CJRR

for Health

Production of this document is made possible by financial contributions from Health Canada and provincial and territorial governments. The views expressed herein do not necessarily represent the views of Health Canada or any provincial or territorial government.

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How to cite this document:
Canadian Institute for Health Information. *Data Quality Documentation for Users: Canadian Joint Replacement Registry, 2019–2020 Data*. Ottawa, ON: CIHI; 2021.

Cette publication est aussi disponible en français sous le titre *Documentation sur la qualité des données à l'intention des utilisateurs : Registre canadien des remplacements articulaires, données de 2019-2020*.

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Purpose of this document

This document provides high-level data quality information about the Canadian Joint Replacement Registry (CJRR) 2019–2020 data set. This information will help users determine whether the data is fit for the intended use. Specifically, this document contains information on CJRR's coverage, collection processes, data quality control, methodology changes and revision history.

Canadian Joint Replacement Registry

Overview

CJRR collects administrative, clinical and prosthesis information on hip and knee replacements performed across Canada.

This medical device registry was formed as a collaborative effort between the Canadian Institute for Health Information (CIHI) and the Canadian Orthopaedic Association. The goals of the registry are to

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Users

Primary users of CJRR data include orthopedic surgeons, health policy-makers and health care administrators. Other users include allied health care clinicians, researchers and the general public.

Core data elements and concepts

Effective April 1, 2012, CJRR streamlined its list of data elements by implementing a minimum data set (MDS) that is aligned with the standards established by the International Society of Arthroplasty Registries (ISAR). CJRR collects the following information on hip and knee replacements:

- Patient demographics;
- Surgeon and facility information; and
- Surgery details, such as type of replacement (primary or revision procedure), type of primary procedure, joint side, diagnosis grouping or reason for revision, and prosthesis and cement identifers (manufacturers/names and product/lot numbers).

Comprehensiveness

CJRR population and frame

The population of interest for CJRR is all hip and knee replacements performed in Canada, data for which has been collected in the Discharge Abstract Database–Hospital Morbidity Database (DAD-HMDB) and National Ambulatory Care Reporting System (NACRS). Data for the DAD-HMDB and NACRS is based on hospitalization or registration.

CJRR data for 2019–2020 includes DAD data with Group 20 for patients discharged between April 1, 2019, and March 31, 2020, and CJRR legacy data for procedures performed between April 1, 2019, and March 31, 2020. Users can select their population of interest using Discharge Date or Surgery Date, respectively.

Coverage

CJRR coverage can be assessed by comparing what is collected in the DAD-HMDB and NACRS with what is collected in CJRR via the CJRR database and the DAD Group 20. Compared with the reference population of interest, CJRR captured 73.4% of all hip and

There is under-reporting of day surgery prosthesis data, with only 138 procedures identifed

Issues of bias and reliability

Under-coverage, where it exists in voluntary CJRR reporting provinces and territories, is a major potential source of bias in CJRR. Given the nature of voluntary response, the facilities and populations with low coverage can be under-represented in the analyses conducted involving this data. Thus, it is recommended that users include only data from mandated provinces in their analyses that involve estimates and adjustments with population covariates.

With the expansion of mandated participation and increased CJRR coverage over time, it is expected that biases due to under-coverage will be reduced. In terms of other sources of bias, there may also be some degree of inconsistency due to coding variation, such as varying clinical interpretations and definitions (e.g., data elements such as Diagnosis Grouping or Reason for Revision).

Comparability

Availability of health care numbers for linkage

CJRR data can be linked to other CIHI databases such as the DAD-HMDB or NACRS to pull together more comprehensive information about an individual's joint replacement surgeries. For this linkage, individuals are identified by their health care number (HCN) and the jurisdiction that issued the HCN.

In 2019–2020, almost all CJRR records (>99%) could be linked to the DAD-HMDB or NACRS. Records without valid HCNs or issuing jurisdictions and records with jurisdiction/HCN combinations that are believed to be used by more than one person are excluded.

Availability of product numbers for linkage

CJRR product numbers can be linked to product libraries to obtain characteristics about the

Data quality control processes

All submitted hip and knee prosthesis data is subject to systematic checks for validity, logic, allowable ranges and consistency. The following specifc quality control measures are built into CIHI's applications and tools:

- **Submission to CJRR database:** Validation checks are applied to the data, as outlined in *CJRR Electronic Data Submission Requirements*. Errors in electronic submission fall into 2 categories: severe and non-severe (warning) errors. Both types of errors are fagged in error reports that are sent to the data suppliers. Records with severe errors are rejected and not saved.
- **Submission to the DAD:** Edits are applied to the submitted data, as outlined in . For hard errors, a default value of Z is substituted into the data feld. An error message in a feld can occur when the