



Case Ascertainment Protocol and Case Definition

Introduction

“Case ascertainment” is defined in this document as the methodology by which patient case records are identified for inclusion in and data collection for the Minnesota Stroke Registry (MSR), a Centers for Disease Control and Prevention (CDC) Paul Coverdell National Acute Stroke Registry (PCNASR) program. This document describes the case ascertainment protocol that hospitals participating in the MSR are expected to follow. This protocol acknowledges and attempts to be accommodating to the practical logistics of both prospective (concurrent) and retrospective data abstraction methods.

Describing the MSR case ascertainment methodology necessarily involves establishing the case definition, as the two go hand-in-hand. The term “Case Definition” in this document describes the case inclusion and exclusion criteria used for defining cases to be included, particularly the clinical diagnoses and ICD-9 CM codes. The second part of this document reviews the case definition used by the MSR program.

Rationale for a case ascertainment protocol and case definition

There are two different guiding principles that drive the methods for case ascertainment and establishment of the case definition. First, that patients presenting to the hospital with a possible stroke – either through a clinical diagnosis, or by presenting with typical stroke symptoms – are triaged and treated as efficiently as possible and according to current national guidelines, regardless of their final diagnosis. This principle addresses the issue of systems level improvements so that the *process* of patient triage, treatment and care is optimal. The goal for a hospital is improved *quality* patient care, regardless of the final diagnosis.

The second guiding principle is whether patients with *confirmed stroke* are treated according to national guidelines. The focus here is on the care given specifically to stroke patients. This is, in effect, the idea of measuring “performance”: how did hospitals *perform* on care specifically for patients who had a stroke?

These are subtle but important differences: the first principle focuses on the care process; the second focuses on the care received specifically by stroke patients. The emphasis a program places on either focus informs the utilization of a comprehensive (sensitive) ascertainment case finding methodology versus a selective (specific) methodology.

The MSR is interested in improving the system of acute care and the improving care in stroke patient population specifically. These goals are not mutually exclusive. In addition, we know that hospitals must also balance the intents and requirements of participating in multiple overlapping quality improvement or reporting programs (e.g., American Heart Association Get With The Guidelines (GWTG) – Stroke, The Joint Commission (TJC, i.e., core measures), and the CDC PCNASR).

With this in mind, the intent of establishing this case ascertainment protocol and case definition is to make it as easy as possible for hospitals to simultaneously meet the needs and intents of all three programs.

Case Ascertainment

The CDC Paul Coverdell National Acute Stroke Registry strongly recommends prospective case ascertainment for presumptive cases of acute stroke and TIA patients presenting to the hospital. The program includes cases that are admitted to the hospital either through the ED or through direct admission.

Hospitals are expected to utilize three methods to ascertain cases for inclusion:

1. Review case logs for clinical diagnosis of presumed stroke
2. Review case and procedure logs for all patients receiving tPA for stroke treatment
3. Obtain report from medical or billing records department of cases with ICD-9 CM principal diagnosis code for stroke or TIA

1. Review case logs.

Case logs should be reviewed from the following sources:

- Emergency Department
- Hospital Admissions
- Neurology Consults

Abstractors should conduct this review to find cases and begin data entry immediately concurrent with the care of the patient. Ideally, this should happen daily. If this is not feasible, review the logs to find cases as frequently as possible, and systematically review every day's log sheets.

2. Review case and procedure logs for all patients receiving tPA for stroke treatment.

Abstractors must find all cases in which tPA was administered for stroke patients. These patients, if they are not already discovered through ED or admission logs, should be included.

3. Obtain report from medical or billing records department of cases with ICD-9 CM principal diagnosis discharge code for stroke or TIA.

Utilizing medical and/or billing records to run a "report" to identify cases for inclusion for abstraction is an acknowledged method of case ascertainment ("retrospective case identification"). Hospitals are strongly encouraged to identify cases *prospectively* (i.e., concurrent with patient hospitalizations) and use retrospective case identification only to ensure cases have not been missed. However, the MSR acknowledges that retrospective case identification may be a common and primary method of ascertainment.

Abstractors should request a report from their medical or billing records departments that lists cases to be abstracted. This should be done at least monthly. Codes to be utilized are described in the *Case Definition* section below, Table 1.

Additional Notes:

1. The Joint Commission (TJC) requires only that hospitals select cases to be abstracted based on a specified discharge code list. (*See Specifications Manual, Version 3.0b, Section 2.8, page STK-4.*) For case inclusion, the MSR has adopted the TJC code list, with the addition of transient ischemic attack (TIA) cases, strokes occurring during pregnancy, and iatrogenic strokes.
2. GWTG-Stroke provides case entry guidance that only cases which are *confirmed* to be stroke should be included. (*GWTG-Stroke participants: see the Stroke Patient Management Tool (PMT) Coding Instructions, page 1 "Entry Criteria", found by clicking on the Resources icon within the PMT.*) However, hospitals participating in the MSR are expected to include cases with presumptive clinical diagnosis of stroke on admission, regardless of the final hospital admission diagnosis. See Case Definition inclusion criteria number two (2) for options for presumptive clinical diagnosis of stroke.
3. Optional methods of case ascertainment: (a) Request a printout of the daily census with diagnoses. (b) Request that coders in Medical Records contact you with patient numbers of all patients who have possible stroke presentation, based on documented stroke or stroke-like symptoms.

Case Definition

Inclusion Criteria:

1. Patients age 18 and over on the date of admission.
Based on the following calculation: admission date - birth date ≥ 18 years
2. Patients with documented presumptive clinical diagnosis of stroke on hospital admission.
 - Subarachnoid Hemorrhagic Stroke
 - Intracerebral Hemorrhagic Stroke
 - Ischemic Stroke
 - Transient Ischemic Attack
 - Stroke (not otherwise specified)

Note: The presumptive clinical diagnosis is sometimes different from the final hospital admission diagnosis. The presumptive diagnosis tries to identify presumptive diagnosis at the time of hospital admission. It applies to transfer diagnosis, direct admission diagnosis, or ED discharge/hospital admission diagnosis.

Example 1. Cases are identified in your hospital prospectively. The patient has an official diagnosis of “right-sided weakness”; he might have a presumptive diagnosis of stroke in the admission notes. Presumptive diagnosis reflects what diagnosis a patient is evaluated for from the perspective of medical personnel. This case *would* be included in the MSR. (*Adapted from GWTG-Stroke PMT Coding Instructions, page 19*)

Example 2. Cases are identified in your hospital prospectively. The patient has a presumed diagnosis of ischemic stroke, but later was determined to have had a severe migraine. This case *would* be included in the MSR; for the abstraction, the presumed admission diagnosis would be “ischemic stroke”; the final hospital discharge diagnosis would be “migraine.”

Please note that in this example, the MSR does include the case, while both GWTG and TJC would not.

3. Patients receiving tPA for stroke.
Patients who receive IV tPA in an ED and are then transferred to another hospital for further care should be included in the registry of the transferring hospital, even though they are not admitted to the hospital. (Note: if the patient is transferred to a hospital also participating in the Minnesota Stroke Registry, the patient’s visit will also be included and abstracted by the receiving hospital. Although this does mean that a single stroke event would end up in the registry twice (one record by the transferring hospital, one record by the receiving hospital), the purpose of this is for each hospital to have data on the process of care within its own facility).

4. Patients whose hospitalizations are assigned a principal ICD-9-CM discharge diagnosis code listed in Table 1 (p. 5).

These ICD-9-CM codes include:

- a) The same codes for stroke core measure reporting as specified by The Joint Commission Specifications Manual 3.0
- b) Transient ischemic attack
- c) Strokes in pregnancy
- d) Iatrogenic strokes

Example 3. Cases are identified in your hospital retrospectively. The patient has a presumed diagnosis of migraine on admission, but 24 hours later is determined to have had an ischemic stroke. This case *would* be included in the MSR. For the data abstraction, the presumed admission diagnosis would be “No stroke related diagnosis”; the final hospital diagnosis would be “ischemic stroke.”

Exclusion Criteria/Notes:

1. Patients experiencing a stroke while already admitted in the hospital for other reasons (that is, this is an “in-hospital stroke”) may be entered into the database by the hospital, but note that these patients will be excluded from all performance measure calculations.
2. Patients sent home from the emergency department do not need to be included.
3. Patients that are admitted to an observation unit, 23-hour admission, or “boarding” are encouraged but not required to be included in the MSR.
4. Patients admitted for elective carotid endarterectomy should not be included in the MSR. Should elective cases be entered, you must indicate so in the MSRT and these cases will be excluded from all stroke performance measure calculations.

TABLE 1: ICD-9 CM CODES REQUIRED FOR CASE ASCERTAINMENT, MINNESOTA STROKE REGISTRY

Code	ICD-9 Diagnosis	TJC*
HEMORRHAGIC STROKE		
430	SUBARACHNOID HEMORRHAGE	X
431	INTRACEREBRAL HEMORRHAGE	X
ISCHEMIC STROKE		
433.01	OCCLUSION AND STENOSIS OF BASILAR ARTERY WITH CEREBRAL INFARCTION	X
433.10	OCCLUSION AND STENOSIS OF CAROTID ARTERY WITHOUT CEREBRAL INFARCTION	X
433.11	OCCLUSION AND STENOSIS OF CAROTID ARTERY WITH CEREBRAL INFARCTION	X
433.21	OCCLUSION AND STENOSIS OF VERTEBRAL ARTERY WITH CEREBRAL INFARCTION	X
433.31	OCCLUSION AND STENOSIS OF MULTIPLE AND BILATERAL PRECEREBRAL ARTERIES WITH CEREBRAL INFARCTION	X
433.81	OCCLUSION AND STENOSIS OF OTHER SPECIFIED PRECEREBRAL ARTERY WITH CEREBRAL INFARCTION	X
433.91	OCCLUSION AND STENOSIS OF UNSPECIFIED PRECEREBRAL ARTERY WITH CEREBRAL INFARCTION	X
434.00	CEREBRAL THROMBOSIS WITHOUT CEREBRAL INFARCTION	X
434.01	CEREBRAL THROMBOSIS WITH CEREBRAL INFARCTION	X
434.11	CEREBRAL EMBOLISM WITH CEREBRAL INFARCTION	X
434.91	CEREBRAL ARTERY OCCLUSION UNSPECIFIED WITH CEREBRAL INFARCTION	X
436	ACUTE BUT ILL-DEFINED CEREBROVASCULAR DISEASE	X
TRANSIENT ISCHEMIC ATTACK		
435	TRANSIENT CEREBRAL ISCHEMIA	
435.0	BASILAR ARTERY SYNDROME	
435.1	VERTEBRAL ARTERY SYNDROME	
435.2	SUBCLAVIAN STEAL SYNDROME	
435.3	VERTEBROBASILAR ARTERY SYNDROME	
435.8	OTHER SPECIFIED TRANSIENT CEREBRAL ISCHEMIAS	
435.9	UNSPECIFIED TRANSIENT CEREBRAL ISCHEMIA Impending cerebrovascular accident Intermittent cerebral ischemia Transient ischemic attack [TIA]	
STROKE IN PREGNANCY		
671.5X	CEREBRAL VENOUS SINUS THROMBOSIS DURING PREGNANCY OR IN THE PUERPERIUM	
674.0X	CEREBROVASCULAR COMPLICATIONS OF THE PUERPERIUM	
OTHER		
997.02	IATROGENIC CEREBROVASCULAR INFARCTION OR HEMORRHAGE	

* Codes indicated with an X in the column labeled "TJC" are explicitly listed in The Joint Commission Specifications Manual 3.0, Appendix A, Tables 8.1 and 8.2 (pages Appendix A-143).