Chapter 3. Disease classification

We developed a disease classification schema based primarily upon the Agency for Healthcare Research and Quality's (AHRQ), Healthcare Cost and Utilization Project (HCUP), Clinical Classification Software (CCS) for ICD-9-CM. The CCS collapsed the over 15,000 diagnosis codes and 3,900 procedure codes into a much smaller number of clinically meaningful categories. Information describing the CCS can be found here: http://www.hcup-us.ahrq.gov/toolssoftware/ccs/ccs.jsp#download.

Creation of the mutually exclusive, collectively exhaustive disease and medical condition categories were based primarily on the ICD-9-CM categorization assignment by the CCS and required the clinical expertise of five physicians, and extensive data management and analytic investigation. We further collapsed the CCS categories into 103 medical condition and disease categories and 4 screening and preventive services categories.

While the disease and medical condition categories were based primarily on the ICD-9-CM categorization assignment by the CCS there were a few conditions identified by ICD-9-CM code included in the larger CCS disease categories that the physician group determined (1) should be stand-alone disease groups because of clinical significance (urinary incontinence because of the costs attributed to the condition (ICD-9-CM=788.3(x) was removed from the CCS category 163 'Genitourinary symptoms and ill-defined conditions')), and (2) should be grouped in a disease category different than assigned by the CCS (most commonly due to the significant changes to the mental health categories assigned by the CCS with the 2009 data release to more accurately reflect the DSM disease classifications).

While CCS codes are not provided on the Medicare claims files provided with the MCBS, we mapped to the CCS categories via the CCS mapping provided as a public use file by HCUP on the web. The mapping was completed using the full 5-digit ICD-9-CM diagnosis codes, full 4-digit ICD procedure codes and full HCPCS, CPT procedure codes. Availability of the full ICD-9-CM diagnosis codes, ICD procedure codes and HCPCS, CPT procedure codes allowed for greater flexibility when the classification in the CCS categories was not sufficient for our research purposes. For example, the mental health disease classifications for depression and bipolar disorder were best defined using the 4^{th} and 5^{th} digit of the ICD-9-CM so that major depression would be defined as: 296.2 (MDD single episode), 296.3 (MDD recurrent episode), 311 (MDD nos); and bipolar disorder would be defined as: 296.0 (Bipolar I, single manic episode), 296.1, (Bipolar I, recurrent mania), 296.4 (Bipolar I, now manic), 296.5 (Bipolar I, now depressed), 296.6 (Bipolar I, mixed episode), 296.7 (Bipolar I, episode unspec), 296.80 (Bipolar Disorder, unspecified), 296.89 (Bipolar II or Manic-Depressive psychosis mixed). In order to best make the distinction between these diagnoses, the 4^{th} and 5^{th} digit of the ICD-9-CM are required.

Procedure codes related to "screening" were selected based primarily upon covered codes listed in "The Guide to Medicare Preventive Services" (http://www.cms.gov/Outreach-and-Education/Medicare-Learning-Network-MLN/MLNProducts/downloads/mps_guide_web-061305.pdf). If any one of the diagnosis or procedure codes appeared on the physician supplier or outpatient claim file the participant was considered to have undergone screening for the disease of interest.

Codes designated for use as billing for diagnostic testing were not included in the screening definitions. While screening rates based upon screening codes from Medicare claims data are considered to underestimate use, including diagnostic codes would artificially inflate screening rates (Freeman, et al 2002). Therefore, to correct for the imperfection in the claim data the screening variables are imputed following the methodology used for other non-SR diseases.

We followed the algorithm of any 1 claim to be defined as presence of medical condition or disease. The algorithm was assigned to all diagnosis code in each of the 7 available claim data files. Appendix 3-a contains definitions of medical condition classification groups. Appendix 3-b contains definitions of screening variables.

References

Freeman, et al. (2002). Measuring breast, colorectal and prostate cancer screening with Medicare claims data. Medical Care 40(8), 36-42.