

Prescribing Patterns for Treatment of *Mycobacterium avium* Complex and *M. xenopi* Pulmonary Disease in Ontario, Canada, 2001–2013

Appendix

Definitions used for each underlying condition

- Asthma: ≥ 2 physician billing claims and/or ≥ 1 hospital discharges with a diagnosis of asthma within 2 years, in accordance with the following codes: 493 (OHIP and International Classification of Diseases, Ninth Revision [ICD-9] codes) or J45 (ICD-10-CA codes) from April 1, 1991, to the index date (*I*)

- Bronchiectasis: ≥ 1 physician billing claim and/or ≥ 1 hospital discharges with a diagnosis of bronchiectasis in accordance with the following codes: 494 (OHIP and ICD-9 codes) or J47, Q33.4, Q89.3 (ICD-10-CA codes) from April 1, 1991, to the index date

- Chronic kidney disease:

- Patients with a diagnosis of CKD (2) within 5 years before index date, using the following diagnostic codes: 403, 585 (OHIP); 4030, 4031, 4039, 4040, 4041, 4059, 585, 586, 5888, 5889, 2504 (ICD-9); E102, E112, E132, E142, I12, I13, N08, N18, N19 (ICD-10)

OR

- Patients who were on chronic dialysis (3) from April 1, 1991 to index date, identified as those with at least 2 of any of the following codes in OHIP, CIHI-DAD, or CIHI-SDS separated by at least 90 days, but less than 150 days

OHIP service codes: R849, G323, G325, G326, G860, G862, G865, G863, G866, G330, G331, G332, G333, G861, G082, G083, G085, G090, G091, G092, G093, G094, G095, G096, G294, G295, G864, H540, H740

CIHI-DAD, CIHI-SDS: CCI procedure codes: 5195, 6698, CCP procedure code: 1PZ21

- COPD: ≥ 1 physician billing claim and/or ≥ 1 hospital discharges with a diagnosis of COPD in accordance with the following codes: 491, 492, or 496 (OHIP and ICD-9 codes) or J41, J43, or J44 (ICD-10-CA codes) from April 1, 1991, to the index date (4).

- Cystic fibrosis: ≥ 1 hospitalization with either of ICD-9 diagnosis of 277 or ICD-10 diagnosis of E84.X from April 1, 1991, to the index date

- Diabetes mellitus: ≥ 2 physician billing claims or ≥ 1 OHIP service code or ≥ 1 hospital discharges with a diagnosis of diabetes within 2 years, in accordance with the following codes: 250 (OHIP and ICD-9 codes), Q040, K029, K030, K045, K046 (OHIP service codes), or E10, E11, E13, E14 (ICD-10-CA codes) from April 1, 1991, to the index date (5)

- GERD: ≥ 1 hospitalization with either ICD-9 diagnosis of 530.1 or 530.8 or ICD-10 diagnosis of K21.0 or ≥ 1 physician billing claim with OHIP code 530, from Apr 1, 1991 to the index date (6)

- HIV: ≥ 3 physician billing claims with a diagnosis of HIV within 3 years, in accordance with the following OHIP/ICD-9 codes: 042, 043, or 044, from April 1, 1991, to the index date (7)

- Interstitial lung disease: ≥ 1 physician billing claim and/or > 1 hospital discharges with a diagnosis of interstitial lung disease in accordance with the following codes: 515 (OHIP and ICD-9 codes) or J84.0-J84.9 (ICD-10-CA codes) from April 1, 1991, to the index date.

- Lung cancer: identified using the Ontario Cancer Registry, where the diagnosis date was before index date (OCR topography code 'C34').

- Prior TB: ≥ 1 isolate culture positive for *M. tuberculosis* complex between January 1, 1998 and index date

- Rheumatoid arthritis: ≥ 3 physician billing claims with ≥ 1 by a musculoskeletal specialist (rheumatologist, orthopedic surgeon, or general internist) within 3 years, or ≥ 1 hospital discharges with a diagnosis of rheumatoid arthritis, in accordance with the following codes: 714 (OHIP/ICD-9) or M05, M06 (ICD-10-CA codes) from April 1, 1991, to the index date (8,9)

- Definition of Rurality/Urbanity: The Rurality Index of Ontario (RIO) score, version 2008, is a continuous measure of rurality designed for use in Ontario which includes a combination of population size and density, travel time to referral centers, availability of various medical services, general metropolitan facilities and infrastructure, and climatic extremes (10). This index was used to classify patients as residing in urban (RIO 2008 score 0–9), suburban (RIO 2008 score 10–39), or rural (RIO 2008 score 40+) communities.

References

1. Gershon AS, Wang C, Guan J, Vasilevska-Ristovska J, Cicutto L, To T. Identifying patients with physician-diagnosed asthma in health administrative databases. *Can Respir J*. 2009;16:183–8. [PubMed http://dx.doi.org/10.1155/2009/963098](http://dx.doi.org/10.1155/2009/963098)
2. Fleet JL, Dixon SN, Shariff SZ, Quinn RR, Nash DM, Harel Z, et al. Detecting chronic kidney disease in population-based administrative databases using an algorithm of hospital encounter and physician claim codes. *BMC Nephrol*. 2013;14:81. [PubMed http://dx.doi.org/10.1186/1471-2369-14-81](http://dx.doi.org/10.1186/1471-2369-14-81)
3. Quinn RR, Laupacis A, Austin PC, Hux JE, Garg AX, Hemmelgarn BR, et al. Using administrative datasets to study outcomes in dialysis patients: a validation study. *Med Care*. 2010;48:745–50. [PubMed http://dx.doi.org/10.1097/MLR.0b013e3181e419fd](http://dx.doi.org/10.1097/MLR.0b013e3181e419fd)
4. Gershon AS, Wang C, Guan J, Vasilevska-Ristovska J, Cicutto L, To T. Identifying individuals with physician diagnosed COPD in health administrative databases. *COPD*. 2009;6:388–94. [PubMed http://dx.doi.org/10.1080/15412550903140865](http://dx.doi.org/10.1080/15412550903140865)
5. Hux JE, Ivis F, Flintoft V, Bica A. Diabetes in Ontario: determination of prevalence and incidence using a validated administrative data algorithm. *Diabetes Care*. 2002;25:512–6. [PubMed http://dx.doi.org/10.2337/diacare.25.3.512](http://dx.doi.org/10.2337/diacare.25.3.512)
6. Lopushinsky SR, Covarrubia KA, Rabeneck L, Austin PC, Urbach DR. Accuracy of administrative health data for the diagnosis of upper gastrointestinal diseases. *Surg Endosc*. 2007;21:1733–7. [PubMed http://dx.doi.org/10.1007/s00464-006-9136-1](http://dx.doi.org/10.1007/s00464-006-9136-1)
7. Antoniou T, Zagorski B, Loutfy MR, Strike C, Glazier RH. Validation of case-finding algorithms derived from administrative data for identifying adults living with human immunodeficiency virus infection. *PLoS One*. 2011;6:e21748. [PubMed http://dx.doi.org/10.1371/journal.pone.0021748](http://dx.doi.org/10.1371/journal.pone.0021748)

8. Widdifield J, Bernatsky S, Paterson JM, Tu K, Ng R, Thorne JC, et al. Accuracy of Canadian health administrative databases in identifying patients with rheumatoid arthritis: a validation study using the medical records of rheumatologists. *Arthritis Care Res (Hoboken)*. 2013;65:1582–91.
[PubMed](#)
9. Widdifield J, Bombardier C, Bernatsky S, Paterson JM, Green D, Young J, et al. An administrative data validation study of the accuracy of algorithms for identifying rheumatoid arthritis: the influence of the reference standard on algorithm performance. *BMC Musculoskelet Disord*. 2014;15:216. [PubMed](#) <http://dx.doi.org/10.1186/1471-2474-15-216>
10. Kralj B. Measuring “rurality” for purposes of health-care planning: an empirical measure for Ontario. *Ontario Medical Review*. 2000;10:33–52.