clsa élcv
Canadian Longitudinal Study on Aging
Étude longitudinale canadienne sur le vieillissement

Data Support Document
Medication (MEDI)
(Baseline Comprehensive Cohort)

1.0 PURPOSE AND SCOPE

The purpose of this Data Support Document is to provide a brief, high-level overview of information in the Medication (MEDI) module within the CLSA dataset. Medication data were entered using their Drug Identification Number (DIN) when available and as text otherwise. This document also describes the method used to clean and re-code text data. It is intended to enable data users to better understand and use the data resulting from the MEDI module.

2.0 BACKGROUND

Large databases of compiled health information are an important resource to study the use and outcomes of health-related services including the use of medications [1-5]. Information on the prevalence, incidence and duration of drug therapy is important in health research, health system planning and assessment of appropriate prescribing for treatment patterns and burden [4, 6-8].

2.1 What was the goal of the module?

Data are collected from participants to understand the factors that have an impact on maintaining health and in the development of disease and disability as people age.

2.2 How was the module developed?

The MEDI module was developed by the CLSA Medication Working Group to collect information on prescription and non-prescription medications used regularly by participants.

3.0 IMPLEMENTATION

3.1 How was it administered?

The MEDI module was administered as part of the In-Home Questionnaire for the Comprehensive cohort. Participants were asked to show the interviewer all regularly scheduled or taken medications including prescription, non-prescription over-the-counter, herbals, vitamins, or natural health products. Information was collected for up to 40 medications.

3.2 What type of data was collected?

For each medication, interviewers entered the DIN or drug name, dose, frequency, duration, start date of medication, and the reason for use. In December 2014, a question was added asking participants whether the medication was prescribed by a physician or was non-prescription. If the DIN or drug name entered by the interviewer matched one in the Health Canada Data Product Database (DPD) the DIN was recorded by the software, otherwise the interviewer recorded the drug name or DIN in a text field. The Health Canada Licensed Natural Health Products Database (LNHPD), which includes Natural Product Numbers (NPNs) and

Homeopathic Medicine Numbers (DIN-HMs), was not linked to the interviewer data entry software.

3.3 How was the data prepared for users?

After initial processing at the Data Curation Centre, the remaining DINs, NPN/DIN-HMs or drug names that were entered as a text field went through a re-coding process.

Computer algorithms were used to correct common spelling mistakes and identify DINs or NPN/DIN-HMs if an exact match was found in the Health Canada DPD or the LNHPD. If an exact match was not found, then trained re-coders (pharmacy technicians) used standardized decision rules to identify a DIN or NPN/DIN-HM. If text could not be re-coded using the algorithms or decision rules then the "Drug Identification Number or Natural Product Number" (MEDI_ID_DIN_SP2_i_COM) and "Drug or Natural Product Name" (MEDI_ID_NAME_SP_OUT_i_COM) fields were left blank. The original text for all drugs undergoing the re-coding process is provided as MEDI_ID_NAME_SP2_i_COM. Derived variables were created for each medication indicating whether it was generated at the interview (I), by computer algorithm (either by DIN code (AC) or by drug name (AD)), or by re-coder (C). If the medication was generated by the re-coder then the decision rule used was also indicated.

The main medication variables for each drug is provided in Table 1 where "i" represents the drug number (1-40). These variables are provided to researchers requesting the medication data. Additional algorithm and coding variables are provided by special request only.

Table 1. Main Variables for MEDI module

Name	Label
MEDI_NO_COM	Number of medications taken by participant
MEDI_FRM_i_COM	DIN coding source – Medication i (I, AC, AD, or C)
MEDI_ID_DIN_SP2_i_COM	Drug Identification Number or Natural Product Number – Medication i
MEDI_ID_NAME_SP2_i_COM	Drug or Natural Product Name (Original input) – Medication i
MEDI_ID_NAME_SP_OUT_i_COM	Drug or Natural Product Name (from I, AC, AD, or C) – Medication i
MEDI_DB_Type_i_COM	Database the identification number was found in (NPD or LNHPD) – Medication i
MEDI_DecisionRule_i_COM	Decision rule used in coding – Medication i
MEDI_PRES_i_COM	Prescribed – Medication i
MEDI_DOSE_NB_i_COM	Dosage quantity – Medication i
MEDI_DOSE_UNIT_i_COM	Dosage unit – Medication i
MEDI_DOSE_FRQ_i_COM	Dosage frequency – Medication i
MEDI_USE2_i_COM	Duration of use – Medication i
MEDI_START_SP_i_COM	Use start date – Medication i
MEDI_REASON_SP_i_COM	Reason for use – Medication i

4.0 QUALITY

A validation study was conducted on a sample of medications to determine the extent of agreement between the computer algorithms and manual re-coding by research pharmacists (gold standard) using decision rules for cleaning the medication data in the CLSA database. As well, each trained re-coder went through extensive training to standardize the re-coding process and was required to code a test set of medications that had been previously coded by the research pharmacists (gold standard). Re-coders were required to achieve sufficient agreement with the gold standard before re-coding actual data independently. Agreement with the gold standard was assessed periodically during the re-coding process.

5.0 USE BY RESEARCHERS

5.1 What are the conditions of use?

There are no conditions of use beyond those already implied using the CLSA dataset and outlined in the CLSA Publication and Promotion Policy.

6.0 REFERENCES

[1] Cadarette SM, Wong L. An introduction to health care administrative data. *Can J Hosp Pharm*. 2015;68(3):232-237. doi:10.4212/cjhp.v68i3.1457

[2] Metge C, Grymonpre R, Dahl M, Yogendran M. Pharmaceutical use among older adults: using administrative data to examine medication-related issues. *Can J Aging*. 2005;24 Suppl 1:81-95. doi:10.1353/cja.2005.0052

[3] Murdoch TB, Detsky AS. The inevitable application of big data to health care. J*AMA*. 2013;309(13):1351-1352. doi:10.1001/jama.2013.393

[4] Schneeweiss S, Avorn J. A review of uses of health care utilization databases for epidemiologic research on therapeutics. *J Clin Epidemiol*. 2005 Apr;58(4):323-37. doi: 10.1016/j.jclinepi.2004.10.012

[5] Zhan C, Miller MR. Administrative data based patient safety research: a critical review. *Qual Saf Health Care.* 2003;12 Suppl 2(Suppl 2):ii58-ii63. doi:10.1136/qhc.12.suppl_2.ii58

[6] Galvin R, Moriarty F, Cousins G, et al. Prevalence of potentially inappropriate prescribing and prescribing omissions in older Irish adults: findings from The Irish LongituDinal Study on Ageing study (TILDA). *Eur J Clin Pharmacol.* 2014;70(5):599-606. doi:10.1007/s00228-014-1651-8

[7] Moriarty F, Bennett K, Fahey T, Kenny RA, Cahir C. Longitudinal prevalence of potentially inappropriate medicines and potential prescribing omissions in a cohort of community-dwelling older people. *Eur J Clin Pharmacol.* 2015;71(4):473-482. doi:10.1007/s00228-015-1815-1

[8] Moriarty F, Hardy C, Bennett K, Smith SM, Fahey T. Trends and interaction of polypharmacy and potentially inappropriate prescribing in primary care over 15 years in Ireland: a repeated cross-sectional study. *BMJ Open.* 2015;5(9):e008656. doi:10.1136/bmjopen-2015-008656