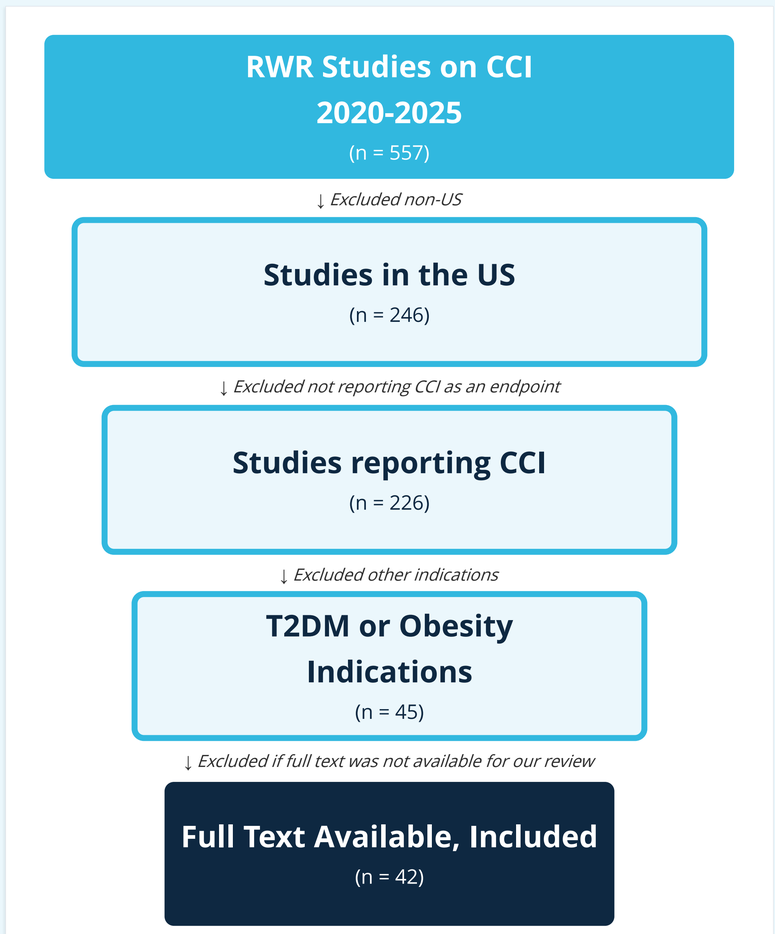
METHODS

Study Design

Systematic literature review of US-based RWR studies using CCI (published 2020–2025) investigating type 2 diabetes mellitus (T2DM) or obesity indications. Each publication was evaluated for CCI code list publication, version/adaptation cited, and contextual CCI use.

Figure 2: Literature Review Study Selection

RWR studies using CCI | US-based | 2020–2025 | T2DM or Obesity

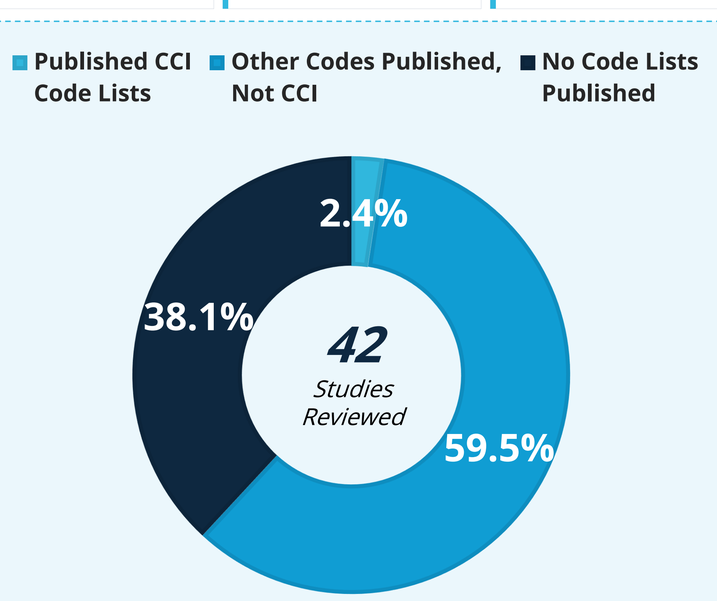


RESULTS

Figure 3: CCI Code List Transparency

Across 42 published studies

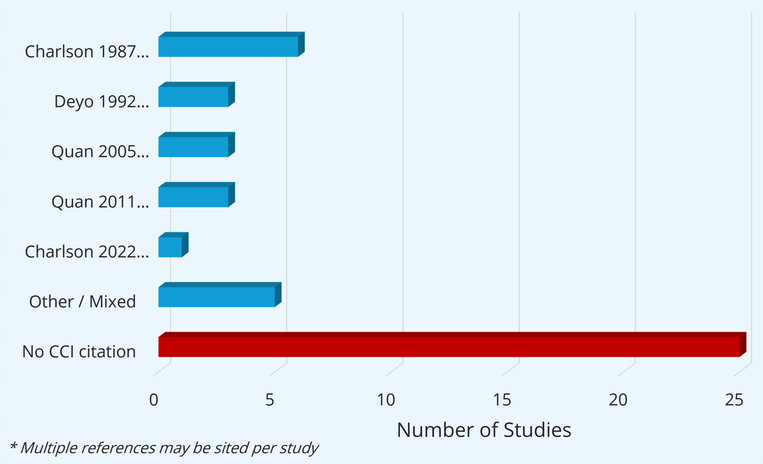
1	25	16
Published CCI Code Lists	Other Codes, Not CCI	No Code Lists Published



RESULTS (CONT.)

Figure 4: CCI Reference Citations Used

Across 42 published studies

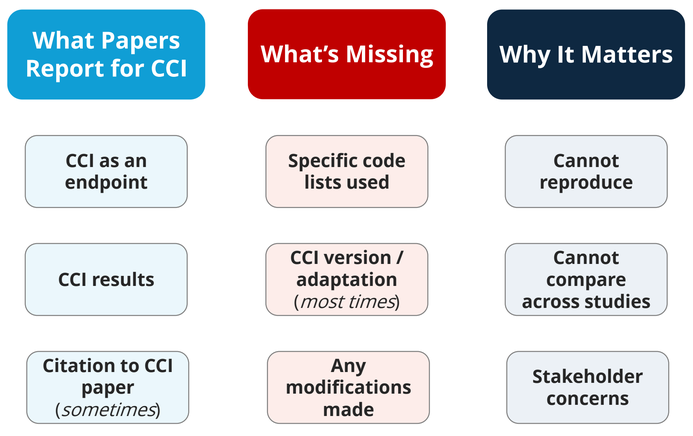


** Multiple references may be sited per study*

CONCLUSIONS

Key Findings

- 1/42 studies (2.4%) publish specific CCI code lists
- 25/42 (59.5%) published code lists for other elements but NOT CCI — treating CCI as an *assumed* universal standard
- 16/42 (38.1%) published no code lists at all
- CCI citations varied widely — no consensus on adaptation



Clinical Research Implications

We ***strongly*** recommend researchers publish complete operational definitions and code lists for all study elements, including standardized measures like CCI, to ensure reproducibility and proper contextualization of findings.

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