FAQ: SCCS CMS (Medicare and Medicaid) Data

*SCCS now has Medicare FFS from **1999-2016** and Medicaid from **1999-2012***

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What is Medicare?

A *federally* funded entitlement healthcare insurance program administered by the Federal government through the Centers for Medicare and Medicaid Services (CMS). Current enrollment is nearly 60 million.

Who qualifies for Medicare?

There are 3 primary criteria that qualifies persons for Medicare coverage. They are:

Age: Persons aged 65 or older (85% nationally)
Disability: Receiving Social Security Disability Insurance (SSDI) for at least 24 months
Certain medical conditions: For example, end stage renal disease (ESRD) or ALS

Among SCCS participants, *about half originally qualified for Medicare benefits because of a disability*, much higher than in the general US population.

What is Medicaid?

Medicaid is a *means-tested social-welfare* program jointly funded by the *state and federal* governments and *managed by the states*

Who qualifies for Medicaid?

Individual states set eligibility criteria for Medicaid recipients. Most recipients are either low-income, children of low-income parents, the elderly and/or disabled. Poverty alone does not necessarily qualify someone for Medicaid.

What are Medicare 'fee-for-service' claims?

Medicare fee-for-service (FFS) claims are insurance claims submitted by the health care provider, including hospitals, outpatient services, and physician offices) to CMS for payment for their service. The SCCS has obtained FFS claims for study participants. These include claims under 'Original' Medicare including Part A (inpatient/hospital coverage) and Part B (outpatient/physician offices).

Most, but not all, Medicare beneficiaries will have FFS claims. *About 25% of SCCS participants are enrolled in Medicare Advantage (also known as Medicare Part C)*, private health plans that contract with the federal government to provide Medicare benefits. Because CMS does not pay providers directly for their services, no claim information is available for these participants during the time they are enrolled in Medicare Advantage. Beneficiaries may enter and leave the Medicare Advantage program, meaning that there could be gaps in whether their fee-for-services claims are available.

What years of coverage does the SCCS study have for CMS beneficiaries?

Currently, SCCS has *fee-for-service claims* information from *1999-2016 for Medicare* beneficiaries and from *1999-2012 for Medicaid* beneficiaries (if participants were residents within the 12 'SCCS' states at the time of benefits)

How many SCCS participants received CMS coverage?

Approximately 62,500 or 75% of SCCS participants have ever been enrolled in either Medicare (1999-2016) or Medicaid (1999-2012). Specifically,

Medicare only	n = ~20,500
Medicaid only	n = ~14,000
Medicare and Medicaid	n = ~28,000

Can CMS beneficiaries drop their CMS coverage?

A CMS beneficiary may become ineligible for coverage due to a change in disability or income status, or because they moved to a state with differing Medicaid eligibility criteria. However, this is infrequent. If an investigator is considering calculating CMS follow-up time, it is suggested to consult with investigators who have conducted similar research, or with SCCS staff

What CMS data are available to SCCS investigators?

Below are the specific datasets for which SCCS has linked to study participants:

Medicare 1999-2016

- Master Beneficiary Summary File (enrollment data)
- Inpatient Claims/Skilled Nursing Facility (rehabilitation) Institutional Files (MedPAR)
- Outpatient base and revenue center Fee-for-service claims
- Outpatient carrier (physician) fee-for-service claims
- Hospice fee-for-service claims (2001-2016 only) *Includes data for Medicare Advantage enrollees
- Minimum Dataset (assisted living facilities) (2001-2016 only) *Includes data for Medicare Advantage enrollees

Medicaid 1999-2012

- Personal Summary (enrollment data)
- Medicaid Analytic Extract (MAX) Inpatient fee-for-service claims
- Medicaid Analytic Extract (MAX) Outpatient fee-for-service claims

Because of the data use agreement with CMS and to protect the confidentiality of the participants, SCCS is limited in what data it can release to investigators. Specifically, flags for specific medical condition and duration variables are the only CMS data items that can be released.

Therefore, when making a data request please provide specifications for:

- Flags for sets of diagnosis and/or procedures codes (an example would be specifying a particular set of ICD-9 codes to identify an outcome of interest)
- Derived duration variables (for example the number of days between enrollment and the first claim date for a particular outcome)

Is prescription drug information available?

The SCCS team hope to have Medicare Part-D (2006-2016) and Medicaid prescription drug data (1999-2012) available soon.

What are other considerations when requesting numbers or data request involving CMS data?

Some question for investigators to consider are:

- Is there an existing/published algorithm to detect the medically-related outcome of interest?
- Does the study design/investigation require Medicare, Medicaid, or both?
- Are there specific files to be used to detect outcomes (i.e. inpatient vs outpatient)?
- Does a medical outcome need to be determined to be prevalent or incident relative to SCCS enrollment?
- Will the study design take into account potentially incomplete CMS coverage due to managed care?

Where can I find more information on the CMS datasets?

The Research Data Assistance Center (ResDAC) website is a great tool to obtain detailed information on CMS dataset, codebooks, and how CMS claims are processed. See https://www.resdac.org/

This article gives a useful overview of considerations when using Medicare data for epidemiological research, including strengths and weaknesses:

Mues KE, Liede A, Liu J, Wetmore JB, Zaha R, Bradbury BD, Collins AJ, Gilbertson DT. Use of the Medicare database in epidemiologic and health services research: a valuable source of real-world evidence on the older and disabled populations in the US. Clin Epidemiol. 2017 May 9;9:267-277. doi: 10.2147/CLEP.S105613. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5433516/pdf/clep-9-267.pdf

How are CMS claims used to detect medical outcomes?

Typically, a fee-for-service claims record is flagged if any of the diagnosis fields contain a specific or range of ICD-9 or ICD-10 diagnosis codes related to that disease/outcome. An 'algorithm' is then used to validate the outcome. The algorithm may rely on:

- Number of claims with the diagnoses of interest (flagged claims)
- Flagged claims within a certain period of time
- Whether flagged claim was inpatient or outpatient
- Whether the diagnosis on claim originated from an emergency room visit
- Whether diagnosis was listed as the 'primary' on the claim

A procedure exclusive to a diagnosis (e.g. radical prostatectomy) may also be used. Prescriptions for drugs specific to certain condition might be used (e.g. drugs specifically for a medical condition, such as rheumatoid arthritis).

Here is an example of a manuscript that used CMS claims data:
https://www.ncbi.nlm.nih.gov/pubmed/25811837

This manuscript utilized validated algorithms to identify COPD cases proposed by Mapel *et al.,* BMC Health Serv Res 2011 (At least one inpatient hospitalization or ER claim with COPD dx (ICD-9 491.x, 492.x, 496) or at least two outpatient claims with COPD dx having different dates) and by Stein *et al.* Chest 2012 (Primary *discharge* diagnosis of COPD (ICD9 code=491.21))

Most medical conditions have published manuscripts that investigated the diagnosis and/or procedure codes and algorithm to detect a medical condition (and often report PPV, sensitivity, etc.)

SCCS does not have a 'standard' algorithm for medical outcomes*. It is the responsibility of the investigator to determine the codes and algorithm to use for a numbers, data analysis or data request.*