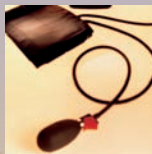


Disease-Specific Care

CERTIFICATION PROGRAM



Stroke

PERFORMANCE MEASUREMENT IMPLEMENTATION GUIDE

Introduction and Background

The History of the Performance Measurement Initiative

In 1987, The Joint Commission (previously known as The Joint Commission on Accreditation of Healthcare Organizations) announced its *Agenda for Change*, which outlined a series of major steps designed to modernize the accreditation process. A key component of the *Agenda for Change* was the future incorporation of performance measurement into the accreditation process. As the performance measurement initiative evolved, the name ORYX® was chosen to represent the overall initiative. Beginning with the hospital and long term care accreditation programs, performance measurement requirements were phased in over several years. Initial requirements allowed organizations to select a performance measurement system from a Joint Commission approved list to collect aggregate health care data on individual performance measures. In March of 1999, the ORYX® initiative became operational when the performance measurement systems began transmitting data to The Joint Commission on behalf of accredited hospitals and long term care organizations. Since that time, home care and behavioral health organizations have been included in the ORYX® initiative.

The eventual development and inclusion of standardized core performance measures was a standing goal of the ORYX® initiative. The next phase of the ORYX® initiative focused on the identification of standardized sets of valid, reliable, and evidence-based “core” measures for use in the hospital accreditation program. In early 1999, The Joint Commission solicited input from a wide variety of stakeholders—clinical professionals, health care provider organizations, health care consumers, and performance measurement experts – about potential focus areas for core measures. The input of these stakeholders, together with recommendations from state hospital associations led to the identification of five initial core measurement areas:

- Acute myocardial infarction
- Heart Failure
- Community acquired pneumonia
- Pregnancy and related conditions (including newborn and maternal care)
- Surgical procedures and complications

A period of extensive work involving clinical input from expert panels, attributes and evaluation criteria for core performance measures developed with an Advisory Council on Performance Measurement and pilot testing with state hospital associations, measurement systems, and hospitals led to the final selection of hospital core measures. Implementation of data collection on the first sets of ORYX® core measures for hospitals began in July 2001.

Performance Measurement in Disease-Specific Care Certification

Since consensus-based nationally standardized performance measures do not currently exist for many disease states, The Joint Commission has initiated a two-stage process with respect to performance measurement expectations for certified programs. Stage I requires that certified programs collect and analyze data on at least four self-identified performance measures related to, or identified in, evidence-based guidelines. Stage II comprises the development by The Joint Commission of sets of standardized measures for selected disease states for implementation by certified programs. Once a standardized set is introduced, affected programs are required to replace current (Stage I) measures with the applicable standardized (Stage II) measures. For additional information on current requirements, review the Disease-Specific Care Certification at the Joint Commission web site (www.jointcommission.org).

A systematic process is used for identification of standardized measures. First, an expert panel is identified to assist in establishing a framework (see Chapter 2), the scope of the initial measure set, and to recommend the initial measures comprising the set. The framework is designed to identify delivery of care settings, key domains or aspects of care, and outcomes of care.

The expert panel discusses potential measurement opportunities within each focus area of the framework. In some cases, while a given measurement aspect is considered to be important, existing measures cannot be identified. Where existing measures are identified, the panel prioritizes them and requests additional information from measure developers to assist the panel in evaluating the measures for importance, scientific acceptability, usability/interpretability and feasibility.

After identification of a measure framework, a public call for measures is conducted. Following the call for measures and staff review of materials received, the panel evaluates and recommends a draft set of measures for stakeholder review and public comment. The results of these reviews and public comments are carefully considered and incorporated in measure specifications, which are then pilot tested before finalization of the standardized measure set.

Standardized Stroke Measures

In November 2003, The Joint Commission in collaboration with the American Heart Association / American Stroke Association (AHA/ASA) set out to develop performance measures for DSC Certification for Primary Stroke Centers, the first advanced-level certification program designed to recognize primary stroke centers that make exceptional efforts to foster better outcomes for stroke patient care. Unlike basic certification, the advanced program outlined additional clinically-specific

requirements and expectations based on the Brain Attack Coalition's Recommendations for Primary Stroke Centers and guidelines developed by the AHA/ASA and equivalent evidence-based guidelines. These guidelines provided the foundation for the identification of areas for performance measurement and the development of detailed measure specifications. Specifications for a set of ten candidate stroke measures were ultimately drafted and recommended by the Joint Commission's Stroke Advisory Panel in early 2004, followed by a 12-month pilot test (October 1, 2004 through September 30, 2005) to assess and quantify the data collection effort, evaluate the reliability of individual data elements, measure specifications, the measurement set, and identify potential measure modifications. A standardized set of ten measures for stroke patient care was finalized following the pilot test project, and data collection for four priority measures uniformly adopted by all currently certified Primary Stroke Centers, as well as programs seeking initial DSC Certification from The Joint Commission.

The pilot test project also revealed that several pilot site programs were currently participating in the American Stroke Association's *Get With The Guidelines*SM (GWTG)-Stroke program / patient management tool and/or the Paul Coverdell National Acute Stroke Registry sponsored by the Division of Heart Disease and Stroke Prevention, Centers for Disease Control and Prevention (CDC). Efforts to harmonize the data elements of all three measure sets were initiated in May 2006. The Stroke Performance Measure Consensus Group, comprising representatives from The Joint Commission, AHA/ASA and CDC, was established and began to identify commonalities across the three performance measurement methodologies, and to align data element definitions and guidelines for abstraction. As a result, the ten measures included in this revised implementation guide have been harmonized with the GWTG-Stroke and Coverdell measure specifications for use in all services or programs.

Stroke

Among adults age 20 and older, the prevalence of stroke in 2004 was an estimated 5,700,000. Each year about 700,000 people experience a new or recurrent stroke. The estimated direct and indirect cost of stroke for 2007 is \$62.7 billion. With advances in diagnosis and treatment, the stroke death rate fell 20.4% from 1994-2004; however, when considered separately from other cardiovascular diseases, stroke remains the No. 3 cause of death in the United States and a leading cause of serious, long-term disability.

Once a stroke has occurred, all attempts should be made to decrease the time from symptom onset to stroke treatment. The underlying pathophysiology can be varied and it is important to confirm the cause of the patient's impairment, i.e., ischemic stroke, intracranial hemorrhage, or other systemic or neurological illness. Therefore initial diagnosis is important for treatment and disease management.

Research has identified and clinical practice guidelines include recommended processes of care based on the best evidence and clinical opinion available at this time. The performance measures presented in this guide have been selected with reference to the process of care described in current clinical practice guidelines. As part of an ongoing quality improvement initiative within an organization, they can help assess the processes of care and quality of services for stroke patients within a certified DSC service or program.

References

American Heart Association. *Heart Disease and Stroke Statistics – 2007 Update At-a-Glance*. Dallas, Texas: American Heart Association; 2007. ©2007, American Heart Association.

Adams HP, Adams RJ, Brott T, del Zoppo GJ, Furlan A, Goldstein LB, Grubb RL, Higashida R, Kidwell C, Kwiatkowski TJ, Marler JR, Hademenos GJ. Guidelines for the Early Management of Patients With Ischemic Stroke, A Scientific Statement From the Stroke Council of the American Stroke Association. *Stroke*. 2003;34:1056-1083.

National Stroke Association. *Stroke the First Hours, Guidelines for Acute Treatment, Consensus Statement*. Englewood, CO: National Stroke Association; 2000.

STROKE FRAMEWORK

Introduction

The application of a systematic approach can be useful in identifying the varied factors that influence a disease process. The following framework was created as part of the identification and development of the performance measures included in this booklet. The framework served as a guide to selecting areas of performance measurement that will enhance the quality of patient care, are evidence based, and are scientifically sound. The framework has been designed to identify delivery of care settings for stroke, key domains or aspects of care, and outcomes of care. Specifically, it presents patient factors (e.g., co-morbidities, lifestyle), health care system characteristics, treatment modalities/interventions, and measurable outcomes.

The framework is included in this guide exactly as it was used during the process of identifying the related performance measures. While it is not meant to be exhaustive, it does provide a foundation for considering performance measurement in Disease-Specific Care (DSC) programs for stroke. As such, your organization may wish to use or enhance the framework to assess for additional opportunities for performance measurement within your quality improvement initiative. In addition, factors in the framework may be helpful when considering root causes (see section *Data Analysis and Display*) as your organization undertakes analysis and interpretation of data collected for the performance measures.

STROKE STANDARDIZED MEASURE SET FRAMEWORK

DOMAINS	KEY MEASUREMENT AREAS		
Urgent Care Assessment	<ul style="list-style-type: none"> • Stroke team • Written care protocols 	<ul style="list-style-type: none"> • Initial Physical Assessment & Neurological evaluation <ul style="list-style-type: none"> ○ Ischemic vs. hemorrhagic stroke ○ Vital signs 	<ul style="list-style-type: none"> • Diagnostics <ul style="list-style-type: none"> ○ Blood counts, coagulation, chemistry ○ EKG ○ Chest X-ray ○ Vascular imaging ○ Brain imaging
Acute Care Hospitalization/Treatment	<ul style="list-style-type: none"> • Airway/ventilatory support • Anticoagulation • Rehab referral 	<ul style="list-style-type: none"> • Anti-platelet therapy • Anti-thrombotic therapy 	<ul style="list-style-type: none"> • Avoidance of nifedipine • DVT prophylaxis
Risk Factor Modification	<ul style="list-style-type: none"> • Smoking • Obesity • Alcohol intake 	<ul style="list-style-type: none"> • Heart disease • Sedentary lifestyle/physical activity 	<ul style="list-style-type: none"> • Diet
Secondary Prevention	<ul style="list-style-type: none"> • Hypertension • Medications • Carotid artery disease 	<ul style="list-style-type: none"> • Smoking cessation • Diabetes 	<ul style="list-style-type: none"> • High cholesterol • History of TIA
Education	<ul style="list-style-type: none"> • Causes of stroke • Adherence to medication use • Resources for social support or services 	<ul style="list-style-type: none"> • Risk factor modification/healthy lifestyle 	<ul style="list-style-type: none"> • Treatment of stroke • Discharge preparation
Rehabilitation	<ul style="list-style-type: none"> • Instrumental activities of daily living • Multidisciplinary evaluations • Speech therapy <ul style="list-style-type: none"> ○ Dysphagia ○ Speech and oral expression ○ Aphasia 	<ul style="list-style-type: none"> • Activities of daily living • PT • Vocational Therapy • Sensory disturbances 	<ul style="list-style-type: none"> • Bowel/bladder control • OT • Psychological evaluation

STROKE GUIDELINES

Guideline Title & Date of Release/Update	Developer	Focus/Application	Contact Information
ACC/AHA/ESC Guidelines for the Management of Patients with Atrial Fibrillation Release date: 2001 Update: 2006	American College of Cardiology American Heart Association European Society of Cardiology	Management of atrial fibrillation	American College of Cardiology Heart House 9111 Old Georgetown Road Bethesda, MD 20814-1699 800-253-4636, ext. 694 or (301) 897-5400 American Heart Association 7272 Greenville Ave. Dallas, TX 75231-4596 800-242-8721 http://www.americanheart.org European Society of Cardiology The European Heart House 2035 Route des Colles B.P. 179 - Les Templiers FR-06903 Sophia Antipolis France Tel : +33.4.92.94.76.00
AHA Scientific Statement - Preventing Ischemic Stroke in Patients with Prior Stroke and Transient Ischemic Attack. Release date: 1999 Update: 2006	American Heart Association	Stroke prevention.	American Heart Association 7272 Greenville Ave. Dallas, TX 75231-4596 800-242-8721 http://www.americanheart.org
AHA Scientific Statement - Primary Prevention of Ischemic Stroke. Release date: 2001 Update: 2006	American Heart Association	Identification and modification of stroke risk factors.	American Heart Association 7272 Greenville Ave. Dallas, TX 75231-4596 800-242-8721 http://www.americanheart.org

Guideline Title & Date of Release/Update	Developer	Focus/Application	Contact Information
<p>AHA Scientific Statement - Guidelines for Carotid Endarterectomy: A Statement of Healthcare Professionals from a Special Writing Group of the Stroke Council. 1998. Release date: 1998</p>	American Heart Association	Risk factors for stroke.	American Heart Association 7272 Greenville Ave. Dallas, TX 75231-4596 800-242-8721
<p>Antithrombotic Therapy Release date: 1999</p>	Scottish Intercollegiate Guidelines Network (SIGN)	Antithrombotic Therapy	SIGN Secretariat Royal College of Physicians 9 Queen Street Edinburgh EH2 1JQ Tel. 0131-225 7324 Fax: 0131 225 1769 Email: sign@rcpe.ac.uk www.show.scot.nhs.uk/sign/home.htm
<p>Antithrombotic and Thrombolytic Therapy for Ischemic Stroke. In: Seventh ACCP Consensus Conference on Antithrombotic Therapy. Release date: 1998 Update: 2001 Update: 2004</p>	American College of Chest Physicians (ACCP)	The use of antithrombotic and thrombolytic therapy in the prevention, management, and treatment of ischemic stroke.	American College of Chest Physicians (ACCP) Products and Registration Division 3300 Dundee Road Northbrook, IL 60062-2348 800-343-2227
<p>ASA Scientific Statement – Guidelines for Early Management of Patients with Ischemic Stroke Release date: 2003. Update: 2005 Update: 2007</p>	American Heart Association	Management of patients with acute ischemic stroke.	American Heart Association 7272 Greenville Ave. Dallas, TX 75231-4596 800-242-8721
<p>ASA/AAN Scientific Statement – Anticoagulants and Antiplatelet Agents in Acute Ischemic Stroke Release date: 2002</p>	American Heart Association	The use of antithrombotic drugs in patients with acute ischemic stroke.	American Heart Association 7272 Greenville Ave. Dallas, TX 75231-4596 800-242-8721

Guideline Title & Date of Release/Update	Developer	Focus/Application	Contact Information
Diagnosis and Initial Treatment of Ischemic Stroke Release date: 2001 Update: 2003	Institute of Clinical Systems Improvement (ICSI)	Ischemic stroke, transient ischemic attack (TIA)	Institute of Clinical Systems Improvement ICSI 8009 34 th Avenue South Suite 1200 Bloomington, MN 55425 952-814-7060 www.icsi.org
Guideline on the Use of Aspirin as Secondary Prophylaxis for Vascular Disease in Primary Care. Release date: 1998.	Centre for Health Services Research University of Newcastle upon Tyne Centre for Health Economics University of York	The benefits of prophylactic use of aspirin in the secondary prophylaxis of vascular disease.	Centre for Health Services Research University of Newcastle upon Tyne 21 Claremont Place Newcastle upon Tyne NE2 4AA Tel: +44 (0)191 222 7045 Centre for Health Economics Alcuin 'A' Block University of York Heslington YORK, YO10 5DD UK Tel: (01904) 321401, Fax: (01904) 321402
Guidelines for Medical Treatment for Stroke Prevention. Release date: 1994	American College of Physicians	Therapeutic interventions for general, modifiable risk factors for stroke.	American College of Physicians Headquarters 190 N Independence Mall West Philadelphia, PA 19106-1572 800-523-1546, x2600 http://www.acponline.org

Guideline Title & Date of Release/Update	Developer	Focus/Application	Contact Information
Guidelines for the Management of Patients with Acute Ischemic Stroke: A Statement for Healthcare Professionals from a Special Writing Group of the Stroke Council. Release date: 1994 Update: 2003	American Heart Association	Management of patients with acute ischemic stroke.	American Heart Association 7272 Greenville Ave. Dallas, TX 75231-4596 800-242-8721
Guidelines for Thrombolytic Therapy for Acute Stroke: A Supplement to the Guidelines for the Management of Patients with Acute Ischemic Stroke. Release date: 1996	American Heart Association	The use of intra-arterial thrombolytic drugs.	American Heart Association 7272 Greenville Ave. Dallas, TX 75231-4596 800-242-8721
Kaiser Permanente Clinical Practice Guidelines for Acute Stroke Release Date: 1996 Update: 1998	Kaiser Permanente Medical Group	Inpatient management for acute stroke.	The Permanente Medical Group, Inc. 510-987-2309
Management of Patients with Stroke. Assessment, investigation, immediate management and secondary prevention. Release date: 1997	Scottish Intercollegiate Guidelines Network (SIGN).	Assessment, investigation, immediate management and secondary prevention of TIA or acute stroke (other than subarachnoid hemorrhage).	SIGN Secretariat Royal College of Physicians 9 Queen Street Edinburgh EH2 1JQ Tel. 0131-225 7324 Fax: 0131 225 1769 Email: sign@rcpe.ac.uk www.show.scot.nhs.uk/sign/home.htm
Management of Patients with Stroke. Identification and Management of Dysphagia Release date: 1997	Scottish Intercollegiate Guidelines Network (SIGN).	Dysphagia	SIGN Secretariat Royal College of Physicians 9 Queen Street Edinburgh EH2 1JQ Tel. 0131-225 7324 Fax: 0131 225 1769 Email: sign@rcpe.ac.uk www.show.scot.nhs.uk/sign/home.htm

Guideline Title & Date of Release/Update	Developer	Focus/Application	Contact Information
Management of Patients with Stroke. Rehabilitation, Prevention, and Management of Complications, and Discharge Planning. Release date: 2002	Scottish Intercollegiate Guidelines Network (SIGN).	General management, rehabilitation, prevention and management of complications, and discharge planning with an emphasis on the first 12 months after stroke.	SIGN Secretariat Royal Colleg of Physicians 9 Queen Street Edinburgh EH2 1JQ Tel. 0131-225 7324 Fax: 0131 225 1769 Email: sign@rcpe.ac.uk www.show.scot.nhs.uk/sign/home.htm
Post-Stroke Rehabilitation Guideline No.16 Release date: 1995.	Agency for Healthcare Policy and Research (AHCPR) Now known as Agency for Healthcare Research and Quality (AHRQ)	Recovery from stroke.	Agency for Healthcare Research and Quality 540 Gaither Road Rockville, MD 20850 301-427-1364 info@ahrq.gov
Sixth ACCP Consensus Conference on Antithrombotic Therapy Release date: 1998 Update: 2001	American College of Chest Physicians (ACCP)	Prevention, Management, and treatment of thrombolytic disorders.	American College of Chest Physicians (ACCP) Products and Registration Division 3300 Dundee Road Northbrook, IL 60062-2348 800-343-2227
Smoking Cessation Clinical Practice Guideline No. 18 Release date: 1996	Agency for Healthcare Policy and Research (AHCPR) Now known as Agency for Healthcare Research and Quality (AHRQ)	Effective, experimentally validated smoking cessation practices	Agency for Healthcare Research and Quality 540 Gaither Road Rockville, MD 20850 301-427-1364 info@ahrq.gov
STROKE the first hours Guidelines for Acute Treatment Release Date: 2000	National Stroke Association	Early treatment of stroke.	National Stroke Association 9707 East Easter Lane Englewood, CO 80112-5115 303-649-9299

Guideline Title & Date of Release/Update	Developer	Focus/Application	Contact Information
Clinical Guideline on Management of the Hyperacute Ischemic Stroke Patient. Release date: 1998	The American Association of Neuroscience Nurses	Management of the Hyperacute Ischemic Stroke Patient	AANN 4700 W. Lake Ave. Glenview, IL 60025 888-557-2266 847-375-4733 info@aann.org
VA/DoD Clinical Practice Guideline for the Management of Stroke Rehabilitation in the Primary Care Setting, version 1.1. Release date: 2003.	Department of Veteran Affairs Department of Defense	Stroke rehabilitation	Department of Veteran Affairs Washington D.C. Regional Office 1722 I Street N.W. Washington D.C. , DC 20421 1-800-827-1000 http://www.va.gov
VA/DoD Clinical Practice Guideline for the Management of Adult Stroke Rehabilitation Release date: 2005.	Department of Veteran Affairs Department of Defense	Stroke rehabilitation	Department of Veteran Affairs Washington D.C. Regional Office 1722 I Street N.W. Washington D.C. , DC 20421 1-800-827-1000 http://www.va.gov
AHA/ASA Scientific Statement – Guidelines for the Management of Spontaneous Intracerebral Hemorrhage in Adults Release date: 1999 Update: 2007	American Heart Association	Diagnosis and treatment of acute spontaneous intracerebral hemorrhage	American Heart Association 7272 Greenville Ave. Dallas, TX 75231-4596 800-242-8721
Antithrombotic Therapy I Atrial Fibrillation Release date: 2001	American College of Chest Physicians (ACCP)	The use of antithrombotic therapy in the management of atrial fibrillation.	American College of Chest Physicians (ACCP) Products and Registration Division 3300 Dundee Road Northbrook, IL 60062-2348 800-343-2227
AHA/ASA Guidelines for Prevention of Stroke in Patients with Ischemic Stroke of Transient Ischemic Attack: A Statement for Healthcare Professionals	American Heart Association	Prevention of ischemic stroke among survivors of ischemic stroke and transient ischemic attack	American Heart Association 7272 Greenville Ave. Dallas, TX 75231-4596 800-242-8721

STROKE

DISEASE-SPECIFIC CARE STAGE II PERFORMANCE MEASURES

Set No.	Harmonized DSC Stroke Measure Name
STK-1	Deep Vein Thrombosis (DVT) Prophylaxis
STK-2	Discharged on Antithrombotic Therapy
STK-3	Patients with Atrial Fibrillation Receiving Anticoagulation Therapy
STK-4	Thrombolytic Therapy Administered
STK-5	Antithrombotic Therapy By End of Hospital Day Two
STK-6	Discharged on Cholesterol Reducing Medication
STK-7	Dysphagia Screening
STK-8	Stroke Education
STK-9	Smoking Cessation / Advice / Counseling
STK-10	Assessed for Rehabilitation

Note: * DSC Stroke Performance Measure Set following harmonization of measure specifications with the Paul Coverdell National Acute Stroke Registry and American Heart Association / American Stroke Association GET WITH THE GUIDELINESSM.

** DSC certification for Primary Stroke Centers requires data collection for all 10 measures in the set.

GENERAL POPULATION IDENTIFICATION DISEASE SPECIFIC MEASURES - STROKE

The identification of patients/participants for inclusion in the performance measures related to stroke begins with a core set of data elements. These variables must be collected to determine eligibility for inclusion in any of the measure populations as well as case identification for analysis purposes. The first data elements listed are for administrative purposes in the dataset.

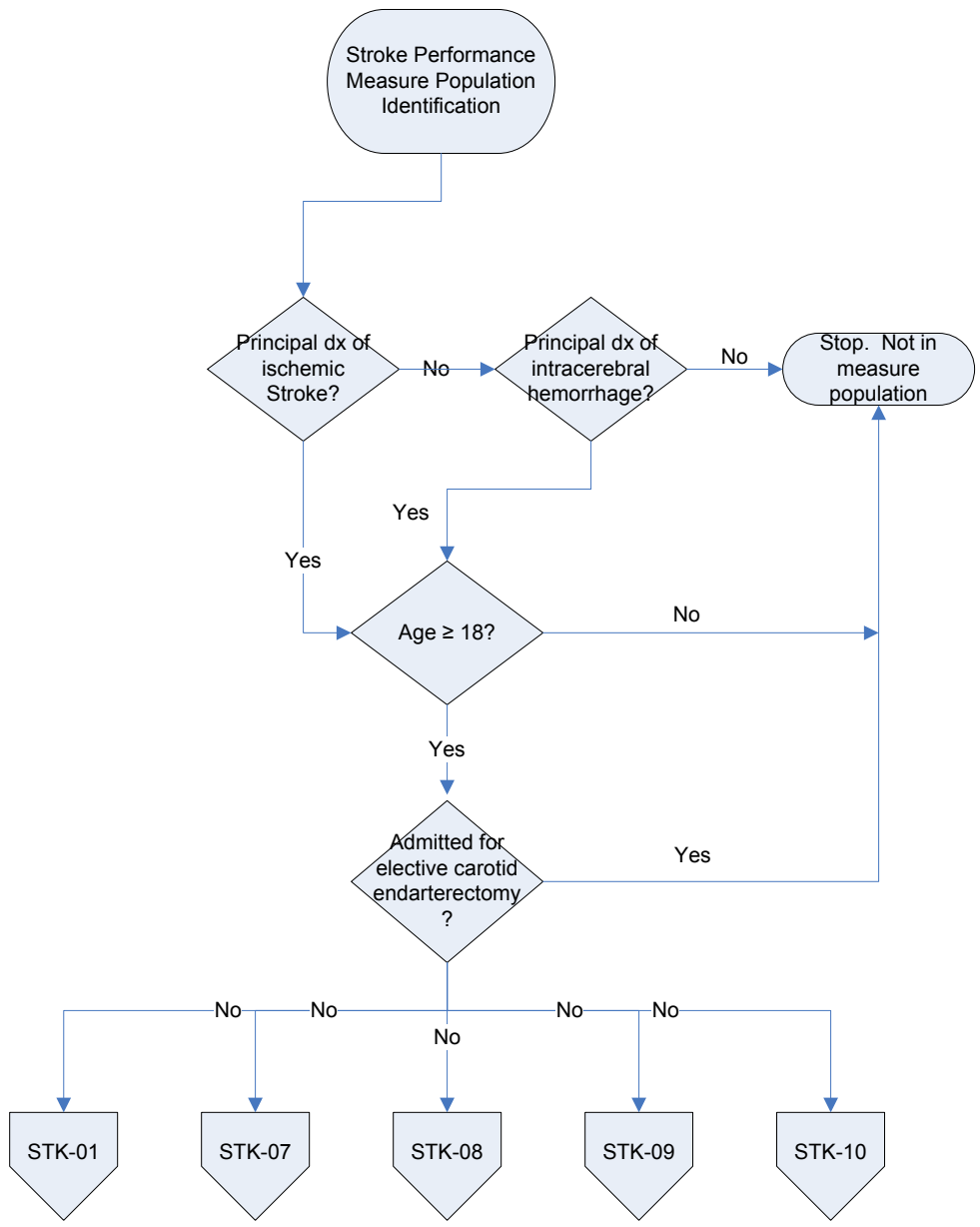
- **Case Identifier**
- **Gender**

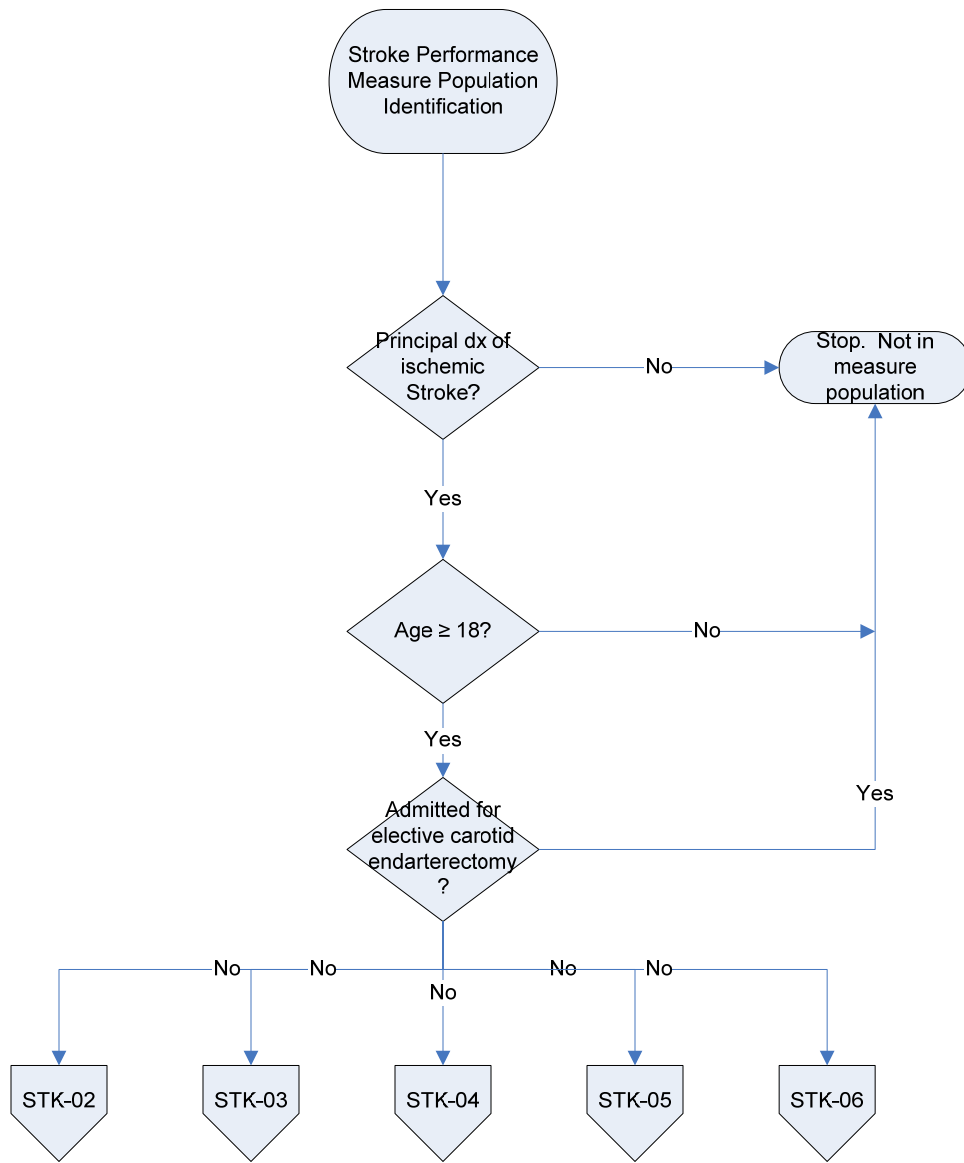
The data elements listed next define the general pool of patients/participants who are eligible for consideration in each of the stroke measure populations. A flowchart follows that depicts the evaluation process for inclusion in the general population.

- **Diagnosis of Ischemic Stroke or Hemorrhagic Stroke**
- **(ICD-9-CM Principal Diagnosis Code)**
- **Birth date (age 18 or older)**
- **Treated at a Primary Stroke Center that is a certified Disease Specific Care (DSC) Program**

*This measure set is applicable to patients with diagnoses of ischemic stroke and hemorrhagic stroke. Each measure includes patients from one or both categories. The ICD-9-CM Principal Diagnosis Code that is used to identify the measure population is provided in tables found in the appendices (See Table 1 & Table 2). The following table identifies the population included in each measure:

No.	Measure	Ischemic	Hemorrhagic
STK-1	Deep Vein Thrombosis (DVT) Prophylaxis	X	X
STK-2	Discharged on Antithrombotic Therapy	X	
STK-3	Patients with Atrial Fibrillation Receiving Anticoagulation Therapy	X	
STK-4	Thrombolytic Therapy Administered	X	
STK-5	Antithrombotic Therapy By End of Hospital Day Two	X	
STK-6	Discharged on Cholesterol Reducing Medication	X	
STK-7	Dysphagia Screening	X	X
STK-8	Stroke Education	X	X
STK-9	Smoking Cessation / Advice / Counseling	X	X
STK-10	Assessed for Rehabilitation	X	X





Measure Information Form

DSC Measure Set: Stroke

Candidate Measure ID: DSC/Stroke-01

Performance Measure Name: Deep Vein Thrombosis (DVT) Prophylaxis

Patients with an ischemic stroke or a hemorrhagic stroke and who are non-ambulatory should start receiving DVT prophylaxis by end of hospital day two.

Rationale:

Patients experiencing a stroke that involves a paretic or paralyzed lower extremity are at increased risk of developing deep vein thrombosis (DVT). One study noted proximal deep vein thrombosis in more than a third of patients with moderately severe stroke. Reported rates of occurrence vary depending on the type of screening used. Prevention of DVT, through the use of prophylactic strategies, in at risk patients is a noted recommendation in numerous clinical practice guidelines. Non-pharmacologic approaches include early mobilization and use of intermittent pneumatic compression stockings. Pharmacologic approaches involve early anticoagulant therapy including the administration of subcutaneous unfractionated heparin, low-molecular-weight (LMW) heparins and heparinoids if there are no contraindications. Aspirin alone is not recommended as an agent to prevent DVT.

Clinical Practice Guidelines Supporting Measure:

- Ralph L. Sacco, Robert Adams, Greg Albers, Mark J. Alberts, Oscar Benavente, ; Karen Furie, Larry B. Goldstein, Philip Gorelick, Jonathan Halperin, Robert Harbaugh, S. Claiborne Johnston, Irene Katzan, Margaret Kelly-Hayes, Edgar J. Kenton, Michael Marks, Lee H. Schwamm, Thomas Tomsick. Guidelines for Prevention of Stroke in Patients With Ischemic Stroke or Transient Ischemic Attack: A Statement for Healthcare Professionals From the American Heart Association/American Stroke Association Council on Stroke: Co-Sponsored by the Council on Cardiovascular Radiology and Intervention. *Stroke* Vol. 37, 2006:577
- Duncan et al, Stroke Rehabilitation Clinical Practice Guidelines (*Stroke*. 2005;36:e100-e143.)
- Geerts WH, Pineo GF, Heit JA, et al. Prevention of venous thromboembolism: the Seventh ACCP Conference on Antithrombotic and Thrombolytic Therapy. *Chest*. Sep 2004;126(3 Suppl):338S-400S.
- Post-Stroke Rehabilitation Guideline No.16, Agency for Healthcare Policy and Research (Now known as Agency for Healthcare Research and Quality), 1995

Type of Measure: Process

Improvement Noted As: An increase in rate

Numerator Statement: Non-ambulatory ischemic or hemorrhagic stroke patients who had DVT prophylaxis initiated by end of hospital day two.

Included Populations: Not applicable

Excluded Populations: None

Data Elements:

- DVT Prophylaxis Initiated by End of Hospital Day 2

Denominator Statement: Ischemic or hemorrhagic stroke patients who are non-ambulatory at the end of hospital day 2.

Included Populations: *

- Patients with a diagnosis of ischemic or hemorrhagic stroke. Refer to Appendices, Table 1 for ICD-9-CM principal diagnosis codes for ischemic and hemorrhagic stroke.
- Patients with a diagnosis of hemorrhagic stroke. Refer to Appendices, Table 2 for ICD-9-CM principal diagnosis codes for hemorrhagic stroke.
- Patients who are non-ambulatory by end of hospital day 2

* Refer to Get With The Guidelines & Coverdell specific processes for identifying populations for working rates

Excluded Populations:

- Patients who are discharged prior to end of hospital day 2:
- Patients receiving comfort measures only by end of hospital day 2
- Patients admitted for the performance of elective carotid endarterectomy
- Patients ambulating by end of hospital day 2

Data Elements:**General data elements (applicable to all measures):**

- Admission Date
- Arrival Date
- Arrival Time
- Birthdate
- Case Identifier
- Comfort Measures Only
- Discharge Date
- Discharge Status
- Hispanic Ethnicity
- ICD-9-CM Principal Diagnosis Code
- Point of Origin for Admission or Visit
- Race
- Report Period
- Sex

Clinical/measure specific data elements:

- Patient Ambulatory at End of Hospital Day Two
- Admitted for Elective Carotid Endarterectomy

Risk Adjustment: No

Data Collection Approach: Concurrent and retrospective data collection through administrative data/claims data, and medical record.

Data Accuracy:

ICD-9-CM Codes: Variation may exist in the assignment of ICD-9-CM codes; therefore, coding practices may require evaluation to ensure consistency.

Age Groups: ≥ 18

Data Reported As: Proportion

Setting: Inpatient Hospital - Primary Stroke Centers

Report Period: Quarterly with monthly data points

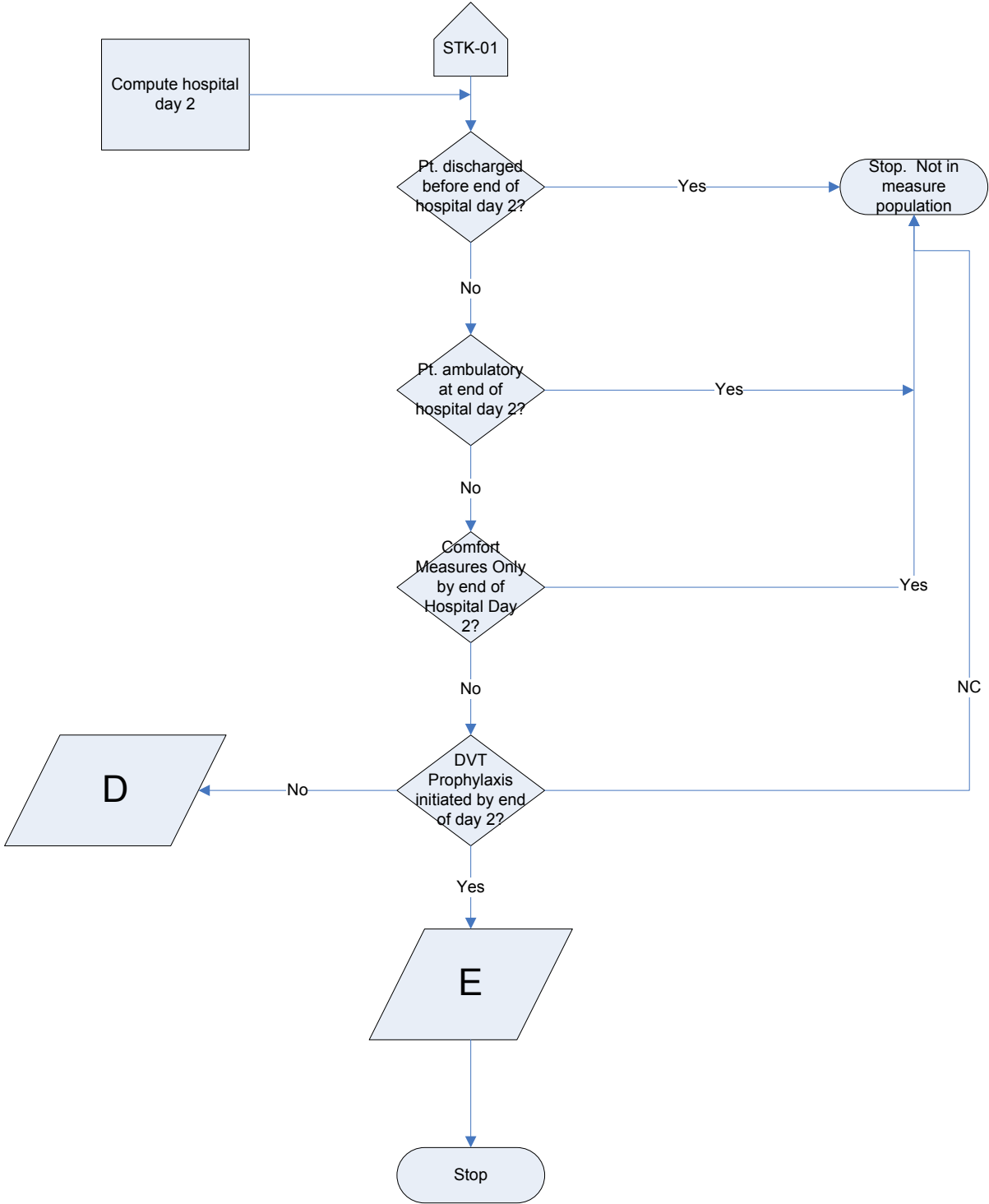
Selected References:

Gregory W. Albers, Pierre Amarenco, J. Donald Easton, Ralph L. Sacco, and Philip Teal
Antithrombotic and Thrombolytic Therapy for Ischemic Stroke. *Chest* Vol. 119, 2001: 300-320

Coull BM, Williams LS, Goldstein LB, et al. Anticoagulants and Antiplatelet Agents in Acute Ischemic Stroke. Report of the Joint Stroke Guideline Development Committee of the American Academy of Neurology and the American Stroke Association (a Division of the American Heart Association) *Stroke*. 2002;33:1934 -1942.

Desmukh M., Bisignami M, Landau P, Orchard TJ. Deep vein thrombosis in rehabilitating stroke patients: incidence, risk factors and prophylaxis. *American Journal Physical Medicine Rehabilitation*. 1991; 70:313-316.

STK-01: DVT Prophylaxis



Rate = $E / (D + E)$

Measure Information Form

DSC Measure Set: Stroke

Measure ID: DSC/Stroke-02

Performance Measure Name: Discharged on Antithrombotic Therapy

Patients with an ischemic stroke prescribed antithrombotic therapy at discharge

Rationale: The effectiveness of antithrombotic agents in reducing stroke mortality, stroke-related morbidity and recurrence rates has been studied in several large clinical trials. While the use of these agents for patients with acute ischemic stroke and transient ischemic attacks continues to be the subject of study, substantial evidence is available from completed studies. Data at this time suggest that antithrombotic therapy should be prescribed at discharge following acute ischemic stroke to reduce stroke mortality and morbidity as long as no contraindications exist. For patients with a stroke due to a cardioembolic source (e.g., atrial fibrillation, mechanical heart valve), warfarin is recommended unless contraindicated. Warfarin is not generally recommended for secondary stroke prevention in patients presumed to have a non-cardioembolic stroke.

Anticoagulants at doses to prevent deep vein thrombosis are insufficient antithrombotic therapy to prevent recurrent ischemic stroke or TIA.

Clinical Practice Guidelines Supporting Measure:

- Ralph L. Sacco, Robert Adams, Greg Albers, Mark J. Alberts, Oscar Benavente, ; Karen Furie, Larry B. Goldstein, Philip Gorelick, Jonathan Halperin, Robert Harbaugh, S. Claiborne Johnston, Irene Katzan, Margaret Kelly-Hayes, Edgar J. Kenton, Michael Marks, Lee H. Schwamm, Thomas Tomsick. Guidelines for Prevention of Stroke in Patients With Ischemic Stroke or Transient Ischemic Attack: A Statement for Healthcare Professionals From the American Heart Association/American Stroke Association Council on Stroke: Co-Sponsored by the Council on Cardiovascular Radiology and Intervention. *Stroke* Vol. 37, 2006:577
- Gregory W. Albers, Pierre Amarenco, J. Donald Easton, Ralph L. Sacco, and Philip Teal Antithrombotic and Thrombolytic Therapy for Ischemic Stroke. *Chest* Vol. 119 2001: 300-320
- Harold Adams, Robert Adams, Gregory Del Zoppo and Larry B. Goldstein. Guidelines for the Early Management of Patients With Ischemic Stroke: Guidelines Update A Scientific Statement From the Stroke Council of the American Heart Association/American Stroke Association. *Stroke* Vol. 36, 2005: 916:923
- Coull BM, Williams LS, Goldstein LB, et al. Anticoagulants and Antiplatelet Agents in Acute Ischemic Stroke. Report of the Joint Stroke Guideline Development Committee of the American Academy of Neurology and the American Stroke Association (a Division of the American Heart Association) *Stroke*. 2002;33:1934 -1942.
- Guideline on the Use of Aspirin as Secondary Prophylaxis for Vascular Disease in Primary Care, Centre for Health Services Research University of Newcastle upon Tyne, & Centre for Health Economics of York, 1998

Type of Measure: Process

Improvement Noted As: An increase in rate

Numerator Statement: Number of patients prescribed antithrombotic therapy at hospital discharge

Included Populations: Not applicable

Excluded Populations: None

Data Elements:

- Antithrombotic Therapy Prescribed at Discharge

Denominator Statement: Number of patients with ischemic stroke

Included Populations: *

- Patients with a principal diagnosis of ischemic stroke. Refer to Appendix, Table 1 for appropriate ICD-9-CM principal diagnosis codes.

* Refer to Get With The Guidelines & Coverdell specific processes for identifying populations for working rates

Excluded Populations:

- Patients discharged/transferred to another short term general hospital for inpatient care
- Patients who expired
- Patients who expired from a medical facility
- Patients who left against medical advice
- Patients discharged to hospice (home or facility)
- Patients receiving comfort measures only
- Patients for whom discharge destination cannot be determined or missing
- Patients admitted for the performance of elective carotid endarterectomy

Data Elements:

General data elements (applicable to all measures):

- Admission Date
- Arrival Date
- Arrival Time
- Birthdate
- Case Identifier
- Comfort Measures Only
- Discharge Date
- Discharge Status
- Hispanic Ethnicity
- ICD-9-CM Principal Diagnosis Code
- Point of Origin for Admission or Visit
- Race
- Report Period
- Sex

Clinical/measure specific data elements:

- Admitted for Elective Carotid Endarterectomy

Risk Adjustment: No

Data Collection Approach: Concurrent and retrospective data collection through administrative data/claims data, and medical record.

Data Accuracy:

ICD-9-CM Codes: Variation may exist in the assignment of ICD-9-CM codes; therefore, coding practices may require evaluation to ensure consistency.

Age Groups: ≥ 18

Data Reported As: Proportion

Setting: Inpatient Hospital - Primary Stroke Centers

Report Period: Quarterly with monthly data points

Selected References:

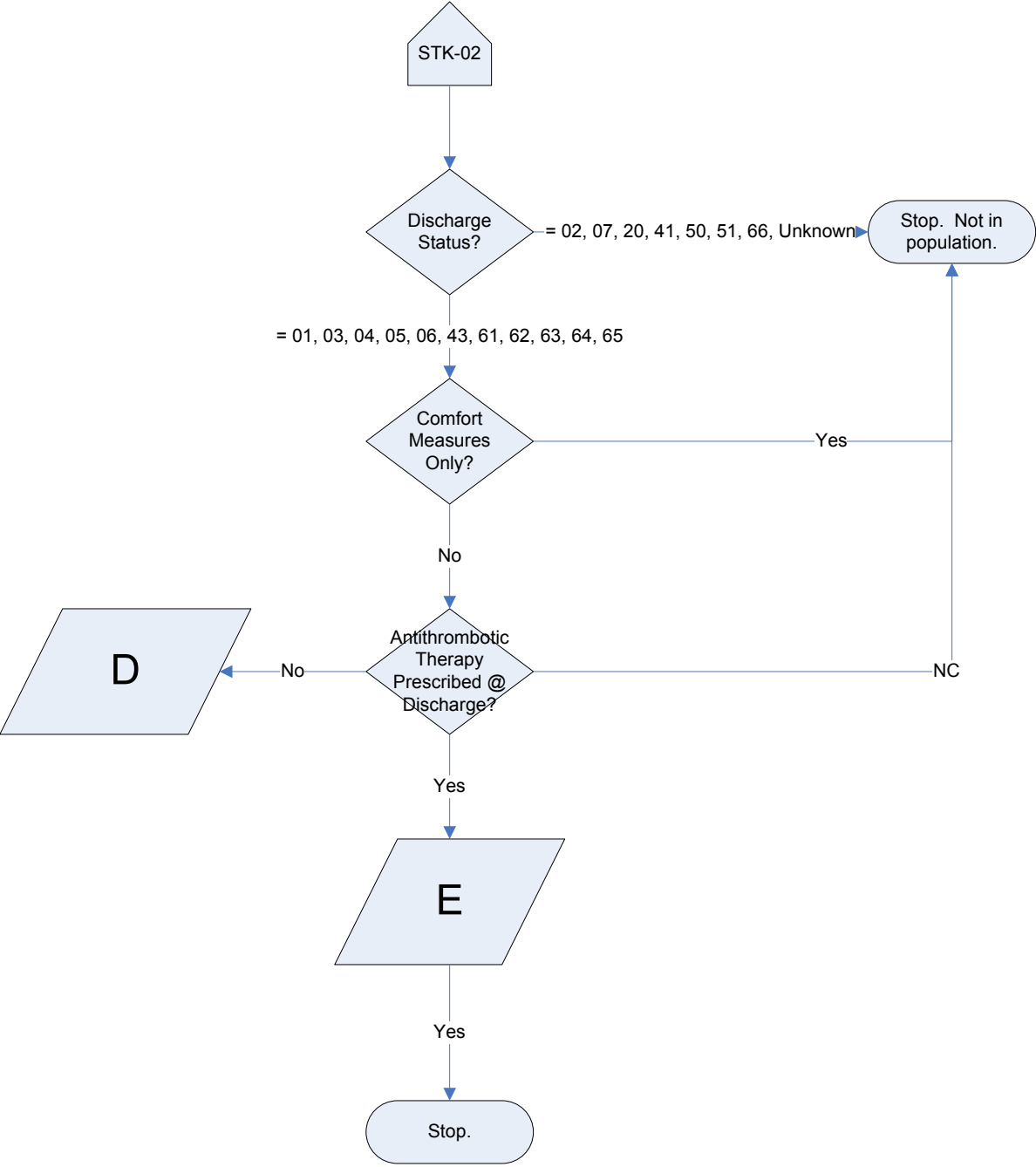
Harold Adams, Robert Adams, Gregory Del Zoppo and Larry B. Goldstein. Guidelines for the Early Management of Patients With Ischemic Stroke: Guidelines Update A Scientific Statement From the Stroke Council of the American Heart Association/American Stroke Association. *Stroke* Vol. 36, 2005: 916:923

Brott TG, Clark WM, Grotta JC, et al. Stroke the first hours. Guidelines for acute treatment. Consensus Statement. National Stroke Association. 2000.

Chen ZM, Sandercock P, Pan HC, et al. Indications for early aspirin use in acute ischemic stroke: a combined analysis of 40,000 randomized patients from the Chinese acute stroke trial and the international stroke trial. On behalf of the CAST and IST collaborative groups, *Stroke* 2000;31:1240-1249

Coull BM, Williams LS, Goldstein LB, et al. Anticoagulants and Antiplatelet Agents in Acute Ischemic Stroke. Report of the Joint Stroke Guideline Development Committee of the American Academy of Neurology and the American Stroke Association (a Division of the American Heart Association) *Stroke*. 2002;33:1934 -1942.

STK-02: Discharged on Antithrombotic Therapy



Rate = $E / (D + E)$

Measure Information Form

DSC Measure Set: Stroke

Candidate Measure ID: DSC/Stroke-03

Performance Measure Name: Patients with Atrial Fibrillation Receiving Anticoagulation Therapy

Patients with an ischemic stroke with atrial fibrillation discharged on anticoagulation therapy.

Rationale: Nonvalvular atrial fibrillation (NVAF) is a common arrhythmia and an important risk factor for stroke. It is one of several conditions and lifestyle factors that have been identified as risk factors for stroke. It has been estimated that over 2 million adults in the United States have NVAF. While the median age of patients with atrial fibrillation is 75 years, the incidence increases with advancing age. For example, The Framingham Heart Study noted a dramatic increase in stroke risk associated with atrial fibrillation with advancing age, from 1.5% for those 50 to 59 years of age to 23.5% for those 80 to 89 years of age. Furthermore, a prior stroke or transient ischemic attack (TIA) are among a limited number of predictors of high stroke risk within the population of patients with atrial fibrillation. Therefore, much emphasis has been placed on identifying methods for preventing recurrent ischemic stroke as well as preventing first stroke. Prevention strategies focus on the modifiable risk factors such as hypertension, smoking, and atrial fibrillation. Analysis of five placebo-controlled clinical trials investigating the efficacy of warfarin in the primary prevention of thromboembolic stroke, found the relative risk of thromboembolic stroke was reduced by 68% for atrial fibrillation patients treated with warfarin. The administration of antithrombotic therapy, unless there are contraindications, is an established effective strategy in preventing recurrent stroke in high stroke risk-atrial fibrillation patients with TIA or prior stroke.

Clinical Practice Guidelines Supporting Measure:

- Fuster et al., ACC/AHA/ESC Guidelines for the Management of Patients with Atrial Fibrillation, JACC Vol.38, August 2001:1231-6
- Ralph L. Sacco, Robert Adams, Greg Albers, Mark J. Alberts, Oscar Benavente, ; Karen Furie, Larry B. Goldstein, Philip Gorelick, Jonathan Halperin, Robert Harbaugh, S. Claiborne Johnston, Irene Katzan, Margaret Kelly-Hayes, Edgar J. Kenton, Michael Marks, Lee H. Schwamm, Thomas Tomsick. Guidelines for Prevention of Stroke in Patients With Ischemic Stroke or Transient Ischemic Attack: A Statement for Healthcare Professionals From the American Heart Association/American Stroke Association Council on Stroke: Co-Sponsored by the Council on Cardiovascular Radiology and Intervention. *Stroke* Vol. 37, 2006:577
- Larry B. Goldstein, Chair; Robert Adams; Mark J. Albert; Lawrence J. Appel; Lawrence M. Brass; Cheryl D. Bushnell; Antonio Culebras; Thomas J. DeGraba; Philip B. Gorelick; John R. Guyton; Robert G. Hart; George Howard; Margaret Kelly-Hayes; J.V. (Ian) Nixon; Ralph L. Sacco. Primary Prevention of Ischemic Stroke: A Guideline From the American Heart Association/American Stroke Association Stroke Council: Cosponsored by the Atherosclerotic Peripheral Vascular Disease Interdisciplinary Working Group; Cardiovascular Nursing Council; Clinical Cardiology Council; Nutrition, Physical Activity, and Metabolism Council; and the Quality of Care and Outcomes Research Interdisciplinary Working Group: The American Academy of Neurology affirms the value of this guideline. *Stroke*. 2006;37:1583

Type of Measure: Process

Improvement Noted As: An increase in rate

Numerator Statement: Patients discharged on anticoagulation therapy

Included Populations: Not applicable

Excluded Populations: None

Data Elements:

- Patient discharged on Anticoagulation Therapy

Denominator Statement: Patients with a diagnosis of ischemic stroke with documented atrial fibrillation.

Included Populations*

- Patients with a diagnosis of ischemic stroke. Refer to Appendices, Table 1 for ICD-9-CM Principal Diagnosis Codes for ischemic stroke.
- Patients with an “other” diagnosis of atrial fibrillation: ICD-9-CM Diagnosis Codes 427.31 or 427.32.

* Refer to Get With The Guidelines & Coverdell specific processes for identifying populations for working rates

Excluded Populations:

- Patients discharged/transferred to another short term general hospital for inpatient care
- Patients who expire
- Patients who left against medical advice
- Patients discharged to hospice
- Patients receiving comfort measures only
- Patients admitted for the performance of elective carotid endarterectomy

Data Elements:

General data elements (applicable to all measures):

- Admission Date
- Arrival Date
- Arrival Time
- Birthdate
- Case Identifier
- Comfort Measures Only
- Discharge Date
- Discharge Status
- Hispanic Ethnicity
- ICD-9-CM Principal Diagnosis Code
- Point of Origin for Admission or Visit
- Race
- Report Period
- Sex

Clinical/measure specific data elements:

- Admitted for Elective Carotid Endarterectomy
- Atrial Fibrillation

Risk Adjustment: No

Data Accuracy:

ICD-9-CM Codes: Variation may exist in the assignment of ICD-9-CM codes; therefore, coding practices may require evaluation to ensure consistency.

Data Collection Approach: Concurrent and retrospective data collection through administrative data/claims data, and medical record.

Age Groups: ≥ 18

Data Reported As: Proportion

Setting: Inpatient Hospital - Primary Stroke Centers

Report Period: Quarterly

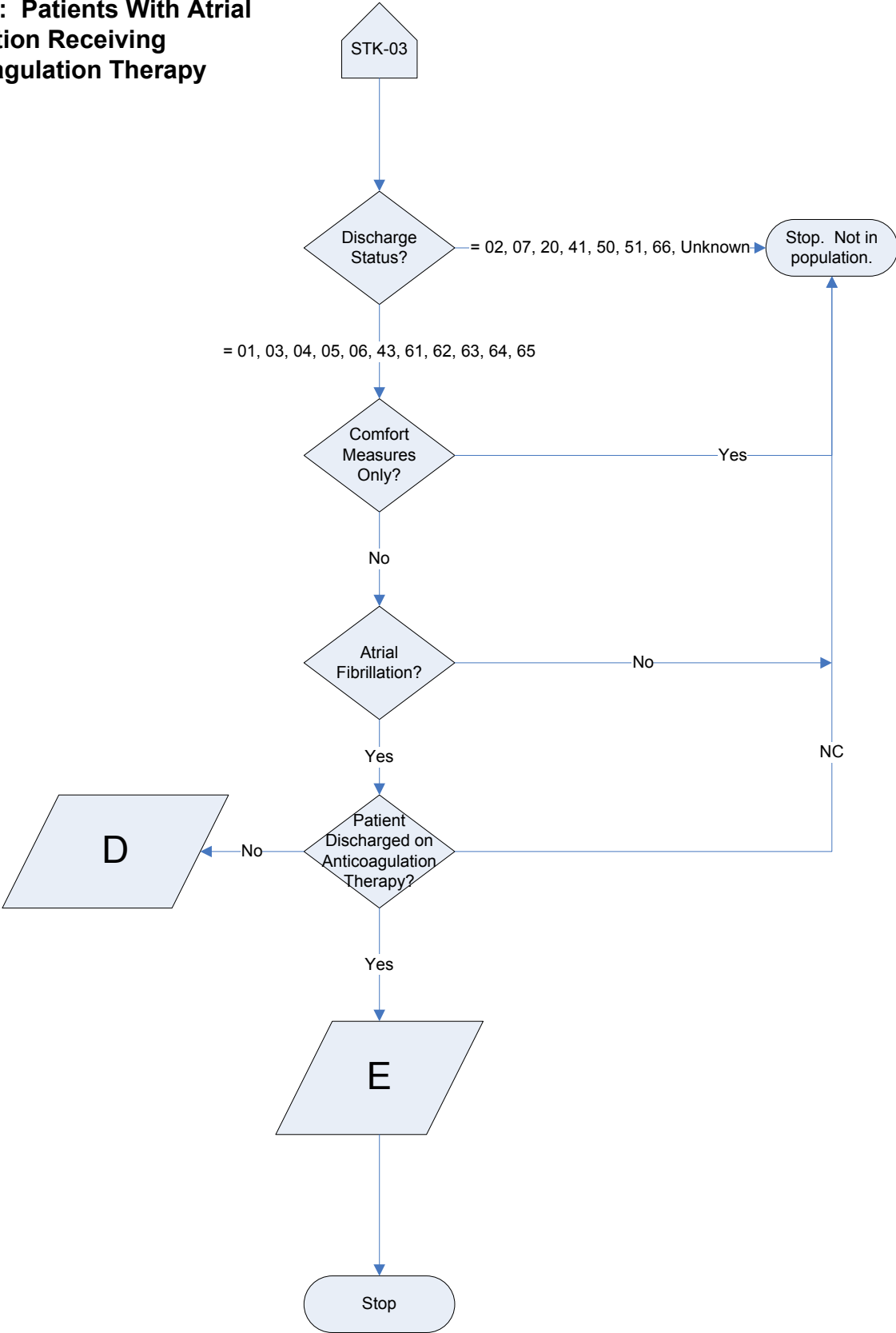
Selected References:

Ralph L. Sacco, Robert Adams, Greg Albers, Mark J. Alberts, Oscar Benavente, ; Karen Furie, Larry B. Goldstein, Philip Gorelick, Jonathan Halperin, Robert Harbaugh, S. Claiborne Johnston, Irene Katzan, Margaret Kelly-Hayes, Edgar J. Kenton, Michael Marks, Lee H. Schwamm, Thomas Tomsick. Guidelines for Prevention of Stroke in Patients With Ischemic Stroke or Transient Ischemic Attack: A Statement for Healthcare Professionals From the American Heart Association/American Stroke Association Council on Stroke: Co-Sponsored by the Council on Cardiovascular Radiology and Intervention. *Stroke* Vol. 37, 2006:577

Prevention of a First Stroke: A Review of Guidelines and a Multidisciplinary Consensus Statement from the National Stroke Association. National Stroke Association. *JAMA*. 1999;281:1112-1120.

Larry B. Goldstein, Chair; Robert Adams; Mark J. Albert; Lawrence J. Appel; Lawrence M. Brass; Cheryl D. Bushnell; Antonio Culebras; Thomas J. DeGraba; Philip B. Gorelick; John R. Guyton; Robert G. Hart; George Howard; Margaret Kelly-Hayes; J.V. (Ian) Nixon; Ralph L. Sacco. Primary Prevention of Ischemic Stroke: A Guideline From the American Heart Association/American Stroke Association Stroke Council: Cosponsored by the Atherosclerotic Peripheral Vascular Disease Interdisciplinary Working Group; Cardiovascular Nursing Council; Clinical Cardiology Council; Nutrition, Physical Activity, and Metabolism Council; and the Quality of Care and Outcomes Research Interdisciplinary Working Group: The American Academy of Neurology affirms the value of this guideline. *Stroke*. 2006;37:1583

STK-03: Patients With Atrial Fibrillation Receiving Anticoagulation Therapy



Rate = $E / (D + E)$

Measure Information Form

DSC Measure Set: Stroke

Candidate Measure ID: DSC/Stroke-04: Thrombolytic Therapy Administered

Performance Measure Name: Acute ischemic stroke patients who arrive at the hospital within 120 minutes (2 hours) of time last known well and for whom IV t-PA was initiated at this hospital within 180 minutes (3 hours) of time last known well.

Rationale: The administration of thrombolytic agents to carefully screened, eligible patients with acute ischemic stroke has been shown to be beneficial in several clinical trials. These included two positive randomized controlled trials in the United States; The National Institute of Neurological Disorders and Stroke (NINDS) Studies, Part I and Part II. Based on the results of these studies, the Food and Drug Administration approved the use of intravenous recombinant tissue plasminogen activator (IV r-TPA or t-PA) for the treatment of acute ischemic stroke when given within 3 hours of stroke symptom onset. A large meta-analysis controlling for factors associated with stroke outcome confirmed the benefit of IV tPA in patients treated within 3 hours of symptom onset. While controversy still exists among some specialists, the major society practice guidelines developed in the United States all recommend the use of IV t-PA for eligible patients. Physicians with experience and skill in stroke management and the interpretation of CT scans should supervise treatment.

Clinical Practice Guidelines Supporting Measure:

- Ralph L. Sacco, Robert Adams, Greg Albers, Mark J. Alberts, Oscar Benavente, ; Karen Furie, Larry B. Goldstein, Philip Gorelick, Jonathan Halperin, Robert Harbaugh, S. Claiborne Johnston, Irene Katzan, Margaret Kelly-Hayes, Edgar J. Kenton, Michael Marks, Lee H. Schwamm, Thomas Tomsick. Guidelines for Prevention of Stroke in Patients With Ischemic Stroke or Transient Ischemic Attack: A Statement for Healthcare Professionals From the American Heart Association/American Stroke Association Council on Stroke: Co-Sponsored by the Council on Cardiovascular Radiology and Intervention. *Stroke* Vol. 37, 2006:577
- Harold Adams, Robert Adams, Gregory Del Zoppo and Larry B. Goldstein. American Heart Association/American Stroke Association Guidelines Update A Scientific Statement From the Stroke Council of the Guidelines for the Early Management of Patients With Ischemic Stroke: 2005, *Stroke* 2005;36:916-923.
- Diagnosis and Initial Treatment of Ischemic Stroke, Institute for Clinical Systems Improvement (ICSI), 2001.
- Management of Patients with Stroke. Assessment, investigation, immediate management and secondary prevention, Scottish Intercollegiate Guidelines Network, 1997.
- STROKE the First Hours Guidelines for Acute Treatment, National Stroke Association, 2000.
- Antithrombotic and Thrombolytic Therapy for Ischemic Stroke The Seventh ACCP Conference on Antithrombotic and Thrombolytic Therapy. Gregory W. Albers, MD, Chair; Pierre Amarenco, MD; J. Donald Easton, MD; Ralph L. Sacco, MD; and Philip Teal, MD (CHEST 2004; 126:483S–512S)

Type of Measure: Process

Improvement Noted As: An increase in rate

Numerator Statement: The number of patients for whom IV thrombolytic therapy was initiated at this hospital within 3 hours (\leq 180 minutes) of time last known well.

Included Populations: Not applicable

Excluded Populations: None

Data Elements:

- Date IV Thrombolytic Administered at This Hospital
- Date Last Known Well
- IV Thrombolytic Administered
- Time IV Thrombolytic Administered at This Hospital
- Time Last Known Well

Denominator Statement: All patients with acute ischemic stroke whose time of arrival is within 2 hours (120 minutes) of time last known well.

Included Populations: *

- Patients with a diagnosis of ischemic stroke. (Refer to Appendices, Table 1 for ICD-9-CM principal diagnosis codes for ischemic stroke)
- Time last known well \leq 2 hours from arrival time

* Refer to Get With The Guidelines & Coverdell specific processes for identifying populations for working rates

Excluded Populations:

- Patients admitted for the performance of elective carotid endarterectomy
- Time last known well to arrival in the emergency department greater than (>) 2 hours or unknown

Data Elements:

General data elements (applicable to all measures):

- Admission Date
- Arrival Date
- Arrival Time
- Birthdate
- Case Identifier
- Comfort Measures Only
- Discharge Date
- Discharge Status
- Hispanic Ethnicity
- ICD-9-CM Principal Diagnosis Code
- Point of Origin for Admission or Visit
- Race
- Report Period
- Sex

Clinical/measure specific data elements:

- Date Last Known Well
- Time Last Known Well
- Admitted for Elective Carotid Endarterectomy

Risk Adjustment: No

Data Collection Approach: Concurrent and retrospective data collection through administrative data/claims data, and medical record.

Data Accuracy:

ICD-9-CM Codes: Variation may exist in the assignment of ICD-9-CM codes; therefore, coding practices may require evaluation to ensure consistency.

Age Groups: ≥ 18

Data Reported As: Proportion

Setting: Inpatient Hospital - Primary Stroke Centers

Report Period: Quarterly with monthly data points

Selected References:

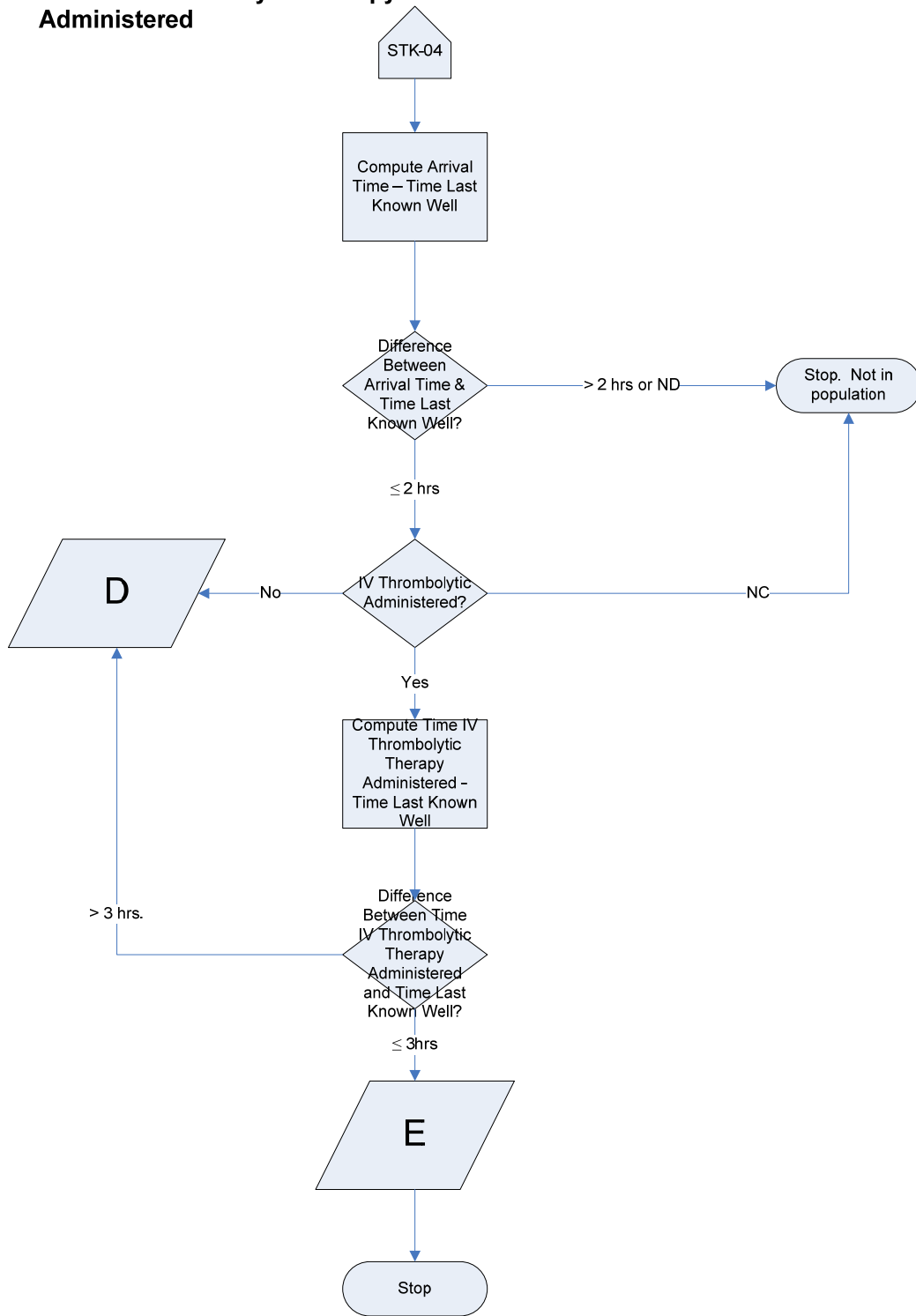
Hacke W, Kaste M, Fieschi C, et al. Intravenous thrombolysis with recombinant tissue plasminogen activator for acute hemispheric stroke. The European Cooperative Acute Stroke Study (ECASS). *JAMA* 1995;274:1017-1025.

Marler JR, Tilley BC, Lu M, Brott TG, Lyden PC, Grotta JC, Broderick JP, Levine SR, Frankel MP, Horowitz SH, Haley EC, Lewandowski CA, Kwiatkowski TP. Early Stroke treatment associated with better outcome The NINDS rt-PA Stroke Study. *Neurology* 2000;55:1649-1655.

The ATLANTIS, ECASS, and NINDS rt-PA Study Group Investigators. Association of Outcome with early stroke treatment: pooled analysis of ATLANTIS, ECASS, and NINDS rt-PA stroke Trials. *Lancet* 2004;363:768-774.

The National Institute of Neurological Disorders and Stroke rt-PA Stroke Study Group. Tissue plasminogen activator for acute ischemic stroke. The National Institute of Neurological Disorders and Stroke rt-PA Stroke Study Group. *New England Journal of Medicine* 1995;333:1581-1587.

STK-04: Thrombolytic Therapy Administered



Rate = $E/(D + E)$

Measure Information Form

DSC Measure Set: Stroke

Candidate Measure ID: DSC/Stroke-05

Performance Measure Name: Antithrombotic Therapy By End of Hospital Day Two

Patients with ischemic stroke who receive antithrombotic therapy by the end of hospital day two.

Rationale: The effectiveness of antithrombotic agents in reducing stroke mortality, stroke-related morbidity and recurrence rates has been studied in several large clinical trials. While the use of these agents for patients with acute ischemic stroke and transient ischemic attacks continues to be the subject of study, substantial evidence is available from completed studies. Data at this time suggest that antithrombotic therapy should be initiated within 48 hours of symptom onset in acute ischemic stroke patients to reduce stroke mortality and morbidity as long as no contraindications exist.

Anticoagulants at doses to prevent deep vein thrombosis are insufficient antithrombotic therapy to prevent recurrent ischemic stroke or TIA.

Clinical Practice Guidelines Supporting Measure:

- Ralph L. Sacco, Robert Adams, Greg Albers, Mark J. Alberts, Oscar Benavente, ; Karen Furie, Larry B. Goldstein, Philip Gorelick, Jonathan Halperin, Robert Harbaugh, S. Claiborne Johnston, Irene Katzan, Margaret Kelly-Hayes, Edgar J. Kenton, Michael Marks, Lee H. Schwamm, Thomas Tomsick. Guidelines for Prevention of Stroke in Patients With Ischemic Stroke or Transient Ischemic Attack: A Statement for Healthcare Professionals From the American Heart Association/American Stroke Association Council on Stroke: Co-Sponsored by the Council on Cardiovascular Radiology and Intervention. *Stroke* Vol. 37, 2006:577
- Gregory W. Albers, Pierre Amarenco, J. Donald Easton, Ralph L. Sacco, and Philip Teal Antithrombotic and Thrombolytic Therapy for Ischemic Stroke. *Chest* Vol. 119 2001: 300-320
- Harold Adams, Robert Adams, Gregory Del Zoppo and Larry B. Goldstein. American Heart Association/American Stroke Association Guidelines Update A Scientific Statement From the Stroke Council of the Guidelines for the Early Management of Patients With Ischemic Stroke: 2005, *Stroke* 2005;36:916-923.
- Coull BM, Williams LS, Goldstein LB, et al. Anticoagulants and Antiplatelet Agents in Acute Ischemic Stroke. Report of the Joint Stroke Guideline Development Committee of the American Academy of Neurology and the American Stroke Association (a Division of the American Heart Association) *Stroke*. 2002;33:1934 -1942.
- Guideline on the Use of Aspirin as Secondary Prophylaxis for Vascular Disease in Primary Care, Centre for Health Services Research University of Newcastle upon Tyne, & Centre for Health Economics of York, 1998

Type of Measure: Process

Improvement Noted As: An increase in rate

Numerator Statement: Patients with ischemic stroke who receive antithrombotic therapy by end of hospital day two

Included Populations: Not applicable

Excluded Populations: None

Data Elements:

- Antithrombotic Therapy Administered by End of Hospital Day Two

Denominator Statement: All patients with ischemic stroke

Included Populations: *

- Patients with a diagnosis of ischemic stroke. Refer to Appendices, Table 1 for ICD-9-CM principal diagnosis codes for ischemic stroke.

* Refer to Get With The Guidelines & Coverdell specific processes for identifying populations for working rates

Excluded Populations:

- Patients discharged before the end of hospital day 2

Data Elements:

General data elements (applicable to all measures):

- Admission Date
- Arrival Date
- Arrival Time
- Birthdate
- Case Identifier
- Comfort Measures Only
- Discharge Date
- Discharge Status
- Hispanic Ethnicity
- ICD-9-CM Principal Diagnosis Code
- Point of Origin for Admission or Visit
- Race
- Report Period
- Sex

Clinical/measure specific data elements:

- Admitted for Elective Carotid Endarterectomy

Risk Adjustment: No

Data Collection Approach: Concurrent and retrospective data collection through administrative data/claims data, and medical record.

Data Accuracy:

ICD-9-CM Codes: Variation may exist in the assignment of ICD-9-CM codes; therefore, coding practices may require evaluation to ensure consistency.

Age Groups: ≥ 18

Data Reported As: Proportion

Setting: Inpatient Hospital - Primary Stroke Centers

Report Period: Quarterly with monthly data points

Selected References:

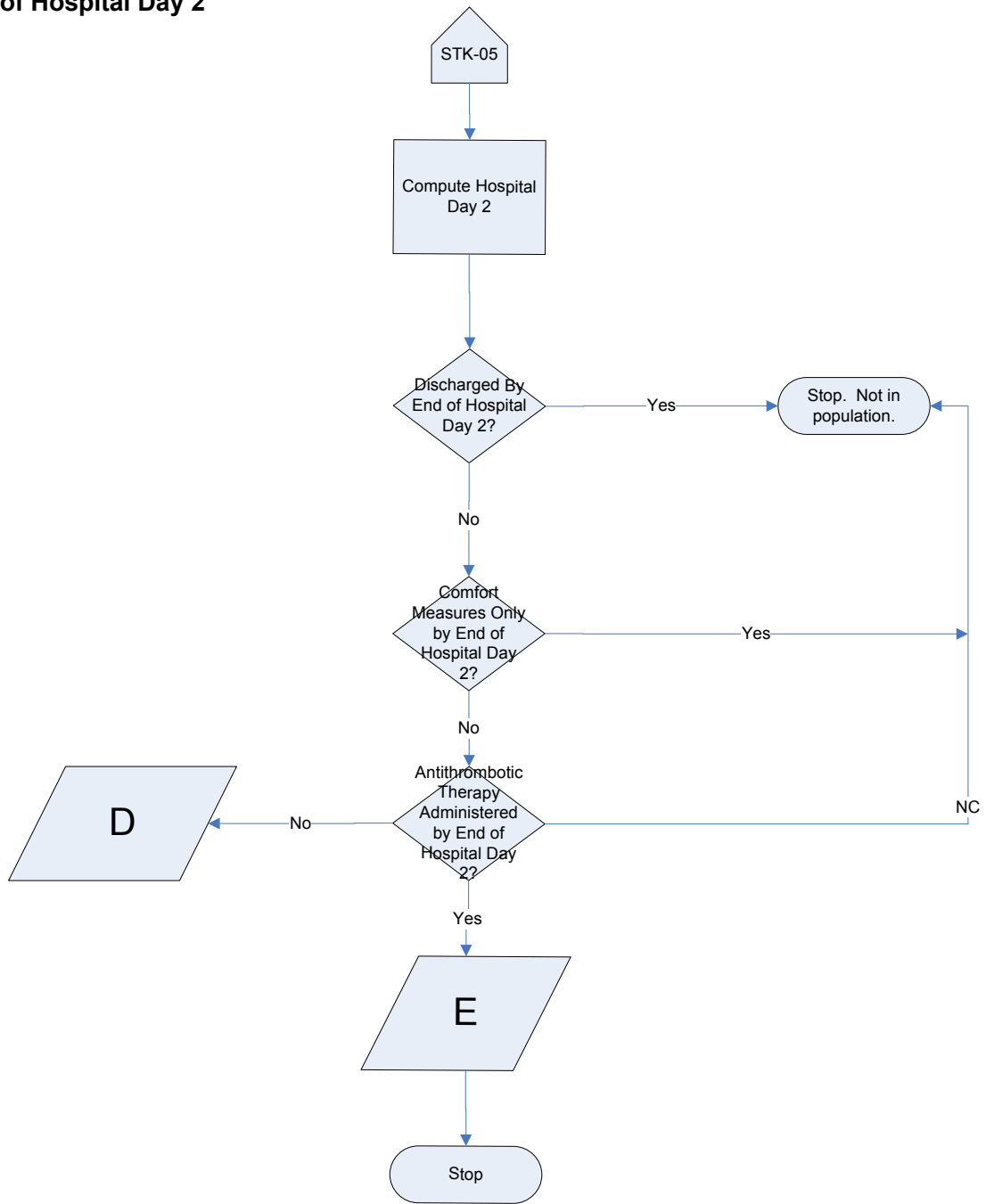
Harold Adams, Robert Adams, Gregory Del Zoppo and Larry B. Goldstein. Guidelines for the Early Management of Patients With Ischemic Stroke: Guidelines Update A Scientific Statement From the Stroke Council of the American Heart Association/American Stroke Association. *Stroke* Vol. 36, 2005: 916:923

Brott TG, Clark WM, Grotta JC, et al. Stroke the first hours. Guidelines for acute treatment. Consensus Statement. National Stroke Association. 2000.

Chen ZM, Sandercock P, Pan HC, et al. Indications for early aspirin use in acute ischemic stroke: a combined analysis of 40,000 randomized patients from the Chinese acute stroke trial and the international stroke trial. On behalf of the CAST and IST collaborative groups, *Stroke* 2000;31:1240-1249

Coull BM, Williams LS, Goldstein LB, et al. Anticoagulants and Antiplatelet Agents in Acute Ischemic Stroke. Report of the Joint Stroke Guideline Development Committee of the American Academy of Neurology and the American Stroke Association (a Division of the American Heart Association) *Stroke*. 2002;33:1934 -1942.

STK-05: Antithrombotic Therapy by End of Hospital Day 2



$$\text{Rate} = \frac{E}{D + E}$$

Measure Information Form

DSC Measure Set: Stroke

Candidate Measure ID: DSC/Stroke-06

Performance Measure Name: Discharged on Cholesterol Reducing Medication

Ischemic stroke patients with LDL>100, or LDL not measured, or on cholesterol-reducer prior to admission, who are discharged on cholesterol reducing drugs.

Rationale: An elevated serum lipid level has been a well-documented risk factor for coronary artery disease (CAD). Recently, there has been an increased focus on examining the relationship between elevated lipid levels and the incidence of stroke. In particular, some recent clinical trials have analyzed the association between lipids and non-hemorrhagic stroke. The reduction of LDL cholesterol, through lifestyle modification and drug therapy, for the prevention of strokes and other vascular events is recommended for patients with CAD in the National Cholesterol Education Program Adult Treatment Panel III (NCEP ATP III) Guidelines. In addition, recent evidence from the Stroke Prevention by Aggressive Reduction in Cholesterol Levels (SPARCL) trial supports the use of statins to lower LDL cholesterol in stroke patients without prior CAD and a fasting LDL > 100 mg/dL.

Based on these guidelines, all patients with ischemic stroke should have lipid profile measurement performed within 48 hours of admission unless outpatient results are available from within the past 30 days. Treatment for secondary prevention should be initiated in patients who meet NCEP ATP III criteria in the presence of LDL> 100 mg/dL, or continued for patients who were previously on lipid-lowering therapy and have an LDL< 100 mg/dL.

Clinical Practice Guideline Supporting Measure:

- Ralph L. Sacco, Robert Adams, Greg Albers, Mark J. Alberts, Oscar Benavente, ; Karen Furie, Larry B. Goldstein, Philip Gorelick, Jonathan Halperin, Robert Harbaugh, S. Claiborne Johnston, Irene Katzan, Margaret Kelly-Hayes, Edgar J. Kenton, Michael Marks, Lee H. Schwamm, Thomas Tomsick. Guidelines for Prevention of Stroke in Patients With Ischemic Stroke or Transient Ischemic Attack: A Statement for Healthcare Professionals From the American Heart Association/American Stroke Association Council on Stroke: Co-Sponsored by the Council on Cardiovascular Radiology and Intervention. Stroke Vol. 37, 2006:577
- Third Report of the National Cholesterol Education Program (NCEP) Expert Panel on Detection, Evaluation, and Treatment of High Blood Cholesterol in Adults (Adult Treatment Panel III) Final Report Circulation Vol. 106 2002: 3143-3421
- High-Dose Atorvastatin after Stroke or Transient Ischemic Attack. (New England Journal of Medicine. NEJM Vol. 355 2006:549-559,

Type of Measure: Process

Improvement Noted As: An increase in rate

Numerator Statement: Patients who were prescribed cholesterol reducing therapy at hospital discharge

Included Populations: Not applicable

Excluded Populations: None

Data Elements:

Cholesterol reducing therapy prescribed at discharge

Denominator Statement: All Ischemic stroke patients with an LDL \geq 100 mg/dL OR who were on cholesterol reducing therapy prior to hospitalization OR LDL not measured

Included Populations: *

- Patients with a diagnosis of ischemic stroke. Refer to Appendices, Table 1 for ICD-9-CM principal diagnosis codes for ischemic stroke.
- Patients with LDL \geq 100 mg/dL
- Patients with LDL not measured
- Patients who were on cholesterol reducing therapy prior to hospitalization

* Refer to Get With The Guidelines & Coverdell specific processes for identifying populations for working rates

Excluded Populations

- Patients discharged/transferred to another short term general hospital for inpatient care
- Patients who expired
- Patients who left against medical advice
- Patients discharged to hospice
- Patients receiving comfort measures only
- Patients admitted for the performance of elective carotid endarterectomy

Data Elements:

All general data elements AND:

- Admitted for elective carotid endarterectomy
- Cholesterol reducing therapy prior to hospitalization
- LDL \geq 100 mg/dL

Risk Adjustment: No

Data Collection Approach: Concurrent and retrospective data collection through administrative data/claims data, and medical record.

Age Groups: \geq 18

Data Reported As: Proportion

Setting: Inpatient Hospital - Primary Stroke Centers

Report Period: Quarterly with monthly data points

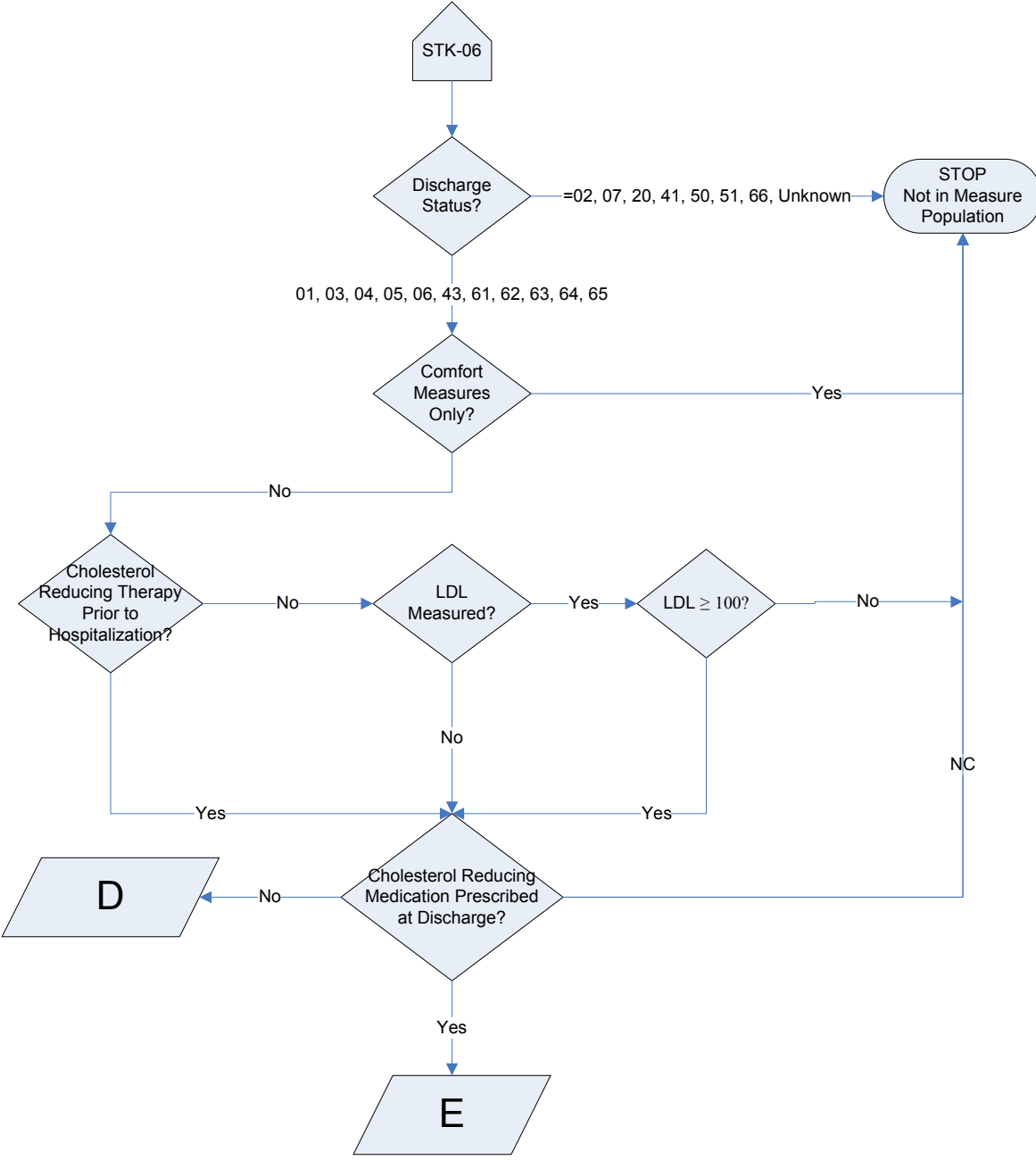
Selected References:

Feinberg WM, Albers GW, Barnett HJM, et al. Guidelines for the Management of Transient Ischemic Attacks. From the Ad Hoc Committee on Guidelines for the Management of Transient Ischemic Attacks of the Stroke Council of the American Heart Association. 1994.

National Institutes of Health. Third Report of the National Cholesterol Education Program (NCEP) Expert Panel on Detection, Evaluation, and Treatment of High Blood Cholesterol in Adults (Adult Treatment Panel III) Final Report. National Cholesterol Education Program National Heart, Lung, and Blood Institute National Institutes of Health. NIH Publication No. 12-5215. 2002.

Ralph L. Sacco, Robert Adams, Greg Albers, Mark J. Alberts, Oscar Benavente, ; Karen Furie, Larry B. Goldstein, Philip Gorelick, Jonathan Halperin, Robert Harbaugh, S. Claiborne Johnston, Irene Katzan, Margaret Kelly-Hayes, Edgar J. Kenton, Michael Marks, Lee H. Schwamm, Thomas Tomsick. Guidelines for Prevention of Stroke in Patients With Ischemic Stroke or Transient Ischemic Attack: A Statement for Healthcare Professionals From the American Heart Association/American Stroke Association Council on Stroke: Co-Sponsored by the Council on Cardiovascular Radiology and Intervention. Stroke Vol. 37, 2006:577.

STK-06: Discharged on Cholesterol Reducing Medication



Rate = $E / (D + E)$

Measure Information Form

DSC Measure Set: Stroke

Candidate Measure ID: DSC/Stroke-07

Performance Measure Name: Dysphagia Screening

Patients with ischemic or hemorrhagic stroke who undergo screening for dysphagia with a simple valid bedside testing protocol before being given any food, fluids, or medication by mouth.

Rationale: Dysphagia is a potentially serious complication of stroke. The importance of assessing a patient's ability to swallow, before approving the oral intake of fluids, food or medication, has been noted in multiple practice guidelines including the Agency for Healthcare Research and Quality (AHRQ) Post-Stroke Rehabilitation guideline. It has been estimated that 27-50% of stroke patients develop dysphagia. Furthermore, 43-54% of stroke patients with dysphagia will experience aspiration and of those patients 37% will develop pneumonia. Dysphagia may contribute to malnutrition and increased length of hospital stay. Most guidelines include a recommendation that all patients be screened for their ability to swallow and those with abnormal results be referred for a complete examination by a speech and language pathologist or other qualified individual. Recent evidence suggests that pneumonia rates in this population may be reduced when a systematic program of diagnosis and treatment of dysphagia is included in an ischemic stroke management plan.

Clinical Practice Guideline Supporting Measure:

- Post-Stroke Rehabilitation Guideline, Agency for Healthcare Research and Quality (formerly Agency for Health Care Policy and Research), 1995
- Management of Patients with Stroke, Identification and Management of Dysphagia Scottish Intercollegiate Guideline Network, 1997
- Duncan et al, Stroke Rehabilitation Clinical Practice Guidelines (Stroke. 2005;36:e100-e143.)
- Kaiser Permanente Clinical Practice Guidelines for Acute Stroke Quartet III Inpatient Management, 1998
- VA/DoD Clinical Practice Guideline for the Management of Stroke Rehabilitation in the Primary Care Setting, Department of Veteran Affairs Department of Defense, 2003

Type of Measure: Process

Improvement Noted As: An increase in rate

Numerator Statement: Patients who were screened for dysphagia before taking any food, fluids, or medications by mouth

Included Populations: Not applicable

Excluded Populations: None

Data Elements:

- Dysphagia Screen

Denominator Statement: All patients with acute ischemic or hemorrhagic stroke

Included Populations: *

- Patients with a diagnosis of ischemic stroke. Refer to Appendices, Table 1 for ICD-9-CM principal diagnosis codes for ischemic stroke.
- Patients with a diagnosis of hemorrhagic stroke. Refer to Appendices, Table 2 for ICD-9-CM principal diagnosis codes for hemorrhagic stroke.

* Refer to Get With The Guidelines & Coverdell specific processes for identifying populations for working rates

Excluded Populations:

- Patients admitted for the performance of elective carotid endarterectomy
- Patients who are NPO throughout the hospital stay

Data Elements:**General data elements (applicable to all measures):**

- Admission Date
- Arrival Date
- Arrival Time
- Birthdate
- Case Identifier
- Comfort Measures Only
- Discharge Date
- Discharge Status
- Hispanic Ethnicity
- ICD-9-CM Principal Diagnosis Code
- Point of Origin for Admission or Visit
- Race
- Report Period
- Sex

Measure specific data elements

- NPO throughout the hospital stay
- Admitted for elective carotid endarterectomy

Risk Adjustment: No

Data Collection Approach: Concurrent and retrospective data collection through administrative data/claims data, and medical record.

Data Accuracy:

ICD-9-CM Codes: Variation may exist in the assignment of ICD-9-CM codes; therefore, coding practices may require evaluation to ensure consistency.

Age Groups: Age \geq 18

Data Reported As: Proportion

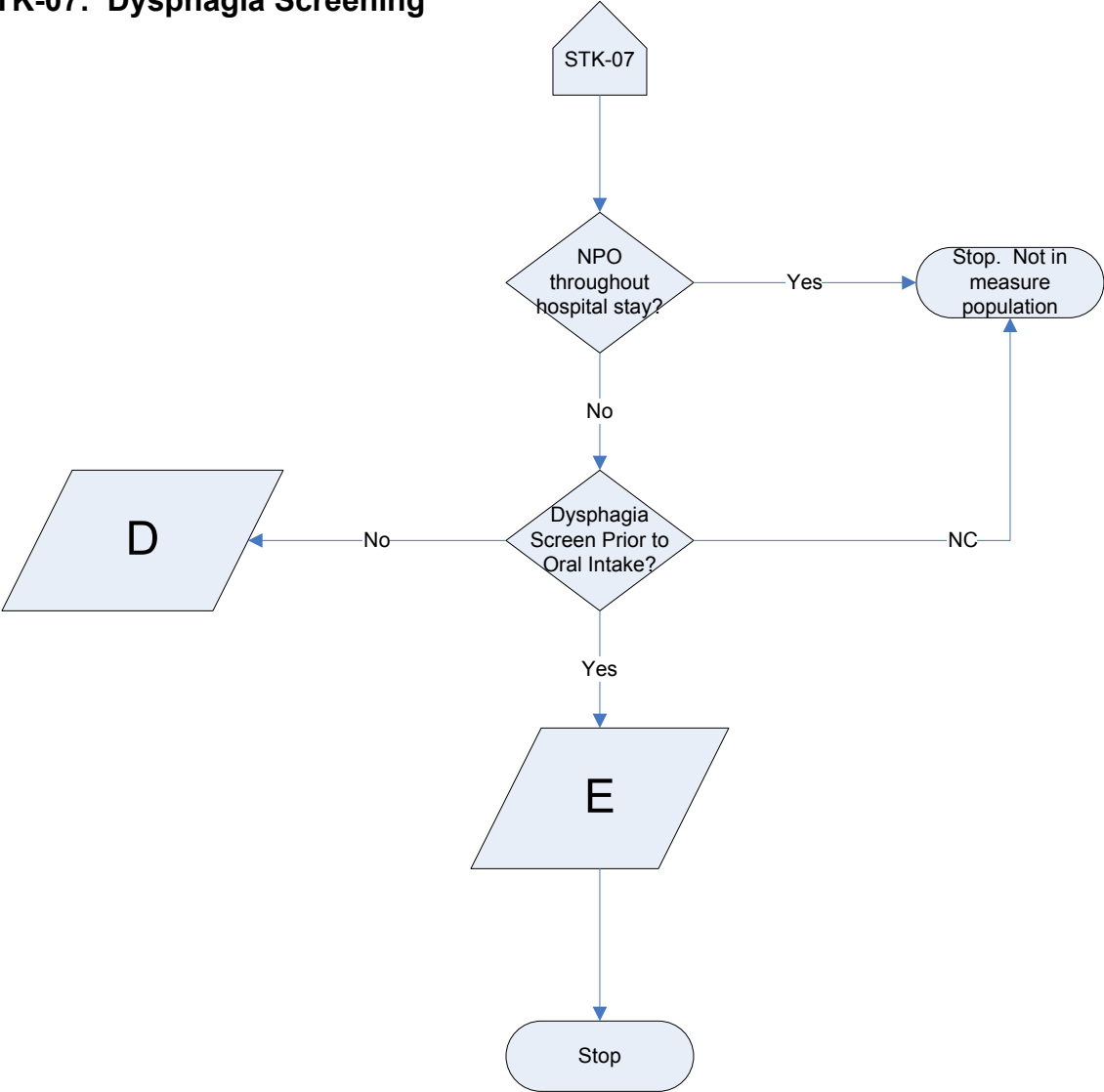
Setting: Primary Stroke Centers

Report Period: Quarterly with monthly data points

Selected References:

ECRI Investigators. Diagnosis and treatment of swallowing disorders (dysphagia) in acute-care stroke. Agency for Health Care Policy and Research. Evidence Report/Technology Assessment: Number 8. 1999.

STK-07: Dysphagia Screening



Rate = $E / (D + E)$

Measure Information Form

DSC Measure Set: Stroke

Candidate Measure ID: DSC/Stroke-08

Performance Measure Name: Stroke Education

Patients with ischemic or hemorrhagic stroke or their caregivers who were given education or educational materials during the hospital stay addressing **all** of the following: personal risk factors for stroke, warning signs for stroke, activation of emergency medical system, need for follow-up after discharge, and medications prescribed.

Rationale: There are many examples of how patient education programs for specific chronic conditions have increased healthful behaviors, improved health status, and/or decreased health care costs of their participants. Clinical practice guidelines include recommendations for patient and family education during hospitalization as well as information about resources for social support services. Some clinical trials have shown measurable benefits in patient and caregiver outcomes with the application of education and support strategies. The type of stroke experienced and the resulting outcomes will play a large role in determining not only the course of treatment but also what education will be required. Patient education should include information about the event (e.g., cause, treatment, and risk factors), the role of various medications or strategies, as well as desirable lifestyle modifications to reduce risk or improve outcomes. Family/caregivers will also need guidance in planning effective and realistic care strategies appropriate to the patient's prognosis and potential for rehabilitation.

Clinical Practice Guideline Supporting Measure:

- Kaiser Permanente Clinical Practice Guidelines for Acute Stroke, Kaiser Permanente Medical Group, 1998
- Duncan et al, Stroke Rehabilitation Clinical Practice Guidelines (Stroke. 2005;36:e100-e143.)
- Post Stroke Rehabilitation, Clinical Practice Guideline No.16, Agency for Health Care Policy and Research (now known as Agency for Healthcare Research and Quality), 1995

Type of Measure: Process

Improvement Noted As: An increase in rate

Numerator Statement: Stroke patients with documentation that they or their caregivers were given education or educational material addressing **all** of the following:

1. Personal risk factors for stroke
2. Warning signs for stroke
3. Activation of emergency medical system
4. Need for follow-up after discharge
5. Medications prescribed

Included Populations: Not applicable

Excluded Populations: None

Data Elements:

- Education addresses need for follow-up after discharge
- Education addresses medications prescribed
- Education addresses personal risk factors for stroke
- Education addresses warning signs and symptoms of stroke
- Education addresses activation of emergency medical system

Please Note: The data elements for each of the 5 education components provide the opportunity to assess each component individually. However, completion of all 5 education categories is required for this composite measure.

Denominator Statement: Patients with ischemic stroke or hemorrhagic stroke

Included Populations:*

- Patients with a diagnosis of ischemic stroke. Refer to Appendices, Table 1 for ICD-9-CM principal diagnosis codes for ischemic stroke.
- Patients with a diagnosis of hemorrhagic stroke. Refer to Appendices, Table 2 for ICD-9-CM principal diagnosis codes for hemorrhagic stroke.

* Refer to Get With The Guidelines & Coverdell specific processes for identifying populations for working rates

Excluded Populations:

- Patients who expired
- Patients discharged against medical advice
- Patients discharged/transferred to another short term hospital for inpatient care
- Patients discharged to hospice
- Patients receiving comfort measures only
- Patients admitted for the performance of elective carotid endarterectomy

Data Elements:**General data elements (applicable to all measures):**

- Admission Date
- Arrival Date
- Arrival Time
- Birthdate
- Case Identifier
- Comfort Measures Only
- Discharge Date
- Discharge Status
- Hispanic Ethnicity
- ICD-9-CM Principal Diagnosis Code
- Point of Origin for Admission or Visit
- Race
- Report Period
- Sex

Clinical/measure specific data elements:

- Admitted for Elective Carotid Endarterectomy

Risk Adjustment: No

Data Collection Approach: Concurrent and retrospective data collection through administrative data/claims data, and medical record.

Age Groups: Age \geq 18

Data Reported As: Proportion

Setting: Inpatient Hospital - Primary Stroke Centers

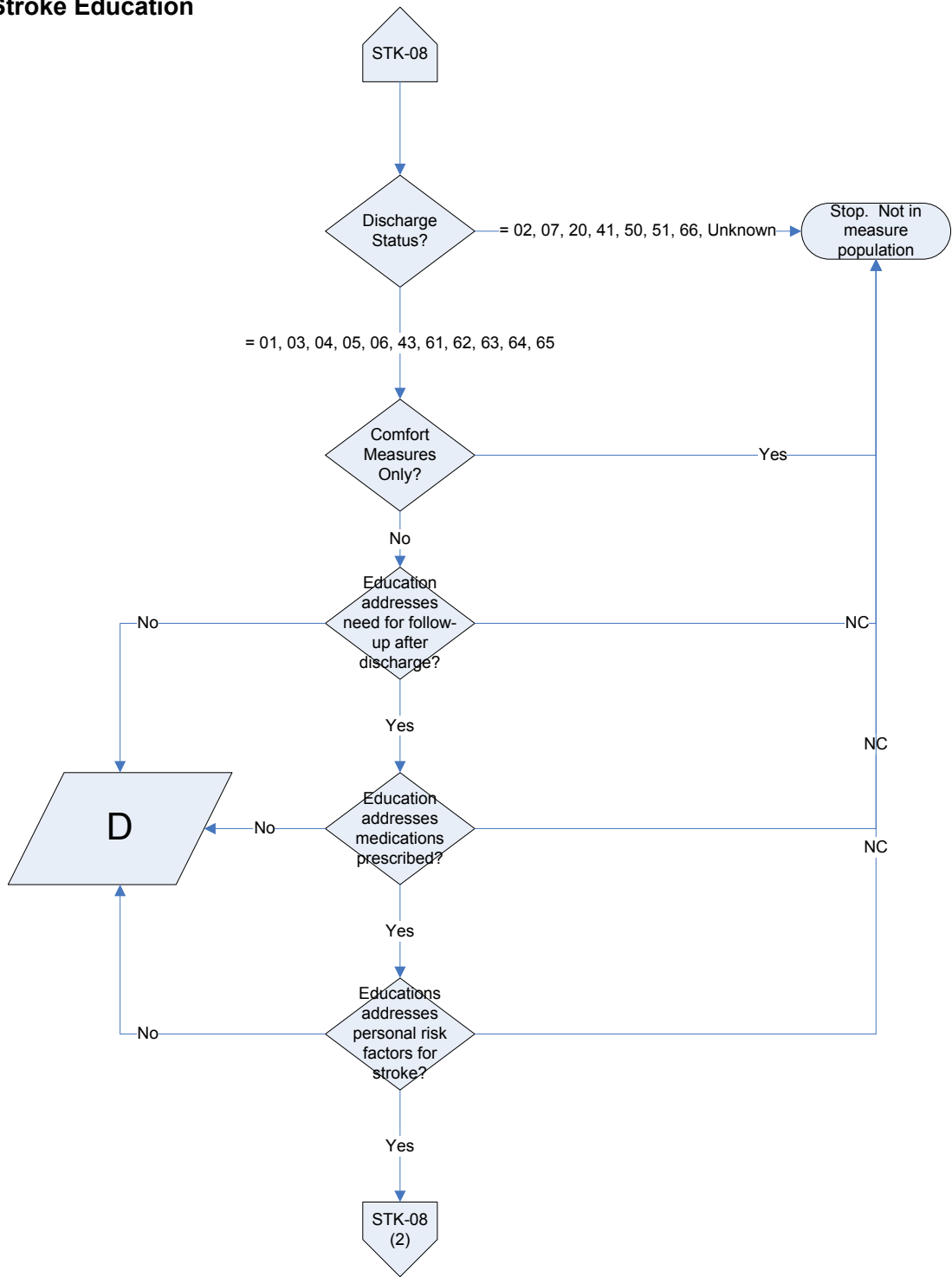
Report Period: Quarterly with monthly data points

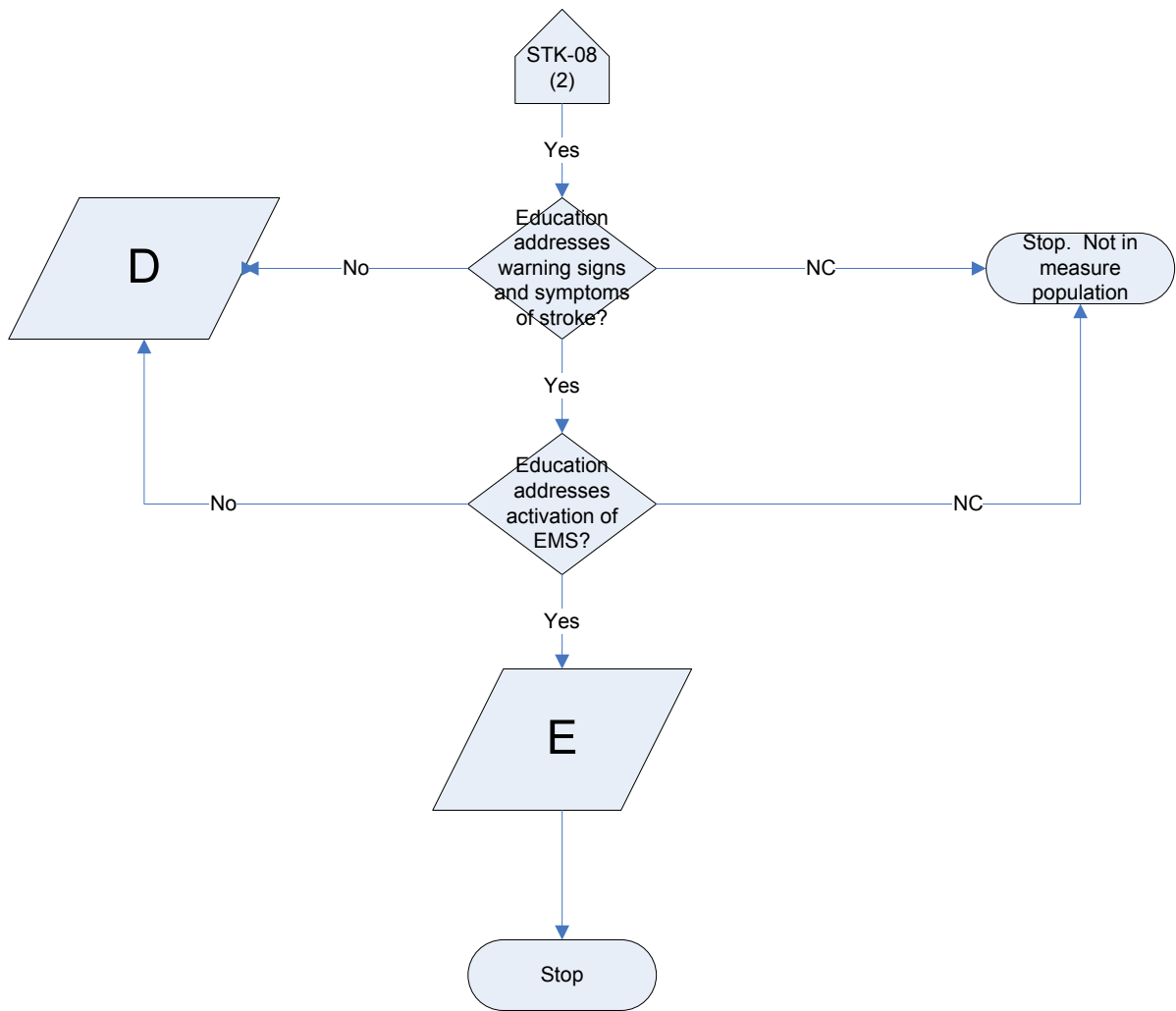
Selected References:

Evans RL, Matlock AL, Bishop DS, Stranahan S, Pederson C. Family intervention after stroke: Does counseling or education help? *Stroke* 1988;19:1243-1249.

Loring KR, Sobel DS, Stewart AL, et al. Evidence suggesting that a chronic disease self-management program can improve health status while reducing hospitalization: A randomized trial. *Medical Care* 1999;37:5-14.

STK-08: Stroke Education





Rate = $E/(D + E)$

Measure Information Form

DSC Measure Set: Stroke

Candidate Measure ID: DSC/Stroke-09

**Smoking Cessation Performance Measure Name: Smoking Cessation/
Advice/Counseling**

Patients with ischemic or hemorrhagic stroke with a history of smoking cigarettes, who are, or whose caregivers are, given smoking cessation advice or counseling during hospital stay. For the purposes of this measure, a smoker is defined as someone who has smoked cigarettes anytime during the year prior to hospital arrival.

Rationale: Cigarette smoking is the single most alterable risk factor contributing to premature morbidity and mortality, accounting for approximately 430,000 deaths in the United States. Smoking nearly doubles the risk of ischemic stroke. Numerous prospective investigations have demonstrated substantial decrease in coronary heart disease mortality for former smokers, and similar rapid decreases in risk with smoking are seen for ischemic stroke. The Framingham Heart Study concluded that smoking made a significant independent contribution to the risk of stroke. Although no randomized controlled trials have been performed, there is very strong consensus that patients who smoke should be counseled to stop smoking to decrease the risk of stroke. Research indicates that patients who receive even brief smoking cessation advice from their physicians are more likely to quit than those receiving no counseling at all. Addressing smoking habits and initiating cessation efforts are reasonable interventions during hospitalization for acute stroke and may promote the patient's medical recovery.

Clinical Practice Guideline Supporting Measure:

- Biller, J., et. al. Guidelines for Carotid Endarterectomy: A statement of healthcare professionals from a special writing group of the stroke council, American Heart Association, *Circulation*. 1998 Feb 10;97(5):501-9
- Management of Patients with Stroke. Rehabilitation, Prevention and Management of Complications and Discharge Planning, Scottish Intercollegiate Guidelines network, 2002
- Smoking Cessation. Clinical Practice Guideline No. 18. U.S. Department of Health and Human Services and Public Health Service, Agency for Health Care Policy and Research, 1996
- Ralph L. Sacco, Robert Adams, Greg Albers, Mark J. Alberts, Oscar Benavente, ; Karen Furie, Larry B. Goldstein, Philip Gorelick, Jonathan Halperin, Robert Harbaugh, S. Claiborne Johnston, Irene Katzan, Margaret Kelly-Hayes, Edgar J. Kenton, Michael Marks, Lee H. Schwamm, Thomas Tomsick. Guidelines for Prevention of Stroke in Patients With Ischemic Stroke or Transient Ischemic Attack: A Statement for Healthcare Professionals From the American Heart Association/American Stroke Association Council on Stroke: Co-Sponsored by the Council on Cardiovascular Radiology and Intervention. *Stroke* Vol. 37, 2006:577
- Ira S. Ockene and Nancy Houston Miller, Cigarette Smoking, Cardiovascular Disease, and Stroke : A Statement for Healthcare Professionals From the American Heart Association *Circulation*, Nov 1997; 96: 3243 - 3247.

Type of Measure: Process

Improvement Noted As: An increase in rate.

Numerator Statement: Stroke patients (cigarette smokers) who receive smoking cessation advice or counseling during hospital stay, or documentation that patient's caregiver was given smoking cessation advice or counseling during hospital stay.

Included Populations: Not applicable

Excluded Populations: None

Data Elements:

- Adult Smoking Counseling

Denominator Statement: Ischemic stroke or hemorrhagic stroke patients with a history of smoking cigarettes anytime during the year prior to hospital arrival

Included Populations:*

- Patients with a diagnosis of ischemic stroke. Refer to Appendices, Table 1 for ICD-9-CM principal diagnosis codes for ischemic stroke AND History of smoking cigarettes anytime during the year prior to arrival
- Patients with a diagnosis of hemorrhagic stroke. Refer to Appendices, Table 2 ICD-9-CM for principal diagnosis codes for hemorrhagic stroke AND History of smoking cigarettes anytime during the year prior to arrival

* Refer to Get With The Guidelines & Coverdell specific processes for identifying populations for working rates

Excluded Populations:

- Patients discharged/transferred to another short term hospital for inpatient care
- Patients who expired
- Patients who left against medical advice
- Patients discharged to hospice
- Patients receiving comfort measures only
- Patients admitted for the performance of elective carotid endarterectomy

Data Elements:

General data elements (applicable to all measures):

- Admission Date
- Arrival Date
- Arrival Time
- Birthdate
- Case Identifier
- Comfort Measures Only
- Discharge Date
- Discharge Status
- Hispanic Ethnicity
- ICD-9-CM Principal Diagnosis Code
- Point of Origin for Admission or Visit
- Race
- Report Period
- Sex

Clinical/measure specific data elements:

- Adult Smoking History
- Admitted for Elective Carotid Endarterectomy

Risk Adjustment: No

Data Collection Approach: Concurrent and retrospective data collection through administrative data/claims data, and medical record.

Age Groups: ≥ 18

Data Reported As: Proportion

Setting: Inpatient Hospital - Primary Stroke Centers

Report Period: Quarterly with monthly data points

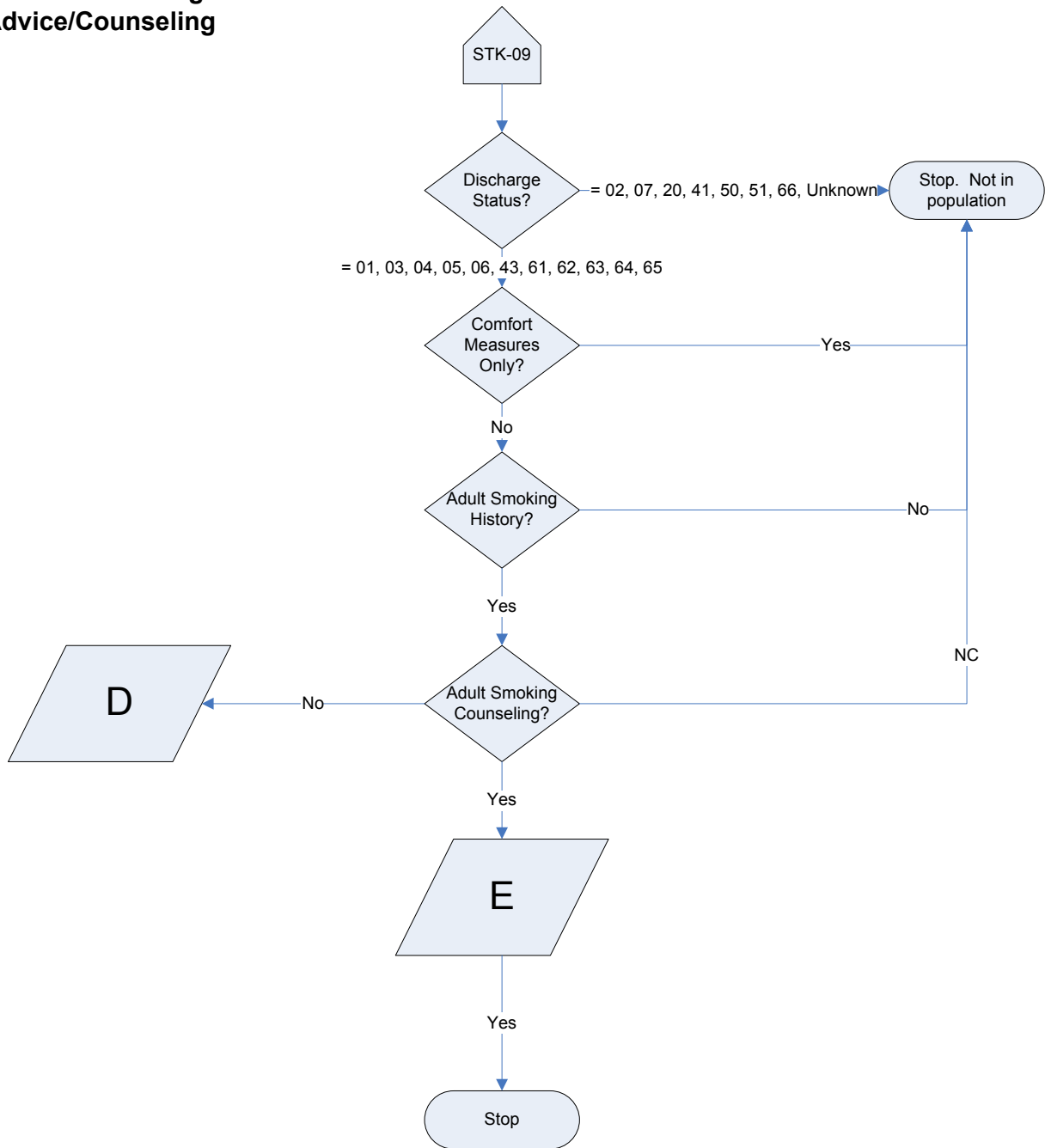
Selected References:

Ockene IS, Miller NH. Cigarette Smoking, Cardiovascular Disease and Stroke. *Circulation* 1997;96:3243-3247.

Smith, PEM. Smoking and stroke: a causative role. (Editorial) *Br Med J* 1998;317:962-3

Wolf P, Kannel W, Bonita R, Belanger A. Cigarette smoking as a risk factor for stroke: The Framingham Study. *JAMA* 1988;259:1025-1029.

**STK-09: Smoking Cessation/
Advice/Counseling**



Rate = $E / (D + E)$

Measure Information Form

DSC Measure Set: Stroke

Candidate Measure ID: DSC/Stroke-10

Performance Measure Name: Assessed for Rehabilitation

Patients with an ischemic stroke or hemorrhagic stroke who were assessed for rehabilitation services.

Rationale: Each year about 700,000 people experience a new or recurrent stroke, which is the nation's third leading cause of death. Approximately two thirds of these individuals survive and require rehabilitation. Stroke is a leading cause of serious, long-term disability in the United States, with about 4.4 million stroke survivors alive today. Forty percent of stroke patients are left with moderate functional impairment and 15 to 30 percent with severe disability. More than 60% of those who have experienced stroke, serious injury, or a disabling disease have never received rehabilitation. Stroke rehabilitation should begin as soon as the diagnosis of stroke is established and life-threatening problems are under control. Among the high priorities for stroke are to mobilize the patient and encourage resumption of self-care activities as soon as possible. A considerable body of evidence indicates better clinical outcomes when patients with stroke are treated in a setting that provides coordinated, multidisciplinary stroke-related evaluation and services. Effective rehabilitation interventions initiated early following stroke can enhance the recovery process and minimize functional disability. The primary goal of rehabilitation is to prevent complications, minimize impairments, and maximize function.

Clinical Practice Guidelines Supporting Measure:

- VA/DoD Clinical Practice Guideline for the Management of Stroke Rehabilitation in the Primary Care Setting, 2003
- Post Stroke Rehabilitation, Clinical Practice Guideline No.16, Agency for Health Care Policy and Research (now known as Agency for Healthcare Research and Quality), 1995
- Management of patients with stroke. Rehabilitation, prevention and management of complications, and discharge planning, Scottish Intercollegiate network Guidelines Network (SIGN), 2002

Type of Measure: Process

Improvement Noted As: An increase in rate

Numerator Statement: Patients assessed for or who received rehabilitation services

Included Populations: Not applicable

Excluded Populations: None

Data Elements:

- Assessed for Rehabilitation Services

Denominator Statement: All patients with ischemic stroke, or hemorrhagic stroke

Included Populations:*

- Patients with a diagnosis of ischemic stroke. Refer to Appendices, Table 1 for ICD-9-CM principal diagnosis codes for ischemic stroke.

- Patients with a diagnosis of hemorrhagic stroke. Refer to Appendices, Table 2 for ICD-9-CM principal diagnosis codes for hemorrhagic stroke.

* Refer to Get With The Guidelines & Coverdell specific processes for identifying populations for working rates

Excluded Populations:

- Patients discharged/transferred to another short term hospital for inpatient care
- Patients who expired
- Patients who left against medical advice
- Patients discharged to hospice
- Patients receiving comfort measures only
- Patients admitted for the performance of elective carotid endarterectomy

Data Elements:

General data elements (applicable to all measures):

- Admission Date
- Arrival Date
- Arrival Time
- Birthdate
- Case Identifier
- Comfort Measures Only
- Discharge Date
- Discharge Status
- Hispanic Ethnicity
- ICD-9-CM Principal Diagnosis Code
- Point of Origin for Admission or Visit
- Race
- Report Period
- Sex

Clinical/measure specific data elements:

- Admitted for Elective Carotid Endarterectomy

Risk Adjustment: No

Data Collection Approach: Concurrent and retrospective data collection through administrative data/claims data, and medical record.

Age Groups: ≥ 18

Data Reported As: Proportion

Setting: Inpatient Hospital - Primary Stroke Centers

Report Period: Quarterly with monthly data points

Selected References:

American Academy of Physical Medicine and Rehabilitation. *Rehabilitation Helps Stroke Patients Recover Skills*. AAPM&R Chicago, IL Office: Author. Retrieved July 7, 2004 from World Wide Web: <http://www.aapmr.org/condtreat/rehab/recover.htm>.

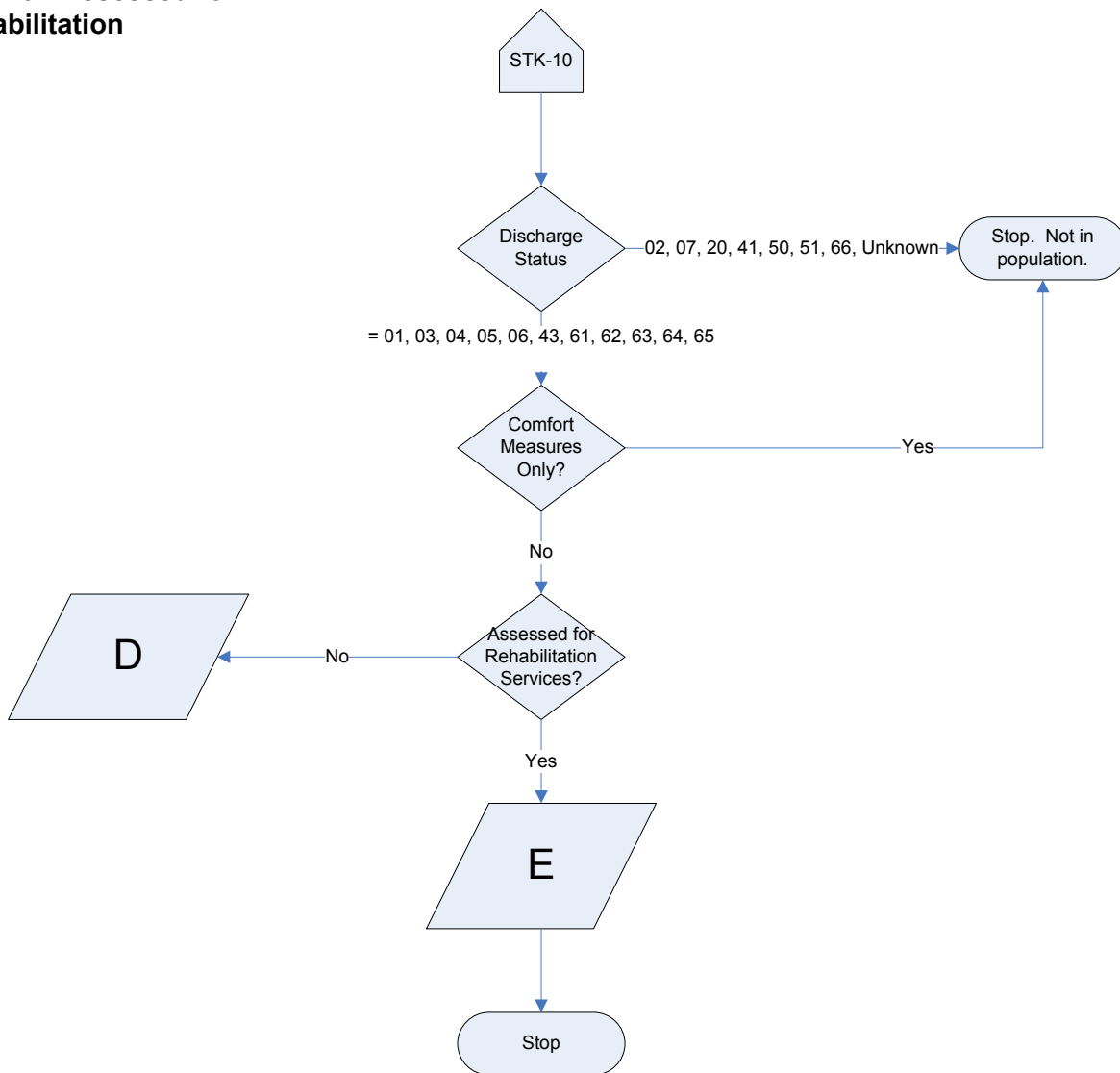
American Academy of Physical Medicine and Rehabilitation. *Urgency Key But Perseverance Pays Off*. AAPM&R Chicago, IL Office: Author. Retrieved July 7, 2004 from World Wide Web: <http://www.aapmr.org/condtreat/rehab/recover.htm>.

American Academy of Physical Medicine and Rehabilitation. *Rehabilitation Helps Stroke Patients Recover Skills Therapy Helps in Regaining Coordination, Full Speech, and Other Abilities*. AAPM&R Chicago, IL Office: Author. Retrieved July 7, 2004 from World Wide Web: <http://www.aapmr.org/condtreat/rehab/recover.htm>.

National Institute of Neurological Disorders. *Post-Stroke Rehabilitation Fact Sheet*. National Institute of Neurological Disorders Bethesda, MD Office: Author. Retrieved July 7, 2004 from World Wide Web: http://www.ninds.nih.gov/health_and_medical/pubs/poststrokerehab.htm.

Zorowitz RD, et al, the Post-Stroke Rehabilitation Outcomes Project (PSROP), *Top Stroke Rehabil*. 2005 Fall;12(4).

STK-10: Assessed for Rehabilitation



Rate = $E / (D + E)$

DSC Stroke Performance Measure Data Element Dictionary

Alphabetical Data Element List

Element Name	Page #	Collected For:
<i>Admission Date</i>	2	All Records
<i>Admitted for Elective Carotid Endarterectomy</i>	3	All Records** (**Joint Commission Only)
<i>Adult Smoking Counseling</i>	4	STK-9
<i>Adult Smoking History</i>	6	STK-9
<i>Antithrombotic Therapy Administered by End of Hospital Day 2</i>	9	STK-5
<i>Antithrombotic Therapy Prescribed At Discharge</i>	11	STK-2
<i>Arrival Date</i>	13	All Records
<i>Arrival Time</i>	14	All Records
<i>Assessed for Rehabilitation Services</i>	15	STK-10
<i>Atrial Fibrillation</i>	17	STK-3
<i>Birthdate</i>	19	All Records
<i>Case Identifier</i>	20	All Records**
<i>Cholesterol Reducing Therapy Prescribed At Discharge</i>	21	STK-6
<i>Cholesterol Reducing Therapy Prior to Hospitalization</i>	23	STK-6
<i>Comfort Measures Only</i>	24	All Records
<i>Date IV Thrombolytic Administered at This Hospital</i>	26	STK-4
<i>Date Last Known Well</i>	27	STK-4
<i>Discharge Date</i>	28	All Records
<i>Discharge Status</i>	29	All Records
<i>DVT Prophylaxis Initiated by End of Hospital Day 2</i>	31	STK-1
<i>Dysphagia Screen</i>	33	STK-7
<i>Education addresses activation of emergency medical system</i>	35	STK-8
<i>Education addresses follow-up after discharge</i>	37	STK-8
<i>Education addresses medications prescribed</i>	39	STK-8
<i>Education addresses personal risk factors for stroke</i>	41	STK-8
<i>Education addresses warning signs and symptoms of stroke</i>	43	STK-8
<i>Hispanic Ethnicity</i>	45	All Records* (*CMS Only)
<i>ICD-9-CM Principal Diagnosis Code</i>	46	All Records
<i>IV Thrombolytic Administered</i>	47	STK-4
<i>LDL \geq 100 mg/dl</i>	49	STK-6
<i>NPO Throughout the Hospital Stay</i>	50	STK-7
<i>Patient Ambulatory at End of Hospital Day Two</i>	51	STK-1
<i>Patient Discharged on Anticoagulation Therapy</i>	52	STK-3
<i>Point of Origin for Admission or Visit</i>	53	All Records*
<i>Race</i>	57	All Records*
<i>Report Period</i>	59	All Records**
<i>Sex</i>	60	All Records*
<i>Time IV Thrombolytic Administered at This Hospital</i>	61	STK-4
<i>Time Last Known Well</i>	62	STK-4

Data Element Name: *Admission Date*

Collected For: All Records

Definition: The month, day and year of admission for inpatient care

Suggested Data Collection Question: What is the date the patient was admitted to inpatient care?

Format: MM-DD-YYYY

Allowable Values: MM = Month (01 – 12)
DD = Day (01 - 31)
YYYY = Year (2000 – 9999)

Notes for Abstraction: The abstractor should NOT assume that the UB-04 claim information for the admission date is correct. If the abstractor determines through chart review that the UB-04 date is incorrect, she/he should correct and override the downloaded value. If the abstractor is unable to determine the correct admission date through chart review, she/he should default to the UB-04 admission date.

Suggested Data Sources: Emergency department record
Face sheet
History and physical
Nursing admission assessment
Physician orders
UB-04 (previously UB-92)

Guidelines for Abstraction:

Inclusion	Exclusion
None	<ul style="list-style-type: none"> • Admit to observation • Arrival date

Data Element Name: *Admitted for Elective Carotid Endarterectomy*

Collected For: All Records

Definition: Documentation in the medical record that the current hospitalization is solely for the performance of elective carotid endarterectomy surgery.

Suggested Data

Collection Question: Was this patient admitted for the sole purpose of performance of elective carotid endarterectomy surgery?

Format: Alphanumeric

Allowable Values: Y (Yes, this patient was admitted solely for the performance of elective carotid endarterectomy)
N (No, this patient was not admitted solely for the performance of elective carotid endarterectomy OR unable to determine from medical record documentation)

Notes for Abstraction: Patients suffering from an acute stroke during this hospitalization are not considered to have been admitted solely for the purpose of the performance of elective carotid endarterectomy. If the patient was being treated for an acute stroke during this hospitalization, even if a carotid endarterectomy was performed, answer “No” for this data element.

Suggested Data Sources:

- History and physical
- Progress notes
- Nurses notes

Guidelines for Abstraction:

Inclusion	Exclusion
<ul style="list-style-type: none">• Patients with an ICD-9-CM procedure code of 38.12, if medical record documentation states that the patient was admitted for the elective performance of this procedure.	<ul style="list-style-type: none">• Patients with an ICD-9-CM procedure code of 38.12, if medical record documentation indicates that the patient is also being treated for an acute stroke during this hospitalization.

Data Element Name:	<i>Adult Smoking Counseling</i>
Collected For:	DSC/Stroke – 09: Smoking Cessation/ Advice/Counseling
Definition:	Documentation in the medical record that smoking cessation advice or counseling was given to the patient or caregiver during this hospital stay for patients 18 years of age and older.
Suggested Data Collection Question:	Was the adult patient or caregiver given smoking cessation advice or counseling during the hospital stay?
Format:	Alphanumeric
Allowable Values:	Y (Yes, patient received smoking cessation advice/counseling during hospital stay) N (No, smoking cessation advice/counseling was not given OR unable to determine from medical record documentation) NC (No, smoking cessation advice/counseling was not given. A documented reason exists for not performing counseling)
Notes for Abstraction:	<ul style="list-style-type: none"> - If the patient refused smoking cessation advice or counseling during this hospital stay, select “Y” - If the patient has a history of cigarette smoking within the year prior to arrival date but the patient does not currently smoke, he or she should be advised to continue not smoking. For these patients, if this advice/counseling was not done, select “N”. - If the patient is prescribed Wellbutrin/bupropion, it should not be assumed that this is a smoking cessation aid unless specifically noted as such. It is sometimes used as an antidepressant unrelated to smoking.
Suggested Data Sources:	Consultation notes Discharge instruction sheet Discharge summary Emergency department record History and physical Medication administration record Nursing notes Progress notes Respiratory therapy notes Teaching sheet
	Excluded Data Sources: Any documentation dated/timed after discharge, except discharge summary and operative/procedure/diagnosis test reports (from procedure done during hospital stay).

Guidelines for Abstraction:

Inclusion	Exclusion
<p>Cigarette smoking cessation advice/counseling</p> <ul style="list-style-type: none"> - Direct discussion with patient or caregiver about stopping smoking (e.g., “advised patient to stop smoking”) - Prescription of smoking cessation aid (e.g., Habitrol, NicoDerm, Nicorette, Nicotrol, Prostep, Zyban) during hospital stay or at discharge - Prescription of Wellbutrin/bupropion during hospital stay or at discharge aid or alternative FDA-approved smoking cessation medication if prescribed as smoking cessation - Referral to smoking cessation class/program - Smoking cessation brochures/handouts/video <p>Any of the above interventions directed at the patient’s caregiver if the patient is unable to comprehend qualify as smoking cessation counseling.</p>	

Data Element Name:	<i>Adult Smoking History</i>
Collected For:	DSC/Stroke – 09: Smoking Cessation/ Advice/Counseling
Definition:	Documentation that the adult patient has smoked cigarettes anytime during the year prior to hospital arrival. Adult is defined as 18 years of age or older.
Suggested Data Collection Question:	Did the adult patient smoke cigarettes anytime during the year prior to hospital arrival?
Format:	Alphanumeric
Allowable Values:	<p>Y (Yes, there is documentation that the adult patient smoked cigarettes anytime during the year prior to hospital arrival.)</p> <p>N (No, there is documentation that the adult patient did not smoke cigarettes anytime during the year prior to hospital arrival OR smoking history was not addressed OR unable to determine from medical record documentation.)</p> <p>NOTE: If the ICD-9-M Other Diagnosis Code 305.1 exists, then default the allowable value to Y (Yes).</p>
Notes for Abstraction:	<p>In some cases smoking history documentation in one medical record source may further clarify the patient's smoking history documented in another medical record source. Examples:</p> <ul style="list-style-type: none"> • Progress note states “history of smoking” and the nursing admission assessment notes “quit 2 years ago” – select “No.” • Discharge summary states smoker without specifying the type of tobacco and the ED record specifies the type of tobacco as cigar – select “No.” <p>In cases where conflicting information about the patient's smoking history is documented and there is no specific documentation that the patient has not smoked during the year prior to hospital arrival, select “Yes.” Examples:</p> <ul style="list-style-type: none"> • “Current smoker” per H&P, but ED note states “Non-smoker” – select “Yes” • “Cigarette Smoking: Yes, 1-2 cigarettes a day” on nursing admission note, but “Smoking – Quit” on H&P – select “Yes.” • “Recent smoker” in H&P, but progress note states “Smokes – No” – select “Yes.” <p>In cases where at least one source has specific documentation that the patient has not smoked anytime during the year prior to hospital arrival, select “No.” Examples:</p>

- “Current smoker” per H&P, but consultation note states patient “quit 2 years ago” – select “No.”
- “ + tobacco use” per ED note, “Smoker – Yes” per nursing admission note, but H&P states, “Quit smoking in 2002” – select “No.”
- Progress note states “Still smokes occasionally” but nursing admission assessment has “No” circled next to “Tobacco use within past year” – select “No.”

- If there is documentation of current smoking or tobacco use, or a history of smoking or tobacco use, and the type of product is not specified, assume this refers to cigarette smoking.

- Do not include documentation of smoking history referenced as a “risk factor” (e.g., “risk factor: tobacco,” “risk factor: smoking,” “risk factor: smoker”), where current smoking status is indeterminable.

- If there is a history of smoking and documentation that the patient quit “several months ago,” infer the patient smoked within one year prior to arrival, and select “Yes.”

- If there is a history of smoking and documentation indicates the patient quit, but the timeframe in which the patient quit is not clear, select “No.”

Examples:

- Nursing admission assessment documents patient as “ex-smoker” or “former smoker,” or simply notes pt. “quit smoking” - select “No.”
- “History of tobacco abuse” per H&P, and consultation note states “nonsmoker” - select “No” (not a case of conflicting information).

Suggested Data Sources: Consultation notes
 Discharge summary
 Emergency department record
 History and physical
 Nursing admission assessment
 Progress notes
 Respiratory Therapy notes

Guidelines for Abstraction:

Inclusion	Exclusion
<p>Cigarette smoking within one year prior to hospital arrival</p> <ul style="list-style-type: none"> • + smoker, type of product not identified • + tobacco use, type of product not identified • History of cigarette use without mention of a time frame, if no indication that patient 	<p>Cigarette smoking within one year prior to hospital arrival</p> <ul style="list-style-type: none"> • Chewing tobacco use only • Cigar smoking only • Cigarette smoking within one year prior to arrival or any of the other inclusion terms described using one of the following

<p>quit</p> <ul style="list-style-type: none"> • History of smoking (type of product not identified), without mention of a time frame, if no indication that patient quit • History of smoking and documentation that the patient quit “several months ago” • History of smoking within one year prior to arrival, type of product not identified • History of tobacco use (type of product not identified), without mention of a time frame, if no indication that patient quit • History of tobacco use within one year prior to arrival, type of product not identified • Recent smoker 	<p>qualifiers: cannot exclude, cannot rule out, may have, may have had, may indicate, possible, suggestive of, suspect or suspicious</p> <ul style="list-style-type: none"> • Illegal drug use only (e.g., marijuana) • Oral tobacco use only • Pipe smoking only • Remote smoker (smoked in the past, but greater than one year ago)
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Data Element Name: *Antithrombotic Therapy Administered by End of Hospital Day Two*

Collected For: DSC/Stroke-05: Antithrombotic Therapy Administered by End of Hospital Day Two

Definition: Documentation demonstrates that antithrombotic therapy was administered by the end of hospital day two

Suggested Data Collection Question: Was antithrombotic therapy administered by the end of hospital day two?

Format: Alphanumeric

Allowable Values: Y (Yes, antithrombotic therapy was administered by the end of hospital day 2)
N (No, antithrombotic therapy was not administered by the end of hospital day 2 OR unable to determine from medical record documentation)
NC (No, antithrombotic therapy was not administered. A documented reason exists for not administering this therapy)

Notes for Abstraction: Antithrombotic Therapy:
Aspirin (ASA)
ASA/dipyridamole (Aggrenox) (bid)
warfarin (Coumadin)
clopidogrel (Plavix)
ticlopidine (Ticlid)
Unfractionated heparin IV
Full dose LMW heparin

To compute end of hospital day two, count the arrival date as hospital day one. If antithrombotic therapy was administered by 11:59 PM of hospital day two, answer "Yes" for this data element. E.g, Patient arrives at the hospital on Monday at 05:00, answer "Yes" if antithrombotic therapy was administered on or before 23:59 on Tuesday. If patient arrived at the hospital at 23:30 on Monday, answer "Yes" if antithrombotic therapy was administered on or before 23:59 on Tuesday.

Reasons for not prescribing antithrombotic therapy must be documented by a physician, nurse practitioner or physician assistant. If reasons are not mentioned in the context of antithrombotics, do not make inferences (e.g., do not assume that antithrombotics are not being prescribed because of a bleeding disorder unless documentation explicitly states so.)

Conditions or factors making the administration of antithrombotic therapy inadvisable, inappropriate and/or undesirable are documented (appropriate response is “NC”, a documented reason exists for not administering this therapy). This may include:

- Allergy to or complication r/t antithrombotic (hx/current)
- Aortic dissection (current)
- Bleeding disorder
- Brain/CNS cancer (hx/current)
- CVA, hemorrhagic (hx/current)
- Extensive/metastatic CA (hx/current)
- Hemorrhage, any type (hx/current)
- Intracranial surgery/biopsy (current)
- Patient refusal
- Peptic ulcer (current)
- Planned surgery within 7 days following discharge
- Risk of bleeding (current)
- Thrombolytic therapy (tPA) administered within past 24 hours
- Unrepaired intracranial aneurysm (hx/current)
- Other (patient/physician)

Suggested Data Sources: Medication records
 Physician orders
 Clinical logs
 Progress notes

Guidelines for Abstraction:

Inclusion	Exclusion

Data Element Name:	<i>Antithrombotic Therapy Prescribed at Discharge</i>
Collected For:	DSC/Stroke-02: Discharged on Antithrombotic Therapy
Definition:	Documentation demonstrates that antithrombotic therapy was prescribed at discharge
Suggested Data Collection Question:	Was antithrombotic therapy prescribed at discharge?
Format:	Alphanumeric
Allowable Values:	Y (Yes, antithrombotic therapy was prescribed at discharge) N (No, antithrombotic therapy was not prescribed at discharge OR unable to determine from medical record documentation) NC (No, antithrombotic therapy was not prescribed at discharge. A documented reason exists for not administering this therapy)
Notes for Abstraction:	<p>Antithrombotic Therapy: Aspirin (ASA) ASA/dipyridamole (Aggrenox) (bid) warfarin (Coumadin) clopidogrel (Plavix) ticlopidine (Ticlid) Unfractionated heparin IV Full dose LMW heparin</p> <p>Prescribed at discharge: Documentation that patient/caregiver was given a prescription for antithrombotic therapy at time of hospital discharge.</p> <p>Reasons for not prescribing antithrombotic therapy must be documented by a physician, nurse practitioner or physician assistant. If reasons are not mentioned in the context of antithrombotics, do not make inferences (e.g., do not assume that antithrombotics are not being prescribed because of a bleeding disorder unless documentation explicitly states so.)</p> <p>Conditions or factors making the administration of antithrombotic therapy inadvisable, inappropriate and/or undesirable are documented (appropriate response is "NC", documented reason for not prescribing antithrombotic) This may include:</p> <ul style="list-style-type: none"> • Allergy to or complication r/t antithrombotic (hx/current) • Aortic dissection (current) • Bleeding disorder • Brain/CNS cancer (hx/current) • CVA, hemorrhagic (hx/current)

- Extensive/metastatic CA (hx/current)
- Hemorrhage, any type (hx/current)
- Intracranial surgery/biopsy (current)
- Patient refusal
- Peptic ulcer (current)
- Planned surgery within 7 days following discharge
- Risk of bleeding (current)
- Unrepaired intracranial aneurysm (hx/current)
- Other (patient/physician)

Suggested Data Sources: Medication records
 Physician orders
 Clinical logs
 Progress notes
 Discharge summary
 Discharge instructions

Guidelines for Abstraction:

Inclusion	Exclusion

Data Element Name: *Arrival Date*

Collected For: All records

Definition: The earliest documented month, day, and year the patient arrived at the hospital (for example hospital, emergency room, observation unit)

Suggested Data Collection Question: What was the **earliest** documented date the patient arrived at the hospital?

Format: MM-DD-YYYY

Allowable Values: MM = Month (01 – 12)
 DD = Day (01 - 31)
 YYYY = Year (2000 – 9999)

Notes for Abstraction: This may differ from the admission date. When reviewing ED records do NOT include any documentation from external sources (e.g., ambulance records, physician office records, laboratory reports) obtained prior to arrival. The intent is to utilize any documentation which reflects processes that occurred in the ED or hospital.

- *Do not use ambulance records to determine arrival date
- * Do not use addressographs/stamps
- * If the patient is in an outpatient setting of the hospital (e.g., undergoing dialysis, chemotherapy, or an outpatient procedure) and is subsequently admitted to the hospital, use the date the patient presents to the ED or arrives on the floor for inpatient care as arrival date/time.

Suggested Data Sources:

- Any ED documentation (includes ED vital sign record, ED/Outpatient Registration form or triage record)
- Face sheet
- Nursing admission assessment/admitting note
- Observation record
- Procedure notes
- Vital signs graphic record

Guidelines for Abstraction:

Inclusion	Exclusion
	Addressographs/stamps

Data Element Name: *Arrival Time*

Collected For: All records

Definition: The earliest documented time (military time) the patient arrived at the Emergency Department

Suggested Data Collection Question: What was the **earliest** documented time (military time) the patient arrived at the hospital?

Format: HH:MM

Allowable Values: HH = Hour (00-23)
MM = Minutes (00-59)

Converting clock time to military time:
With the exception of midnight and noon
- If the time is in the a.m., conversion is not required
- If the time is in the p.m., add 12 to the clock time hour
For example:
Midnight – 00:00
Noon – 12:00
11:59 p.m. – 23:59

Notes for Abstraction:

- This may differ from the admission time.
- When reviewing ED records do NOT include any documentation from external sources (e.g., ambulance records, physician office records, laboratory reports) obtained prior to arrival. The intent is to utilize any documentation which reflects processes that occurred in the ED or hospital.
- If the patient is in an outpatient setting of the hospital (e.g., undergoing dialysis, chemotherapy, cardiac cath) and is subsequently admitted to the hospital, use the time the patient presents to the ED or arrives on the floor for inpatient care as arrival time.
- For “Direct Admits” to the hospital, use the earliest time the patient arrives at the hospital.

Suggested Data Sources:

- Any ED documentation
- Face sheet
- Nursing admission assessment/admitting note
- Observation record
- Procedure notes
- Vital signs graphic record

Guidelines for Abstraction:

Inclusion	Exclusion
	<ul style="list-style-type: none"> • Addressographs/stamps

Data Element Name: *Assessed for Rehabilitation Services*

Collected For: DSC/Stroke-10: Assessed for Rehabilitation

Definition: There is documentation in the record that the patient was assessed for or received rehabilitation services.

Suggested Data Collection Question: Was the patient assessed for and/or did the patient receive rehabilitation services?

Format: Alphanumeric

Allowable Values: Y (Yes, patient was assessed for or received rehabilitation services)
N (No, patient was not assessed for or received rehabilitation services, OR unable to determine from medical record documentation)

Notes for Abstraction: Documentation in the medical record must address rehabilitation services. Examples of this may include items noted in the Guidelines for Abstraction below.

- Suggested Data Sources:**
- Physician orders
 - Progress notes
 - Consultant reports
 - Referral forms
 - Rehabilitation records
 - Clinical logs

Guidelines for Abstraction:

Inclusion	Exclusion
<ul style="list-style-type: none">▪ Consult by rehabilitation services▪ Assessment/treatment by members of the rehabilitation team▪ Patient received rehabilitation services during hospitalization▪ Patient transferred to rehabilitation facility▪ Patient referred to rehabilitation services following discharge▪ Specific documentation that patient was assessed and reasons patient ineligible to receive rehabilitation services (e.g., symptoms resolved, patient returned to prior level of function, poor prognosis, patient unable to tolerate rehabilitation therapeutic regimen)▪ Patient/family refused rehabilitation services	<ul style="list-style-type: none">• Request for consultation for rehabilitation services that was not performed

<p>Examples of members of a rehabilitation team may include but are not limited to:</p>	
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- Psychiatrist
- Neuro-psychologist
- Physical therapist
- Occupational therapist
- Speech and language pathologist

Data Element Name: *Atrial Fibrillation*

Collected For: DSC/Stroke-03: Patients with Atrial Fibrillation Receiving Anticoagulation Therapy

Definition: The patient has a history of any atrial fibrillation (i.e., remote, persistent, or paroxysmal), or atrial flutter in the past or currently as documented in the medical record,
OR
atrial fibrillation/flutter or paroxysmal atrial fibrillation (PAF) is present during this admission as evidenced by EKG
OR
by “Other” ICD-9-CM code of 427.31 or 427.32

Suggested Data Collection Question: Does documentation in the medical record indicate that atrial fibrillation or a history of atrial fibrillation was present?

Format: Alphanumeric

Allowable Values: Y (Yes) Atrial fibrillation or history of atrial fibrillation was present
N (No) No, atrial fibrillation or history of atrial fibrillation was not present, or unable to determine from medical record documentation)

Notes for Abstraction: Any one of the conditions described in the Definition statement can be present for the patient to meet this data element.

Patients who have a history of self-limited episode of documented atrial fibrillation or flutter that terminated within 8 weeks following CABG would not meet this data element.

Patients who have a transient and entirely reversible episode of atrial fibrillation or flutter due to thyrotoxicosis would not meet this data element.

Suggested Data Sources:

- EKG report
- History and physical
- Progress notes
- Holter monitor report

Guidelines for Abstraction:

Inclusion	Exclusion
<ul style="list-style-type: none"> • Persistent atrial fibrillation • Paroxysmal atrial fibrillation • PAF 	<ul style="list-style-type: none"> • History of self-limited episode of documented atrial fibrillation or flutter that terminated within 8 weeks following CABG

<ul style="list-style-type: none">• History of any episode of documented atrial fibrillation or flutter lasting greater than 30 seconds except w/in 8 wks following CABG	<ul style="list-style-type: none">• History of transient and reversible episode of documented atrial fibrillation or flutter due to thyrotoxicosis• Atrial fibrillation described as remote or self-limited
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Data Element Name: *Birthdate*

Collected For: All records

Definition: The month, day, and year the patient was born.

Suggested Data Collection Question: What is the patient's day of birth?

Format: MM-DD-YYYY

Allowable Values: MM = Month (0-12)
DD = Day (01-31)
YYYY = Year (1880 – 9999)

Notes for Abstraction: Because this data element is critical in determining the population for all measures, the abstractor should NOT assume the UB-04 claim information for the birthdate is correct. If the abstractor determines through chart review that the UB-04 day is incorrect, she/he should correct and override the downloaded value. If the abstractor is unable to determine the correct birthdate through chart review, she/he should default to the UB-04 date of birth.

- Suggested Data Sources:**
- Emergency department record
 - Face sheet
 - Registration form
 - UB-04, (previously UB-92)

Guidelines for Abstraction:

Inclusion	Exclusion
None	None

Data Element Name: *Case Identifier*

Collected For: All records

Definition: A number that uniquely identifies an episode of care. This identification number should be used in order to allow the health care organization to link this Case Identifier to a specific record for purposes of performance measurement.

Suggested Data Collection Question: What is the unique number that identifies this episode of care?

Format: Numeric

Allowable Values: Value greater than zero (0)

Notes for Abstraction: None

Suggested Data Sources:

Guidelines for Abstraction:

Inclusion	Exclusion

Data Element Name:	<i>Cholesterol Reducing Therapy Prescribed at Discharge</i>
Collected For:	DSC Stroke – 06: Discharged on Cholesterol Reducing Medication
Definition:	Documentation that a cholesterol reducing drug was prescribed at discharge. Cholesterol reducing drugs work by blocking the action of an enzyme in the liver which is needed to make cholesterol thereby decreasing the level of cholesterol circulating in the blood.
Suggested Data Collection Question:	Is there documentation that cholesterol reducing medication was prescribed at discharge?
Format:	Alphanumeric
Allowable Values:	Y (Yes, cholesterol reducing therapy was prescribed at discharge) N (No, cholesterol reducing therapy was not prescribed at discharge OR unable to determine from medical record documentation) NC (No, cholesterol reducing therapy was not prescribed at discharge. A documented reason exists for not administering this therapy)
Notes for Abstraction:	<ul style="list-style-type: none"> - If the patient refused prescription for cholesterol reducing therapy at discharge, select “NC”. - In determining whether cholesterol reducing therapy was prescribed at discharge, it is not uncommon to see conflicting documentation among different medical record sources. For example, the discharge summary may list a drug that is not included in any of the other discharge medication sources (e.g., discharge orders). All discharge medication documentation available in the chart should be reviewed and taken into account by the abstractor. - In cases where there is a cholesterol reducing drug noted in one source that is not mentioned in other sources, it should be interpreted as a discharge medication (select “Yes”) unless documentation elsewhere in the medical records suggest that it was NOT prescribed at discharge – Consider it a discharge medication in the absence of contradictory documentation. - If documentation is contradictory (e.g., MD noted discontinuation of the cholesterol reducing therapy in the discharge medication orders, but it is listed in the discharge summary’s discharge medication list), or after careful examination of circumstances, context, timing, etc., documentation raises enough questions, the case should be deemed “unable to determine” (select “No”). - When there is a documented plan to delay initiation/restarting of a cholesterol reducing therapy for a time period after discharge, select “No”.

- If documentation by a physician, nurse practitioner, or physician assistant is present in the chart that indicates that the stroke was not of an atherosclerotic origin or that the patient does not meet NCEP ATP III criteria for lipid lowering therapy, select "NC".

- Suggested Data Sources:**
- Discharge instruction sheet
 - Discharge summary
 - Nursing discharge notes
 - Physician orders sheet
 - Transfer sheet

Guidelines for Abstraction:

Inclusion	Exclusion
Refer to Appendices, Table 3 for a comprehensive list of cholesterol reducing drugs.	

Data Element Name: *Cholesterol Reducing Therapy Prior To Hospitalization*

Collected For: DSC Stroke-06: Discharged on Cholesterol Reducing Therapy

Definition: Documentation that a prescribed cholesterol reducing therapy was taken regularly prior to current hospitalization. Cholesterol reducing therapy works by blocking the action of an enzyme in the liver which is needed to make cholesterol, thereby decreasing the level of cholesterol circulating in the blood.

Suggested Data Collection Question: Was the patient on cholesterol reducing therapy prior to this hospitalization?

Format: Alphanumeric

Allowable Values: Y (Yes, Patient was on cholesterol lowering therapy prior to this hospitalization)

N (No, Patient was not on cholesterol lowering therapy prior to hospitalization or unable to determine from medical record documentation)

Notes for Abstraction: Evidence in the medical record of a medication in the cholesterol lowering class at a given dosage and frequency of administration is adequate to answer “Yes” to this data element.

If documentation in the medical record indicates that cholesterol reducing therapy has been prescribed but patient has not filled the prescription or is otherwise noncompliant, answer “No” to this data element.

- Suggested Data Sources:**
- Admission notes
 - History and physical
 - Medication administration record
 - Medication reconciliation records
 - Nursing admission assessment
 - Progress notes

Guidelines for Abstraction:

Inclusion	Exclusion
Refer to Appendices, Table 3 for a comprehensive list of cholesterol reducing drugs.	None

Data Element Name:	<i>Comfort Measures Only</i>
Collected For:	All records
Definition:	Physician/nurse practitioner/physician assistant documentation the patient was receiving comfort measures only. Commonly referred to as “palliative care” in the medical community and “comfort care” by the general public. Palliative care includes attention to the psychological and spiritual needs of the patient and support for the dying patient and the patient’s family. Usual interventions are not received because a medical decision was made to limit care to comfort measures only. Comfort Measures Only are not equivalent to the following: Do Not Resuscitate (DNR), living will, no code, no heroic measure.
Suggested Data Collection Question:	Is there physician/nurse practitioner/physician assistance documentation the patient was receiving comfort measures only?
Format:	
Allowable Values:	<p>Y (Yes) There is physician/nurse practitioner/physician assistant documentation that the patient was receiving comfort measures anytime during the hospital stay.</p> <p>N (No) There is no documentation the patient as receiving comfort measures only or unable to determine from medical record documentation</p>
Notes for Abstraction:	<p>If the only mention of comfort measures or hospice is at discharge, select “No” for the answer.</p> <p>If DNR-CC is documented, select “No” unless there is documented clarification that CC stands for “comfort care”</p> <p>If any of the inclusions are documented select “Yes” regardless of other documentation.</p> <p>If “continue supportive care” is documented in the context of a patient’s age, chronic illness or terminal/grave prognosis, select “Yes”.</p>
Suggested Data Sources:	<p>PHYSICIAN/NURSE PRACTITIONER/PHYSICIAN ASSISTANT DOCUMENTATION ONLY</p> <ul style="list-style-type: none"> - Admitting physician orders - Consultation notes - Emergency Department record - History and physical

- Physician admitting note
- Physician orders
- Progress notes

Guidelines for Abstraction:

Inclusion	Exclusion
<ul style="list-style-type: none"> • Comfort measures only • Comfort measures provided • Hospice care • Maintain treatment for comfort, terminal care • Palliative care • Physician documentation that care is limited at family's request due to patient's age or chronic illness or patient's conditions is grave or that death is imminent • Supportive care only • V66.7 encounter for palliative care 	<ul style="list-style-type: none"> • Chemical code only • DNR • Do not cardiovert • Do not defibrillate • Do not intubate (DNI) • Living will • NCR • No antiarrhythmic therapy • No artificial respirations • No cardiac monitoring • No chest compressions • No code • No code 99 • No heroic or aggressive measures • No intubation and/or ventilation • No invasive procedures • No other protocols associated with advanced cardiac life support • No resuscitative medication • No resuscitative measures (NRM) • No vasopressors

Data Element Name: *Date IV Thrombolytic Therapy Administered At This Hospital*

Collected For: DSC/Stroke-04: IV Thrombolytic Therapy Administered

Definition: The month, day, and year that IV thrombolytic therapy was initiated to a patient with ischemic stroke

Suggested Data Collection Question: What is the date that IV thrombolytic therapy was initiated for this patient at this hospital?

Format: MM-DD-YYYY

Allowable Values: MM = Month (01 – 12)
DD = Day (01 – 31)
YYYY = Year (2000 – 9999)

Notes for Abstraction: This data element applies only to patients for whom IV thrombolytic therapy was initiated at this hospital. Do not abstract this data element if IV thrombolytic therapy was initiated at another hospital and patient was subsequently transferred to this hospital.

IV t-PA is the only FDA-approved IV thrombolytic therapy.

Suggested Data Sources:

- Medication records
- Emergency department records
- Progress notes

Guidelines for Abstraction:

Inclusion	Exclusion

Data Element Name: *Date Last Known Well*

Collected For: Stroke-04: IV Thrombolytic Therapy Administered

Definition: The date at which the patient was last known to be without the signs and symptoms of the current stroke or at his or her prior baseline.

Suggested Data

Collection Question: What was the date at which the patient was last known to be well or at his or her baseline?

Format: MM-DD-YYYY

Allowable Values: MM = Month (01 – 12)
DD = Day (01 – 31)
YYYY = Year (2000 – 9999)

Notes for Abstraction: For patients with a witnessed onset of symptoms, the date of last known well and the date of symptom discovery will be the same.

- Suggested Data Sources:**
- Emergency Department records
 - History and Physical
 - Progress notes

Guidelines for Abstraction:

Inclusion	Exclusion

Data Element Name: *Discharge Date*

Collected For: All records

Definition: The month, day and year the patient was discharged from acute care, left against medical advice, or expired during this stay.

Suggested Data Collection Question: What is the date the patient was discharged from acute care, left against medical advice (AMA) or expired?

Format: MM-DD-YYYY

Allowable Values:
 MM = Month (01 – 12)
 DD = Day (01 – 31)
 YYYY = Year (2000 – 9999)

Notes for Abstraction: Because this data element is critical in determining the population for all measures, the abstractor should NOT assume the UB-04 claim information for the discharge date is correct. If the abstractor determines through chart review that the UB-04 day is incorrect, she/he should correct and override the downloaded value. If the abstractor is unable to determine the correct discharge date through chart review, she/he should default to the UB-04 date.

- Suggested Data Sources:**
- Discharge summary
 - Face sheet
 - Nursing discharge notes
 - Physician orders
 - Progress notes
 - Transfer note
 - UB-04, (previously UB-92)

Guidelines for Abstraction:

Inclusion	Exclusion
None	None

Data Element Name:	<i>Discharge Status</i>
Collected For:	All Records
Definition:	The place or setting to which the patient was discharged
Suggested Data Collection Question:	What was the patient's discharge disposition?
Format:	
Allowable Values:	<p>01 Discharged to home care or self care (routine discharge)</p> <p>02 Discharged/transferred to another short term general hospital for inpatient care</p> <p>03 Discharged/transferred to a skilled nursing facility (SNF) with Medicare certification</p> <p>04 Discharged /transferred to an intermediate care facility</p> <p>05 Discharged/transferred to another type of health care institution (not defined elsewhere in this code list) for inpatient care. <u>Usage note:</u> Cancer hospitals excluded from PPS and children's hospitals are examples of such other types of health care institutions.</p> <p>06 Discharged/transferred to home under care of organized home health service organization</p> <p>07 Left against medical advice or discontinued care</p> <p>20 Expired</p> <p>41 Expired in medical facility, such as hospital, SNF, ICF, or freestanding hospice. <u>Usage note:</u> For use only on Medicare and CHAMPUS (TRICARE) claims for hospice care.</p> <p>43 Discharged/transferred to a federal health care facility <u>Usage note:</u> Discharged and transfers to a government operated health care facility such as a Department of Defense hospital, a Veteran's Administration hospital or a Veteran's Administration nursing facility. To be used whenever the destination at discharge is a federal health care facility, whether the patient resides there or not.</p> <p>50 Hospice – home</p> <p>51 Hospice – medical facility</p> <p>61 Discharged/transferred to hospital-based Medicare approved swing bed <u>Usage note:</u> Medicare-used for reporting patients discharged/transferred to a SNF level of care within a hospital's approved swing bed arrangement.</p>

- 62 Discharged/transferred to an inpatient rehabilitation facility (IRF) including rehabilitation distinct part units of a hospital
- 63 Discharge/transferred to a Medicare certified long term care hospital (LTCH)
- 64 Discharged/transferred to a nursing facility certified under Medicaid but not certified under Medicare
- 65 Discharged/transferred to a psychiatric hospital or psychiatric distinct part unit of a hospital
- 66 Discharged/transferred to a Critical Access Hospital (CAH)

Notes for Abstraction:

- The values for *Discharge Status* are taken from the National Uniform Billing Committee Manual (NUBC) manual which is used by the billing/HIM to complete the UB-04.
- Because this data element is critical in determining the population for many measures, the abstractor should NOT assume that the UB-04 value is what is reflected in the medical record. For abstraction purposes, it is important that the medical record reflect the appropriate discharge status. If the abstractor determines through chart review that the UB-04 discharge status is not what is reflected in the medical record, she/he should correct and override the downloaded value.
- It would be appropriate to work with your billing office to develop processes that can be incorporated to improve medical record documentation to support the appropriate discharge status and to ensure consistency between the UB-04 discharge status and the medical record.

If state assigned codes are used, it is the organization's responsibility to ensure that one of the allowable values listed is used.

While there are additional UB-04 values for this data element, they are used for these measures at this time.

- Suggested Data Sources:**
- Discharge instruction sheet
 - Discharge summary
 - Face sheet
 - Nursing discharge notes
 - Physician orders
 - Progress notes
 - Social service notes
 - Transfer record
 - UB-04, (previously UB-92)

Guidelines for Abstraction:

Inclusion	Exclusion
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Data Element Name: *DVT Prophylaxis Initiated by End of Hospital Day 2*

Collected For: DSC/Stroke-01: Deep Vein Thrombosis (DVT) Prophylaxis

Definition: The administration of a defined DVT prophylaxis strategy was initiated by the end of hospital day 2.

Suggested Data Collection Question: Was DVT prophylaxis initiated by the end of hospital day 2?

Format: Alphanumeric

Allowable Values: Y (Yes, DVT prophylaxis was initiated by the end of hospital day 2)
 N (No, DVT prophylaxis was not initiated by the end of hospital day 2, OR unable to determine from medical record documentation)
 NC (No, DVT prophylaxis was not initiated by the end of hospital day 2. A documented reason for not administering DVT prophylaxis exists)

Notes for Abstraction:

To compute end of hospital day two, count the arrival date as hospital day one. If DVT prophylaxis was administered by 11:59 PM of hospital day two, answer “Yes” for this data element. E.g, Patient arrives Monday 05:00, DVT prophylaxis must be initiated before 23:59 on Tuesday; if patient arrives at 23:30 on Monday, DVT prophylaxis must be initiated by 23:59 on Tuesday.

Reasons for not prescribing DVT prophylaxis must be documented by a physician, nurse practitioner or physician assistant. If reasons are not mentioned in the context of DVT prophylaxis, do not make inferences.

If documentation indicates that patient/caregiver refused DVT prophylaxis, choose “NC”.

- Suggested Data Sources:**
- Medication records
 - Physician orders
 - Progress notes
 - Clinical logs
 - Flow charts.

Guidelines for Abstraction:

Inclusion	Exclusion
DVT Prophylaxis <ul style="list-style-type: none"> • Low-dose, subcutaneous (sub-Q), 	<ul style="list-style-type: none"> • TED hose

<p>unfractionated (“regular”) heparin</p> <ul style="list-style-type: none">• Low Molecular Weight (LMW) heparin (enoxaparin, dalteparin, nadroparin)• Alternative anticoagulants (danaparoid, hirudin, bivalirudin, other heparinoids)• Intravenous heparin, IV heparin• Pneumatic compression stockings, sequential compression devices, SCDs• Already receiving anticoagulation, e.g., admitted on Coumadin and remains on Coumadin• Warfarin (Coumadin)• Warfarin Sodium• Pneumoboots• Venodynes	<ul style="list-style-type: none">• Compression socks
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Data Element Name:	<i>Dysphagia Screen</i>
Collected For:	DSC/Stroke-07: Dysphagia Screening
Definition:	Stroke patients should be screened for dysphagia before being given any oral intake including food, fluids, or medications.
Suggested Data Collection Question:	Was the patient screened for dysphagia before being given any oral intake, including food, fluids or medications?
Format:	Alphanumeric
Allowable Values:	<p>Y (Yes, patient was screened for dysphagia before being given any oral intake including food, fluids or medications by mouth)</p> <p>N (No, patient was not screened for dysphagia before being given any oral intake including food, fluids or medications by mouth, OR unable to determine from medical record documentation)</p> <p>NC (No, patient was not screened for dysphagia before being given any oral intake including food, fluids or medications by mouth. A documented reason exists for not performing this screen.)</p>
Notes for Abstraction:	<p>Documentation in the record should indicate that an assessment of the patient's <u>ability to swallow</u> was completed by a health care professional prior to oral intake of food, fluid, or medications. A screening test need not be a formal evaluation of swallowing by a speech and language pathologist, but should be a standardized method of swallowing assessment accepted by the institution.</p> <p>Reasons for not performing a dysphagia screen must be explicitly documented or clearly implied by a physician, nurse practitioner, or physician assistant. If reasons are not mentioned in the context of dysphagia screening, do not make inferences unless documentation explicitly states so. All patients except those with a known history of dysphagia should have evidence of a dysphagia screen prior to any oral intake.</p> <p>If dysphagia screen was offered and documentation exists that the patient or caregiver refused, select "NC".</p>
Suggested Data Sources:	<ul style="list-style-type: none"> - Clinician notes - Referral/consult notes - Physician order sheet - Progress notes - Flow charts

Guidelines for Abstraction:

Inclusion	Exclusion
<p>A variety of methods may be employed to assess swallowing status. These methods may include but are not limited to:</p> <ul style="list-style-type: none">• Bedside swallowing assessment• Simple water swallow test• Burke water swallow test• Bedside swallowing assessment• Simple standardized bedside swallowing assessment (SSA)• Barium swallow• Video fluoroscopy• Double contrast esophagoscopy• Radio nucleotide studies• Manometry• Endoscopy• Formal evaluation by a speech and language pathologist	<ul style="list-style-type: none">• Patient evaluation using the NIH/NIHSS (National Institute of Health/National Institute of Health Stroke Scale) is NOT considered dysphagia screening• Documentation of “gag reflex present” or “positive gag” or “cranial nerves intact” without explicit assessment of swallowing is NOT considered dysphagia screening

Data Element Name:	<i>Education Addresses Activation of Emergency Medical System</i>
Collected For:	Stroke-08: Stroke Education
Definition:	The medical record should include documentation that patient and/or caregiver received written education and/or resource materials that address the need for activation of the emergency medical system (EMS) if signs or symptoms of stroke occur
Suggested Data Collection Question:	Did the patient or caregiver receive written educational materials regarding the need for activation of the emergency medical system (EMS) if signs or symptoms of stroke occur?
Format:	Alphanumeric
Allowable Values:	<p>Y (Yes) The patient or caregiver received written educational and/or resource materials the need for activation of the emergency medical system (EMS) if signs or symptoms of stroke occur</p> <p>N (No) The patient or caregiver did not receive written education and/or resource materials regarding the need for activation of the emergency medical system (EMS) if signs or symptoms of stroke occur, OR unable to determine from medical record documentation</p> <p>NC (No, the patient or caregiver did not receive written education and/or resource materials regarding the need for activation of the emergency medical system (EMS) if signs or symptoms of stroke occur. The patient is unable to comprehend, and no caregiver is available.)</p>
Notes for Abstraction:	<p>Record documentation must reflect that the patient and/or caregiver received written education and/or electronic resource materials. If the organization uses standardized written materials that contain the required component, i.e., the need for activation of the emergency medical system (EMS) if signs or symptoms of stroke occur, then documentation of receipt of these tools is adequate.</p> <p>Electronically formatted media such as videos, CDs and DVDs are acceptable for educational materials. Documentation must clearly convey that (1) the need for activation of the emergency medical system (EMS) if signs or symptoms of stroke occur is included in the material, and (2) the patient was given a copy to take home.</p> <p>If there is documentation that the patient refused education and/or education materials which addressed follow-up after discharge, select "Y".</p>

The caregiver is defined as the patient's family or any other person (e.g., home health/VNA provider) who will be responsible for care of the patient after discharge.

- Suggested Data Sources:**
- Care plans/clinical pathways
 - Progress notes
 - Flow charts
 - Discharge instruction sheet
 - Discharge summary
 - Nursing discharge notes
 - Physical therapy notes
 - Teaching sheet
 - Education record

Guidelines for Abstraction:

Inclusion	Exclusion

Data Element Name:	<i>Education Addresses Follow-up After Discharge</i>
Collected For:	Stroke-08: Stroke Education
Definition:	The medical record should include documentation that patient and/or caregiver received written education and/or resource materials that address the need for continuing medical care after discharge.
Suggested Data Collection Question:	Did the patient or caregiver receive written educational materials regarding follow-up after discharge?
Format:	Alphanumeric
Allowable Values:	Y (Yes) The patient or caregiver received written educational and/or resource materials regarding follow-up after discharge N (No) The patient or caregiver did not receive written education and/or resource materials regarding follow-up after discharge, OR unable to determine from medical record documentation NC (No, the patient or caregiver did not receive written education and/or resource materials regarding follow-up after discharge. The patient is unable to comprehend, and no caregiver is available.)
Notes for Abstraction:	<p>Record documentation must reflect that the patient and/or caregiver received written education and/or electronic resource materials. If the organization uses standardized written materials that contain the required component, i.e., follow-up after discharge, then documentation of receipt of these tools is adequate.</p> <p>Electronically formatted media such as videos, CDs and DVDs are acceptable for educational materials. Documentation must clearly convey that (1) follow-up after discharge is included in the material, and (2) the patient was given a copy to take home.</p> <p>If there is documentation that the patient refused education and/or education materials which addressed follow-up after discharge, select "Y".</p> <p>The caregiver is defined as the patient's family or any other person (e.g., home health/VNA provider) who will be responsible for care of the patient after discharge.</p>
Suggested Data Sources:	<ul style="list-style-type: none"> - Care plans/clinical pathways - Progress notes - Flow charts - Discharge instruction sheet - Discharge summary

- Nursing discharge notes
- Physical therapy notes
- Teaching sheet
- Education record

Guidelines for Abstraction:

Inclusion	Exclusion

Data Element Name:	<i>Education Addresses Medication Prescribed</i>
Collected For:	Stroke-08: Stroke Education
Definition:	The medical record should include documentation that patient and/or caregiver received education and/or resource materials that address medication prescribed.
Suggested Data Collection Question:	Did the patient or caregiver receive education and/or resource materials regarding medications prescribed?
Format:	Alphanumeric
Allowable Values:	<p>Y (Yes) The patient or caregiver received education regarding medication</p> <p>N (No) The patient or caregiver did not receive education regarding medication, OR unable to determine from medical record documentation</p> <p>NC (No, the patient or caregiver did not receive written education and/or resource materials regarding medication. The patient is unable to comprehend, and no caregiver is available.)</p>
Notes for Abstraction:	<p>Record documentation must reflect that the patient and/or caregiver received written education and/or electronic resource materials. If the organization uses standardized written materials that contain the required component, i.e., medications, then documentation of receipt of these tools is adequate.</p> <p>Electronically formatted media such as videos, CDs, and DVDs are acceptable for educational materials. Documentation must clearly convey that (1) medications are included in the material, and (2) the patient was given a copy to take home.</p> <p>If there is documentation that the patient refused education and/or education materials which addressed medications, select "Yes."</p> <p>The caregiver is defined as the patient's family or any other person (e.g., home health/VNA provider) who will be responsible for care of the patient after discharge.</p>
Suggested Data Sources:	<ul style="list-style-type: none"> - Care plans/clinical pathways - Progress notes - Flow charts - Discharge instruction sheet - Discharge summary - Nursing discharge notes - Physical therapy notes - Teaching sheet - Education record

Guidelines for Abstraction:

Inclusion	Exclusion

Data Element Name:	<i>Education Addresses Risk Factors for Stroke</i>
Collected For:	Stroke-08: Stroke Education
Definition:	The medical record should include documentation that patient and/or caregiver received education and/or resource materials that address relevant personal risk factors for stroke
Suggested Data Collection Question:	Did the patient or caregiver receive education regarding personal risk factors for stroke?
Format:	Alphanumeric
Allowable Values:	<p>Y (Yes) The patient or caregiver received education regarding relevant personal risk factors for stroke</p> <p>N (No) The patient or caregiver did not receive education regarding relevant personal risk factors for stroke, OR unable to determine from medical record documentation</p> <p>NC (No, the patient or caregiver did not receive written education and/or resource materials regarding relevant personal risk factors for stroke. The patient is unable to comprehend, and no caregiver is available.)</p>
Notes for Abstraction:	<p>Record documentation must reflect that the patient and/or caregiver received education and/or electronic resource materials. If the organization uses standardized written materials that contain the required component, i.e., personal risk factors for stroke, then documentation of receipt of these tools is adequate.</p> <p>Electronically formatted media such as videos, CDs, and DVDs are acceptable for educational materials. Documentation must clearly convey that (1) personal risk factors for stroke are included in the material, and (2) the patient was given a copy to take home. Referral to web-based materials or help-lines would qualify.</p> <p>If there is documentation that the patient refused education and/or educational materials which addressed the risk factors, select "Y".</p> <p>The caregiver is defined as the patient's family or any other person (e.g., home health/VNA provider) who will be responsible for care of the patient after discharge.</p>
Suggested Data Sources:	<ul style="list-style-type: none"> - Care plans/clinical pathways - Progress notes - Flow charts - Discharge instruction sheet - Discharge summary - Nursing discharge notes - Physical therapy notes

- Teaching sheet
- Education record

Guidelines for Abstraction:

Inclusion	Exclusion
Personal risk factors for stroke may include but are not limited to: <ul style="list-style-type: none"> • High blood pressure • Elevated cholesterol • Diabetes • Overweight (BMI \geq 25) • Physical inactivity • Excessive alcohol consumption • Carotid artery stenosis • Atrial fibrillation • Smoking 	

Data Element Name: *Education Addresses Warning Signs and Symptoms of Stroke*

Collected For: Stroke-08: Stroke Education

Definition: The medical record should include documentation that patient and/or caregiver received education and/or resource materials that address the warning signs and symptoms of stroke.

Suggested Data

Collection Question: Did the patient or caregiver receive education and/or resource materials regarding the warning signs and symptoms of stroke?

Format: Alphanumeric

Allowable Values: Y (Yes) The patient or caregiver received education regarding the warning signs of stroke
N (No) The patient or caregiver did not receive education regarding the warning signs and symptoms of stroke OR unable to determine from medical record documentation
NC (No, the patient or caregiver did not receive written education and/or resource materials regarding the warning signs and symptoms of stroke occur. The patient is unable to comprehend, and no caregiver is available)

Notes for Abstraction: Record documentation must reflect that the patient and/or caregiver received education and/or electronic resource materials. If the organization uses standardized written materials that contain the required component, i.e., warning signs of stroke, then documentation of receipt of these tools is adequate.

Electronically formatted media such as videos, CDs, and DVDs are acceptable for educational materials. Documentation must clearly convey that (1) warning signs and symptoms are included in the material, and (2) the patient was given a copy to take home.

If there is documentation that the patient refused education and/or education materials which addressed warning signs and symptoms, select "Y".

The caregiver is defined as the patient's family or any other person (e.g., home health/VNA provider) who will be responsible for care of the patient after discharge.

Suggested Data Sources:

- Care plans/clinical pathways
- Progress notes
- Flow charts
- Discharge instruction sheet
- Discharge summary
- Nursing discharge notes
- Physical therapy notes

- Teaching sheet
- Education record

Guidelines for Abstraction:

Inclusion	Exclusion
<p>Examples of stroke warning signs may include but are not limited to:</p> <ul style="list-style-type: none"> • Sudden numbness or weakness of the face, arm or leg, especially on one side of the body • Sudden confusion, trouble speaking or understanding • Sudden trouble seeing in one or both eyes • Sudden trouble walking, dizziness, loss of balance or coordination • Sudden severe headache with no known cause 	

Data Element Name: *Hispanic Ethnicity*

Collected For: All records

Definition: Documentation that the patient is of Hispanic ethnicity or Latino

Suggested Data Collection Question: Is the patient of Hispanic ethnicity or Latino?

Format: Alpha

Allowable Values: Y (Yes) Patient is of Hispanic ethnicity or Latino
 N (No) Patient is not of Hispanic ethnicity or Latino OR unable to determine from medical record documentation

Notes for Abstraction: The data element *Race* is required in addition to this data element

Suggested Data Sources:

- Emergency Department record
- Face sheet
- History and physical
- Nursing admission assessment
- Progress notes

Guidelines for Abstraction:

Inclusion	Exclusion
<p>A person of Cuban, Mexican, Puerto Rican, South or Central American, or other Spanish culture or origin regardless of race. The term “Spanish origin” can be used in addition to “Hispanic or Latino”</p> <p>Examples:</p> <ul style="list-style-type: none"> • Black-Hispanic • Chicano • “H” • Hispanic • Latin American • Latino/Latina • Mexican-American • Spanish • White-Hispanic 	<ul style="list-style-type: none"> • None

Data Element Name: *ICD-9-CM Principal Diagnosis Code*

Collected For: All records

Definition: The International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM) codes associated with the diagnosis of stroke (see Tables 1 and 2 in Appendices)

Suggested Data

Collection Question: What was the ICD-9-CM code selected as the principal diagnosis for this record?

Format:

Allowable Values: Any valid ICD-9-CM diagnosis code

Notes for Abstraction: The principal diagnosis is defined in the Uniform Hospital Discharge Data Set (UHDDS) as "that condition established after study to be chiefly responsible for occasioning the admission of the patient to the hospital for care."

Suggested Data Sources: Discharge summary
Face sheet
UB-04, (previously UB-92)

Guidelines for Abstraction:

Inclusion	Exclusion
Refer to Appendices for ICD-9-CM Code Tables	

Data Element Name: *IV Thrombolytic Therapy Administered*

Collected For: DSC/Stroke-04: IV Thrombolytic Therapy Administered

Definition: The patient received intravenous (IV) thrombolytic therapy at this hospital during this hospitalization.

Suggested Data Collection Question: Does documentation exist in the medical record stating that the patient received IV thrombolytic therapy at this hospital during the present hospitalization?

Format: Alphanumeric

Allowable Values:

Y	(Yes, IV thrombolytic was administered in this hospital during this hospitalization)
N	(No, IV thrombolytic was not administered in this hospital during this hospitalization, OR unable to determine from medical record documentation)
NC	(No, IV thrombolytic was not administered in this hospital during this hospitalization. A documented reason exists for not administering this therapy)

Notes for Abstraction: This data element applies only to patients for whom IV thrombolytic therapy was initiated at this hospital. Do not abstract this data element if IV thrombolytic therapy was initiated at another hospital and patient was subsequently transferred to this hospital.

Reasons for not administering IV thrombolytic therapy must be explicitly documented or clearly implied (e.g., contraindicated) by a physician, nurse practitioner, or physician assistant. Conditions or factors making the administration of IV thrombolytic inadvisable, inappropriate and/or undesirable are documented. Such conditions may include:

Contraindications

- IV or IA t-PA given at outside hospital
- Systolic blood pressure > 185 or diastolic blood pressure > 110 mm hg.
- Suspicion of subarachnoid hemorrhage
- CT findings (intracranial hemorrhage, subarachnoid hemorrhage, or major infarct signs)
- Seizure at onset
- Recent surgery/trauma (<15 days)
- Recent intracranial or spinal surgery, head trauma, or stroke (<3 mo.)
- History of intracranial hemorrhage or brain aneurysm or vascular malformation or brain tumor
- Active internal bleeding (<22 days)

- Platelets <100,000, PTT > 40 sec after heparin use, or PT > 15 or INR > 1.7, or unknown bleeding diathesis
- No IV access
- Care-team unable to determine eligibility
- Pt./Family refused

Warnings:

Conditions that might lead to increased risk of bleeding or unfavorable outcomes

- Advanced age
- Rapid improvement
- Stroke severity – Too mild
- Stroke severity – Too severe (e.g., NIHSS >22)
- Glucose < 50 or > 400 mg/dl
- Life expectancy < 1 year or severe co-morbid illness
- Left heart thrombus
- Patient currently receiving oral anticoagulants (e.g. Warfarin sodium, Coumadin)
- Diabetic hemorrhagic retinopathy or other ophthalmic bleeding
- Subacute bacterial endocarditis
- Acute pericarditis
- Pregnancy
- Septic thrombophlebitis or occluded AV cannula at seriously infected site
- Hemostatic defects including those secondary to severe renal or hepatic disease

If reasons are not mentioned in the context of thrombolytics, do not make inferences (e.g., do not assume that thrombolytics are not being administered due to recent intracranial surgery unless documentation explicitly states so.)

Currently, t-PA is the only FDA-approved IV thrombolytic.

Suggested Data Sources: Emergency room records
Medication records
Progress notes
Transfer forms

Guidelines for Abstraction:

Inclusion	Exclusion
<ul style="list-style-type: none"> • IV t-PA • Activase 	<ul style="list-style-type: none"> • Intra-arterial (IA) t-PA

Data Element Name: *LDL ≥ 100 mg/dL*

Collected For: DSC Stroke-06: Discharged on Cholesterol Reducing Therapy

Definition: The patient's LDL level was ≥ 100 mg/dL in the first 48 hours of hospitalization

Suggested Data Collection Question: Was the patient's highest LDL level ≥ 100 mg/dL in the first 48 hours of hospitalization or within the past 30 days?

Format: Alphanumeric

Allowable Values: Y (Yes, LDL ≥ 100 in the first 48 hours of hospitalization or in the past 30 days)
 N (No, LDL < 100 in the first 48 hours of hospitalization or in the past 30 days OR unable to determine from medical record documentation)

Notes for Abstraction: For this measurement, look for the highest level in the first 48 hours after admission or if available as a fasting sample within the past 1 month. The cholesterol levels drawn in the first 48 hours after admission do not have to be fasting values.

Total cholesterol measurement is not adequate to answer "Yes" to this data element. If only total cholesterol measurement is documented in the medical record, answer "N".

Suggested Data Sources: Laboratory reports
 Progress notes

Guidelines for Abstraction:

Inclusion	Exclusion

Data Element Name: *NPO (Nothing by Mouth) For Entire Hospital Stay*

Collected For: Stroke-07: Dysphagia Screening

Definition: There is documentation to demonstrate that the patient has had **NO** oral intake of food, fluid, or medications for the entire hospitalization.

Suggested Data Collection Question: Was the patient NPO throughout the entire hospital stay?

Format: Alphanumeric

Allowable Values: Y (Yes, the patient was NPO throughout the entire hospital stay.)
N (No, the patient was not NPO throughout the entire hospital stay OR unable to determine from medical record documentation)

Notes for Abstraction: Answer “Yes” for this data element only if the patient was kept NPO during the entire hospitalization and was discharged/transferred/deceased NPO. This response should not be used in any other circumstances.

The delivery of food, fluid, or medication via a nasogastric tube, orogastric tube, or percutaneous gastrostomy tube should be independent of the assessment of NPO.

Suggested Data Sources:

- Progress notes
- Nurses notes
- Physician orders
- Dietitian notes
- Speech pathology notes
- Discharge summary

Guidelines for Abstraction:

Inclusion	Exclusion
<ul style="list-style-type: none"> • NPO • Nothing by mouth • Nulle Per Os 	

Data Element Name: *Patient Ambulatory at End of Hospital Day Two*

Collected For: DSC/Stroke-01: Deep Vein Thrombosis (DVT) Prophylaxis

Definition: Documentation in the medical record indicates that the patient was ambulatory by the end of hospital day two

Suggested Data Collection Question: Was the patient ambulatory at the end of hospital day two?

Format: Alphanumeric

Allowable Values: Y (Yes, the patient was ambulatory at the end of hospital day two)
N (No, the patient was not ambulatory at the end of hospital day two OR unable to determine from medical record documentation)

Notes for Abstraction:

Ambulatory:

- Patient ambulating without assistance (no help from another person)
- Patient ambulating throughout the day with assistance of another person or assistive device
- Patients ambulating to and from the bathroom

Non-ambulatory:

- Patient is on bed rest
- Patient is only getting out of bed to the bedside commode (or up in chair) and is primarily in the bed (or immobile) on the 2nd hospital day

If unable to determine from documentation consider this patient non-ambulatory

To compute end of hospital day two, count the arrival date as hospital day one. If the patient was ambulating by 11:59 PM of hospital day two, answer “Yes” for this data element. E.g, Patient arrives Monday 05:00, patient must be ambulatory before 23:59 on Tuesday; if patient arrives at 23:30 on Monday, patient must be ambulatory by 23:59 on Tuesday

Suggested Data Sources:

- Progress notes
- History and physical
- Nursing assessment
- Nurses notes

Guidelines for Abstraction:

Inclusion	Exclusion

Data Element Name: *Patient Discharged on Anticoagulation Therapy*

Collected For: Stroke-03 Patients with Atrial Fibrillation Receiving Anticoagulation Therapy

Definition: Patient was prescribed anticoagulation therapy at time of hospital discharge

Suggested Data Collection Question: Does documentation indicate that the patient was discharged with a prescription for anticoagulation therapy?

Format: Alphanumeric

Allowable Values: Y (Yes, the patient was discharged on anticoagulation therapy)
 N (No, the patient was not discharged on anticoagulation therapy or unable to determine from medical record documentation)
 NC (No, documented reason for not prescribing antithrombotic therapy exists)

Notes for Abstraction: Documentation that demonstrates that patient/caregiver was given prescription for anticoagulation therapy at time of hospital discharge.

Reasons for not prescribing anticoagulation therapy must be documented by a physician, nurse practitioner or physician assistant. If reasons are not mentioned in the context of anticoagulation therapy, do not make inferences.

If documentation indicates that patient/caregiver refused prescription for anticoagulation therapy at discharge, choose "NC".

Suggested Data Sources:

- Pharmacy/medication records
- Physician orders
- Clinical logs
- Discharge instructions

Guidelines for Abstraction:

Inclusion	Exclusion
Examples of anticoagulation therapy include: <ul style="list-style-type: none"> • Warfarin/Coumadin • Heparin/heparinoids • Other anticoagulants, e.g., Lepirudin 	<ul style="list-style-type: none"> • Patients who are discharged only on low doses (5000 units subQ bid) of heparin or equivalent doses for DVT prophylaxis using LMWH

Data Element Name:	<i>Point of Origin for Admission or Visit</i>
Collected For:	All records
Definition:	A code indicating the point of patient origin for this admission.
Suggested Data Collection Question:	What was the point of origin for this admission?
Format:	Length: 1 Type: Alphanumeric Occurs: 1
Allowable Values:	<p>1 Non-Health Care Facility Point of Origin The patient was admitted to this facility upon order of a physician. <u>Usage Note:</u> Includes patients coming from home, a physician's office, or workplace.</p> <p>2 Clinic The patient was admitted to this facility as a transfer from a freestanding or non-freestanding clinic.</p> <p>4 Transfer From a Hospital (Different Facility) The patient was admitted to this facility as a hospital transfer from an acute care facility where he or she was an inpatient or outpatient. <u>Usage Note:</u> Excludes Transfers from Hospital Inpatient in the Same Facility (See Code D).</p> <p>5 Transfer from a Skilled Nursing Facility (SNF) or Intermediate Care Facility (ICF) The patient was admitted to this facility as a transfer from a SNF or ICF where he or she was a resident.</p> <p>6 Transfer from another Health Care Facility The patient was admitted to this facility as a transfer from another type of health care facility not defined elsewhere in this code list.</p> <p>7 Emergency Room The patient was admitted to this facility after receiving services in this facility's emergency room. <u>Usage Note:</u> Excludes patients who came to the emergency room from another health care facility.</p> <p>8 Court/Law Enforcement The patient was admitted to this facility upon the direction of court of law, or upon the request of a law enforcement agency. <u>Usage Note:</u> Includes transfers from incarceration facilities.</p>

9 Information not Available

The means by which the patient was admitted to this hospital is unknown.

D Transfer from One Distinct Unit of the Hospital to another Distinct Unit of the Same Hospital Resulting in a Separate Claim to the Payer

The patient was admitted to this facility as a transfer from hospital inpatient within this hospital resulting in a separate claim to the payer.

Usage Note: For purposes of this code, "Distinct Unit" is defined as a unique unit or level of care at the hospital requiring the issuance of a separate claim to the payer. Examples could include observation services, psychiatric units, rehabilitation units, a unit in a critical access hospital, or a swing bed located in an acute hospital.

E Transfer from Ambulatory Surgery Center

The patient was admitted to this facility as a transfer from an ambulatory surgery center.

F Transfer from Hospice and is Under a Hospice Plan of Care or Enrolled in a Hospice Program

The patient was admitted to this facility as a transfer from hospice.

Notes for Abstraction:

(The abstractor should NOT assume that the UB-04 claim information for the admission date is correct. If the abstractor determines through chart review that the UB-04 date is incorrect, she/he should correct and override the downloaded value. If the abstractor is unable to determine the correct admission date through chart review, she/he should default to the UB-04 admission date.

- The intent of this data element is to focus on patients' place or point of origin rather than the source of a physician order or referral.
- The point of origin is the direct source for the particular facility.

Example 1:

A SNF patient experiences sudden right-sided numbness and weakness of the extremities and is taken to the emergency department of Hospital A where it is determined that she is suffering an acute ischemic stroke. The patient is then transferred to Hospital B for admission as an inpatient. The Point of Origin for Hospital A would be 5 – Transfer from a Skilled Nursing Facility (SNF) or Intermediate Care Facility (ICF); the point of origin code for Hospital B would be 4 – Transfer from a Hospital.

Example 2:

An acute ischemic stroke patient was taken to the emergency department of Hospital A by EMTs, then transferred to Hospital B where he receives additional treatment in the ED, and then is admitted as an inpatient to Hospital B. The Point of Origin code for Hospital A is 7 – Emergency Room; the point of origin for Hospital B would be 4 – Transfer from a Hospital.

- The emergency room code is limited to patients who receive unscheduled emergency services in the ED not originating from another health care facility. As in the example above, a patient brought to the ED would be coded as 7 since the patient was not previously at any other kind of health care facility. Code 7 also includes self-referrals in emergency situations that require immediate medical attention.

Usage Notes/Cases:

I. Transfers – From an Another Facility

Overall Scenario

While at another acute care hospital/facility, the patient is seen by the emergency room physicians. The patient is then transferred to our facility through the emergency room.

- The Point of Origin code would be Code 4 – Transfer from a Hospital (Different Facility) due to the patient being seen at the other acute care facility's emergency room.
- If the decision to admit was not made by the other facility's emergency room personnel and instead was made by our facilities emergency room doctor, the Point of Origin code would still be 4. Even though the decision to admit was not made by the other facility, the patient was still seen by the other facility's emergency room personnel and a decision to transfer was made by them.
- The patient is seen by the other facility's emergency room physician; the patient arrives at our emergency room, but receives no additional emergency room care at our facility. Instead, the patient is transferred immediately to the Stroke Unit of our facility, the Point of Origin code would still be 4. Since the patient is seen by a different hospital's emergency room personnel, the decision to transfer the patient is first made by the other facility. The arrival of the patient at the receiving hospital's emergency room and subsequent transfer to the Stroke Unit is secondary to the transfer from the previous facility transfer.

II. Transfers – Skilled Nursing Facility

Overall Scenario

A resident from a skilled nursing facility is taken to an acute care hospital for medical care.

- The Point of Origin code would be Code 5 – Transfer from a Skilled Nursing Facility.
- The patient's family stopped by to pick-up the patient for a routine doctor's office visit (regularly scheduled); but while at the doctor's office the doctor sends the patient to the emergency room of the acute care hospital. The Point of Origin code would be 5 as the original Point of Origin is the skilled nursing facility. The

subsequent visit to the doctor's office (or even the emergency room of the hospital) is secondary to the events that took place earlier that day.

III. Transfer by Law Enforcement or Court

Overall scenario

A patient arrives at the health care facility accompanied by police.

- The Point of Origin code would be Code 8 – Court/Law Enforcement as the patient is under the supervision of law enforcement.
- If the patient was simply transported by law enforcement to our facility, the patient is neither under arrest nor serving any jail time, then the Point of Origin code would be 7 – Emergency Room. Law enforcement is simply transporting the patient for emergency/urgent care treatment. The patient is not incarcerated (that is, neither under arrest nor serving any jail time).

Suggested Data Sources: Emergency department record
 Face sheet
 History and physical
 Nursing admission notes
 Progress notes
 UB-04, Field Location: 15

Guidelines for Abstraction:

Inclusion	Exclusion
None	If the patient was transferred from an emergency department of another hospital, do not use "7". "7" is only for patients admitted upon recommendation of this facility's emergency department physician.

Data Element Name:	<i>Race</i>
Collected For:	All records
Definition:	Documentation of the patient's race
Suggested Data Collection Question:	What is the patient's race?
Format:	Alphanumeric
Allowable Values:	<ol style="list-style-type: none"> 1 White: Patient's race is White or the patient has origins in Europe, the Middle East or North Africa 2 Black: Patient's race is Black or African American 3 American Indian or Alaska Native: Patient's race is American Indian/Alaska Native. 4 Asian: Patient's race is Asian 5 Native Hawaiian or Pacific Islander: Patient race is Native Hawaiian/Pacific Islander 7 UTD: Unable to determine the patient's race or not stated (e.g., not documented, conflicting documentation or patient unwilling to provide).
Notes for Abstraction:	<ul style="list-style-type: none"> - The data element <i>Hispanic Ethnicity</i> is required in addition to this data element - If documentation indicates the patient has more than one race (e.g., Black-White, Indian-White), select the first listed race. - Although the terms "Hispanic" and "Latino" are actually descriptions of the patient's ethnicity, it is not uncommon to find them referenced as race. If the patient's race is documented only as Hispanic/Latino, select "White". If the race is documented as mixed Hispanic/Latino with another race, use whatever race is given (e.g., Black-Hispanic – select "Black") Other terms for Hispanic/Latino include Chicano, Cuba, H (for Hispanic), Latin American, Latina, Mexican, Mexican-American, Puerto Rican, South or Central American, and Spanish
Suggested Data Sources:	<ul style="list-style-type: none"> - Emergency Department record - Face sheet - History and physical - Nursing admission assessment - Progress notes

Guidelines for Abstraction:

Inclusion	Exclusion
<p>Black or African American A person having origins in any of the black racial groups of Africa. Terms such as “Haitian” or “Negro” can be used in addition to “Black or African American”</p> <p>American Indian or Alaska Native A person having origins in any of the original peoples of North and South American (including Central America) and who maintains tribal affiliation or community attachment (e.g., any recognized tribal entity in North and South America [including Central America], Native American).</p> <p>Asian A person having origins in any of the original peoples of the Far East, Southeast Asia, or the Indian subcontinent, including for example, Cambodia, China, India, Japan, Korea, Malaysia, Pakistan, the Philippine Islands, Thailand and Vietnam.</p> <p>White A person having origins in any of the original peoples of Europe, the Middle East, or North Africa (e.g., Caucasian, Iranian, White).</p> <p>Native Hawaiian or Pacific Islander A person having origins in any of the other original peoples of Hawaii, Guam, Samoa, or other Pacific Islands.</p>	<p>None</p>

Data Element Name: *Report Period*

Collected For: All records

Definition: A quarter within the year

Suggested Data Collection Question: For what report period are these data reported?

Format: q-yyyy

Allowable Values:

- 1 (January – March)
- 2 (March – June)
- 3 (July – September)
- 4 (October – December)

YYYY = Year (2000 – 9999)

Notes for Abstraction: Inpatients are included in the quarter in which they were discharged.

Suggested Data Sources:

- Face sheet
- Discharge data

Guidelines for Abstraction:

Inclusion	Exclusion

Data Element Name: Sex

Collected For: All records

Definition: The patient's sex

Suggested Data Collection Question: What is the patient's sex?

Format: Alphanumeric

Allowable Values: M = Male
F = Female
U = Unknown

Notes for Abstraction: None

- Suggested Data Sources:**
- Consultation notes
 - Emergency department record
 - Face sheet
 - History and physical
 - Nursing admission notes
 - Progress notes
 - UB-04, (previously UB-92)

Guidelines for Abstraction:

Inclusion	Exclusion
None	None

Data Element Name: *Time IV Thrombolytic Therapy Administered at This Hospital*

Collected For: DSC/Stroke-04: IV Thrombolytic Therapy Administered

Definition: The time that IV thrombolytic therapy was initiated at the reporting hospital.

Suggested Data Collection Question: At what time was IV thrombolytic therapy administered at this hospital?

Format: HH:MM
Alphanumeric

Allowable Values: HH = Hour (00-23)
MM = Minutes (00-59)
ND = Time not documented or unknown

Converting clock time to military time:
With the exception of midnight and noon
- If the time is in the a.m., conversion is not required
- If the time is in the p.m., add 12 to the clock time hour
For example:
Midnight – 00:00
Noon – 12:00
11:59 p.m. – 23:59

Notes for Abstraction: This data element applies only to patients for whom IV thrombolytic therapy was initiated at this hospital. Do not abstract this data element if IV thrombolytic therapy was initiated at another hospital and patient was subsequently transferred to this hospital.

Use the time at which the initiation of the medication was first documented

If a discrepancy exists in time documentation from different sources, choose the earliest time.

Suggested Data Sources: - Emergency Department record
- Medication administration record
- Progress notes

Guidelines for Abstraction:

Inclusion	Exclusion

Data Element Name:	<i>Time Last Known Well</i>
Collected For:	DSC/Stroke-04: IV Thrombolytic Therapy Administered
Definition:	The time at which the patient was last known to be without the signs and symptoms of the current stroke or at his or her prior baseline.
Suggested Data Collection Question:	At what time was the patient last known to be well or at his or her prior baseline?
Format:	HH:MM Alphanumeric
Allowable Values:	HH = Hour (00-23) MM = Minutes (00-59) ND = Time not documented or unknown at the time treatment decision was made Converting clock time to military time: With the exception of midnight and noon - If the time is in the a.m., conversion is not required - If the time is in the p.m., add 12 to the clock time hour For example: Midnight = 00:00 Noon = 12:00 11:59 p.m. = 23:59
Notes for Abstraction:	<p>If a stroke “onset time” is listed in the medical record, without reference to the circumstances preceding its detection, then it should be assumed to be the time last known well. Enter this time in the specified format. If there is a specific reference to the patient having been discovered with symptoms already present, then this “onset time” should be treated as a “time of symptom discovery” rather than a time of last known well and “ND” should be selected for the time last known well.</p> <p>When a time of discovery is documented, but the symptom onset is not witnessed and no time last known well is documented, then “ND” should be selected for time last known well.</p> <p>When the onset of symptoms is clearly witnessed, then the time last known well is identical to the time of symptom discovery.</p> <p>If the time last known well is documented as being a specific number of hours prior to arrival (e.g., 2 hours ago) rather than a calendar time, subtract that number from the time of hospital or ED arrival and enter that time as the time last known well.</p>

If the time last known well is noted to be a range of time prior to hospital or ED arrival (e.g., “2 – 3 hours ago”), assume the maximum time from the range (e.g., 3 hours), and subtract that number of hours from the time of arrival to compute the time last known well.

If there are multiple times of last known well documented, either because subsequent more accurate information became available or because of different levels of expertise in sorting out the actual time last known well, use the time recorded according to the following hierarchy:

1. stroke team/neurology
2. admitting physician
3. emergency department physician
4. ED nursing notes
5. EMS

- Suggested Data Sources:**
- History and physical
 - Emergency department records
 - Progress notes
 - Transfer documents.

Guidelines for Abstraction:

Inclusion	Exclusion

DATA COLLECTION AND DATA REPORTING

Data Collection

Data collection is the continuous process of gathering data according to the measure specifications established for each of the ten harmonized stroke performance measures. Data may be collected for additional non-standardized measures, if a program chooses to monitor other indicators not included in the standardized measure set. All DSC certified stroke programs should be collecting data for all ten standardized measures. Data collection for non-standardized measures may be used to enhance the program's performance improvement plan, but cannot be used to replace or substitute for data collection for the standardized measures.

Ideally, programs should be collecting data for all ten standardized measures every month; however, other schedules can be utilized (i.e. quarterly) with the provision that monthly data points are gathered and reported (e.g. graphs and/or tables with data plotted for every month of the calendar year.) Programs that do not prospectively collect data due to resource or other constraints should take steps to ensure that the appropriate number of cases is reviewed and findings displayed for each month.

Example:

In October, a program reviews 60 patient records for third quarter stroke performance measure data. The sample selected should include 20 records from stroke patients discharged in July, 20 from patients discharged in August, and 20 from patients discharged in September. All 60 records should not be pulled from stroke patients discharged in October, leaving gaps in monitoring for other months.

Data Reporting

Data reporting is a periodic event that provides the organization with an opportunity to share the findings and analyses of its data collection efforts with internal staff members, other departments, or similar programs in an integrated health system delivery network. Data reporting at intervals determined by The Joint Commission is also a requirement for DSC certification.

Data reported to The Joint Commission should include the numerator and denominator figures for each measure, not just rates. Generally, the numerator is the smaller of the two numbers, and the denominator is the larger. The *Performance Measure Data Report* (see Appendices) is used to report data to The Joint Commission at the time of intra-cycle review and recertification. Graphic data displays should be used to demonstrate data analysis and included as part of the periodic data report. Data reporting should be done on a calendar year, rather than fiscal year basis.

DATA COLLECTION AND DATA REPORTING TOOLS STROKE

Introduction

These tools have been developed as one option for collecting and reporting DSC stroke measure data. Your organization may choose to design manual data collection and reporting tools of your own or develop an electronic format for data collection and data reporting. These data tools have been created with the following objectives:

- Minimize unnecessary entries;
- Expedite and streamline the data collection process; and
- Facilitate data aggregation for measure rate calculations and report submission.

The data elements included in these tools could be added to an existing data collection tool or program within your organization or your organization may wish to add other data elements to these forms with a goal of avoiding duplicative or multiple data abstraction activities. Combining data collection efforts may support additional performance improvement initiatives as well.

Guide to Use

- 1) Always complete the report period information. This is critical since a single patient/participant might be included in multiple report periods.
- 2) Always complete questions 1-12. These data elements capture fundamental population inclusion criteria and will avoid the collection of data for patients who are not eligible for any measure populations.
- 3) Always complete one data collection tool per patient case.
- 4) Aggregate Category D and Category E responses from each ***Data Collection Tool*** and complete the ***Data Reporting Tool*** to calculate rates.
- 5) **It is very important that the data definitions and abstraction guidelines included in the Data Element Dictionary (Section 5) of the *Stroke Performance Measurement Implementation Guide* be used when abstracting data for these measures.**

Refer to Section 5 of the ***Stroke Performance Measurement Implementation Guide*** for detailed data element definitions and abstraction guidelines.

**DATA COLLECTION TOOL
STROKE**

Report Period (Month) Note: Time period for inpatients is based on the patient's discharge date

- January February March April May June
 July August September October November December

Year ____ ____ ____ ____

Core Data Elements

- 1) Case ID # ____ ____ ____ ____ ____
2) Treated at a DSC Certified Primary Stroke Center Program
a) Yes b) No (Stop)
- 3) Gender Male Female
4) Birth Date ____ ____ / ____ ____ / ____ ____ ____ ____
- 5) Age 18 years or older a) Yes b) No (Stop)
- 6) Arrival Date ____ ____ / ____ ____ / ____ ____ ____ ____ 7) Arrival Time (military) ____ ____ : ____ ____

Refer to Section 5 of the **Stroke Performance Measurement Implementation Guide** for detailed data element definitions and abstraction guidelines.

8) Admission Date ____ / ____ / ____ 9) Discharge Date ____ / ____ / ____

10) Admitted for Elective Carotid Endarterectomy

- a) Yes (Stop) b) No

11) Discharge Status

- 01 Discharged to home care or self care (routine discharge)
- 02 Discharged/transferred to another short term general hospital for inpatient care
- 03 Discharged/transferred to a skilled nursing facility (SNF) with Medicare certification
- 04 Discharged/transferred to an intermediate care facility
- 05 Discharged/transferred to another type of institution for inpatient care
- 06 Discharged/transferred to home under care of organized home health service organization
- 07 Left against medical advice or discontinued care
- 20 Expired
- 41 Expired in medical facility, such as hospital, SNF, ICF or freestanding hospice (Hospice). Usage Note: For use only on Medicare and CHAMPUS (TRICARE) claims for hospice care.
- 43 Discharged/transferred to a federal health care facility (e.g., Department of Defense hospital, Veterans Administration hospital or nursing facility)
- 50 Hospice - home
- 51 Hospice - medical facility
- 61 Discharged/transferred within this institution to hospital-based Medicare approved swing bed. Usage Note: Medicare-used for reporting patients discharged/transferred to a SNF level of care within a hospital's approved swing bed arrangement.
- 62 Discharged/transferred to an inpatient rehabilitation facility (IRF) including rehabilitation distinct part units of a hospital
- 63 Discharged/transferred to a Medicare certified long term care hospital (LTCH)
- 64 Discharged/transferred to a nursing facility certified under Medicaid but not certified under Medicare
- 65 Discharged/transferred to a psychiatric hospital or psychiatric distinct part unit of a hospital
- 66 Discharged/transferred to a Critical Access Hospital (CAH)
- Unknown ---

12) ICD-9-CM Diagnosis Codes

Principal ____ . ____

Other _____ . _____ . _____ . _____ . _____
_____ . _____ . _____ . _____ . _____
_____ . _____ . _____ . _____ . _____

ICD-9-CM Principal Diagnosis Codes for Ischemic Stroke: All 10 Measures
ICD-9-CM Principal Diagnosis Codes 430 & 431, Hemorrhagic Stroke: STK-1; STK-7; SKT-8; STK-9; STK-10
(See Appendices Table 1 & Table 2)

DSC STK-1: DVT Prophylaxis

- 13) Patient discharged before the end of hospital day two a) Yes (Stop) b) No
- 14) Patient ambulatory at end of hospital day two a) Yes (Stop) b) No
- 15) Comfort Measures Only by end of hospital day two a) Yes (Stop) b) No
- 16) DVT prophylaxis initiated by the end of hospital day two
 a) Yes (This patient is in Category E)
 b) No (This patient is in Category D)
 c) NC – a documented reason exists (Stop)

Refer to Section 5 of the **Stroke Performance Measurement Implementation Guide** for detailed data element definitions and abstraction guidelines.

DSC STK-2: Discharged on Antithrombotic Therapy (ICD-9-CM Principal Diagnosis Codes for Ischemic Stroke Only)

17) Discharge Status

- a) = 02, 07, 20, 41, 50, 51, 66, Unknown (Stop)
- b) = 01, 03, 04, 05, 06, 43, 61, 62, 63, 64, 65

18) Comfort Measures Only a) Yes (Stop) b) No

19) Antithrombotic therapy prescribed at discharge

- a) Yes (This patient is in Category E)
- b) No (This patient is in Category D)
- c) NC– a documented reason exists (Stop)

DSC STK-3: Patients with Atrial Fibrillation Receiving Anticoagulation Therapy

(ICD-9-CM Principal Diagnosis Codes for Ischemic Stroke Only)

20) Discharge Status

- a) = 02, 07, 20, 41, 50, 51, 66, Unknown (Stop)
- b) = 01, 03, 04, 05, 06, 43, 61, 62, 63, 64, 65

21) Comfort Measures Only a) Yes (Stop) b) No

22) Atrial Fibrillation (atrial flutter, paroxysmal atrial fibrillation (PAF))

- a) Yes
- b) No (Stop)

23) Patient discharged on anticoagulation therapy

- a) Yes (This patient is in Category E)
- b) No (This patient is in Category D)
- c) NC– a documented reason exists (Stop)

DSC STK-4: Thrombolytic Therapy Administered (ICD-9-CM Principal Diagnosis Codes for Ischemic Stroke Only)

24) Date Last Known Well (*MM/DD/YYYY*) a) ___ ___ / ___ ___ / ___ ___ ___ ___

25) Time Last Known Well (*Hour 00-23 / Min. 00-59*) a) ___ ___ : ___ ___

b) ND (time not documented or unknown at the time the treatment decision was made)

26) Arrival Time (military) ___ ___ : ___ ___ (Question 7)

27) Compute: Arrival Time – (minus) Time Last Known Well: ___ ___ : ___ ___ – (minus) ___ ___ : ___ ___ = ___ : ___ ___

28) Arrival Time – (minus) Time Last Known Well is less than or equal to 2 hrs (120 min) a) Yes b) No (Stop)

29) IV thrombolytic administered to the patient at this hospital

- a) Yes
- b) No (This patient is in Category D)
- c) NC– a documented reason exists (Stop)

30) Date IV thrombolytic administered at this hospital ___ ___ / ___ ___ / ___ ___ ___ ___

31) Time IV thrombolytic administered at this hospital (military) ___ ___ : ___ ___ b) ND (time not documented or unknown at the time the treatment decision was made)

32) Compute: Time IV Thrombolytic Administered at this Hospital – (minus) Time Last Known Well:

___ ___ : ___ ___ – (minus) ___ ___ : ___ ___ = ___ : ___ ___

33) IV thrombolytic administered in less than or equal to 3 hrs (180 min) of time of last known well

- a) Yes (This patient is in Category E)
- b) No (This patient is in Category D)

DSC STK-5: Antithrombotic Therapy By End of Hospital Day Two

(ICD-9-CM Principal Diagnosis Codes for Ischemic Stroke Only)

- 34) Patient discharged by end of hospital day two a) Yes (Stop) b) No
- 35) Comfort Measures Only by end of hospital day two a) Yes (Stop) b) No
- 36) Antithrombotic therapy administered by the end of hospital day two
- a) Yes (This patient is in Category E)
 - b) No (This patient is in Category D)
 - c) NC – a documented reason exists (Stop)

DSC STK-6: Discharged on Cholesterol Reducing Medication

(ICD-9-CM Principal Diagnosis Codes for Ischemic Stroke Only)

- 37) Discharge Status
- a) = 02, 07, 20, 41, 50, 51, 66, Unknown (Stop)
 - b) = 01, 03, 04, 05, 06, 43, 61, 62, 63, 64, 65
- 38) Comfort Measures Only a) Yes (Stop) b) No
- 39) Cholesterol reducing therapy prior to hospitalization a) Yes (Skip 40 & 41) b) No
- 40) LDL Measured a) Yes b) No (Skip 41)
- 41) LDL \geq 100 mg/dL a) Yes b) No (Stop)

- 42) Cholesterol reducing medication prescribed at discharge
- a) Yes (This patient is in Category E)
 - b) No (This patient is in Category D)
 - c) NC– a documented reason exists (Stop)

DSC STK-7: Dysphagia Screening

- 43) No oral intake (NPO) of food, fluid, or medication for entire hospital stay
- a) Yes (Stop)
 - b) No
- 44) Dysphagia screen performed prior to oral intake
- a) Yes (This patient is in Category E)
 - b) No (This patient is in Category D)
 - c) NC– a documented reason exists (Stop)

DSC STK-8: Stroke Education

- 45) Discharge Status
- a) = 02, 07, 20, 41, 50, 51, 66, Unknown (Stop)
 - b) = 01, 03, 04, 05, 06, 43, 61, 62, 63, 64, 65
- 46) Comfort Measures Only
- a) Yes (Stop)
 - b) No
- 47) Education addresses activation of EMS (Patient and/or caregiver received education and/or resource materials)
- a) Yes
 - b) No
 - c) NC– a documented reason exists (Stop)

- 48) Education addresses need for follow-up after discharge from hospital
(Patient and/or caregiver received education and/or resource materials)
- a) Yes
 - b) No
 - c) NC– a documented reason exists (Stop)
- 49) Education addresses medications prescribed (Patient and/or caregiver received education and/or resource materials)
- a) Yes
 - b) No
 - c) NC– a documented reason exists (Stop)
- 50) Education addresses personal risk factors for stroke (Patient and/or caregiver received education and/or resource materials)
- a) Yes
 - b) No
 - c) NC– a documented reason exists (Stop)
- 51) Education addresses warning signs and symptoms of stroke
(Patient and/or caregiver received education and/or resource materials)
- a) Yes
 - b) No
 - c) NC– a documented reason exists (Stop)
- 52) Yes checked for all 5 education questions 47 – 51
- a) Yes (This patient is in Category E)
 - b) No (This patient is in Category D)

DSC STK-9: Smoking Cessation / Advice / Counseling

53) Discharge Status

a) = 02, 07, 20, 41, 50, 51, 66, Unknown (Stop)

b) = 01, 03, 04, 05, 06, 43, 61, 62, 63, 64, 65

54) Comfort Measures Only a) Yes (Stop) b) No

55) Adult Smoking History a) Yes b) No (Stop)

56) Smoking cessation / advice / counseling was given to the patient or caregiver during the hospital stay

a) Yes

b) No

c) NC– a documented reason exists (Stop)

DSC STK-10: Assessed for Rehabilitation

57) Discharge Status

a) = 02, 07, 20, 41, 50, 51, 66, Unknown (Stop)

b) = 01, 03, 04, 05, 06, 43, 61, 62, 63, 64, 65

58) Comfort Measures Only a) Yes (Stop) b) No

59) Patient assessed for or received rehabilitation services

a) Yes (This patient is in Category E)

b) No (This patient is in Category D)

DATA REPORTING TOOL STROKE

INSTRUCTIONS:

- 1) Collect all Data Collection Tools (one per patient case) completed during the month.
- 2) Aggregate the total number Category E and Category D responses for each stroke measure as recorded on the Data Collection Tools and complete the corresponding columns below (Columns 2 & 3).
- 3) Add the total number of Category E (Column 2) responses and the total number of Category D (Column 3) responses and record in Column 4.
- 4) Divide the total number of Category E (Column 2) responses by the Sum of E + D (Column 4) and record the rate (%=percent) produced in Column 5.

1	2	3	4	5
DSC STK-1	Total # Category E Responses	Total # Category D Responses	Total # E + Total # D (Sum = E + D)	Total # E / Sum (E + D)
DVT Prophylaxis				
Year: 20_____				
Jan				
Feb				
Mar				
Apr				
May				
Jun				
Jul				
Aug				
Sep				
Oct				
Nov				
Dec				
		Page 1 of 6		

NOTE: Total # Category E Responses (Column 2) = Numerator
Sum [Total # E + Total # D] (Column 4) = Denominator

1	2	3	4	5
DSC STK-2 Discharged on Antithrombotic Therapy	Total # Category E Responses	Total # Category D Responses	Total # E + Total # D (Sum = E + D)	Total # E / Sum (E + D)
Year: 20_____				
Jan				
Feb				
Mar				
Apr				
May				
Jun				
Jul				
Aug				
Sep				
Oct				
Nov				
Dec				

1	2	3	4	5
DSC STK-3 Pts with A-fib Receiving Anticoagulation Therapy	Total # Category E Responses	Total # Category D Responses	Total # E + Total # D (Sum = E + D)	Total # E / Sum (E + D)
Year: 20_____				
Jan				
Feb				
Mar				
Apr				
May				
Jun				
Jul				
Aug				
Sep				
Oct				
Nov				
Dec				
		Page 2 of 6		

NOTE: Total # Category E Responses (Column 2) = Numerator
Sum [Total # E + Total # D] (Column 4) = Denominator

1	2	3	4	5
DSC STK-4 Thrombolytic Therapy Administered	Total # Category E Responses	Total # Category D Responses	Total # E + Total # D (Sum = E + D)	Total # E / Sum (E + D)
Year: 20_____				
Jan				
Feb				
Mar				
Apr				
May				
Jun				
Jul				
Aug				
Sep				
Oct				
Nov				
Dec				

1	2	3	4	5
DSC STK-5 Antithrombotic Therapy By End of Hospital Day Two	Total # Category E Responses	Total # Category D Responses	Total # E + Total # D (Sum = E + D)	Total # E / Sum (E + D)
Year: 20_____				
Jan				
Feb				
Mar				
Apr				
May				
Jun				
Jul				
Aug				
Sep				
Oct				
Nov				
Dec				
		Page 3 of 6		

NOTE: Total # Category E Responses (Column 2) = Numerator
Sum [Total # E + Total # D] (Column 4) = Denominator

1	2	3	4	5
DSC STK-6 Discharged of Cholesterol Reducing Medication	Total # Category E Responses	Total # Category D Responses	Total # E + Total # D (Sum = E + D)	Total # E / Sum (E + D)
Year: 20_____				
Jan				
Feb				
Mar				
Apr				
May				
Jun				
Jul				
Aug				
Sep				
Oct				
Nov				
Dec				

1	2	3	4	5
DSC STK-7 Dysphagia Screening	Total # Category E Responses	Total # Category D Responses	Total # E + Total # D (Sum = E + D)	Total # E / Sum (E + D)
Year: 20_____				
Jan				
Feb				
Mar				
Apr				
May				
Jun				
Jul				
Aug				
Sep				
Oct				
Nov				
Dec				
		Page 4 of 6		

NOTE: Total # Category E Responses (Column 2) = Numerator
Sum [Total # E + Total # D] (Column 4) = Denominator

1	2	3	4	5
DSC STK-8 Stroke Education	Total # Category E Responses	Total # Category D Responses	Total # E + Total # D (Sum = E + D)	Total # E / Sum (E + D)
Year: 20_____				
Jan				
Feb				
Mar				
Apr				
May				
Jun				
Jul				
Aug				
Sep				
Oct				
Nov				
Dec				

1	2	3	4	5
DSC STK-9 Smoking Cessation/Advice/ Counseling	Total # Category E Responses	Total # Category D Responses	Total # E + Total # D (Sum = E + D)	Total # E / Sum (E + D)
Year: 20_____				
Jan				
Feb				
Mar				
Apr				
May				
Jun				
Jul				
Aug				
Sep				
Oct				
Nov				
Dec				
Page 5 of 6				

NOTE: Total # Category E Responses (Column 2) = Numerator
Sum [Total # E + Total # D] (Column 4) = Denominator

1	2	3	4	5
DSC STK-10 Assessed for Rehabilitation	Total # Category E Responses	Total # Category D Responses	Total # E + Total # D (Sum = E + D)	Total # E / Sum (E + D)
Year: 20_____				
Jan				
Feb				
Mar				
Apr				
May				
Jun				
Jul				
Aug				
Sep				
Oct				
Nov				
Dec				
		Page 6 of 6		

NOTE: Total # Category E Responses (Column 2) = Numerator
Sum [Total # E + Total # D] (Column 4) = Denominator

SAMPLING

Introduction

Sampling is a process of selecting a representative part of a population in order to estimate the organization's performance, without collecting data for its entire population. Using a statistically valid sample, an organization can measure its performance in an effective and efficient manner. Sampling is a particularly useful technique for performance measures that require primary data collection from a source such as the medical record. Sampling should not be used unless the organization has a large number of cases in the measure population because a fairly large number of sample cases are needed to achieve a representative sample of the population of interest. Organizations with large patient volumes may perform data collection on a sample of the total population, but sampling is not required.

To obtain statically valid sample data, the sample size should be carefully determined and the sample cases should be randomly selected in such a way that the individual cases in the population have an equal chance of being selected. Only when the sample data truly represent the whole population can the sample-based performance measure data be meaningful and useful.

Disease Specific Care (DSC) certified programs must meet the following sampling requirements:

Sampling Availability

Sampling is done by diagnosis and should be done using available databases that contain monthly patient discharge information, ICD-9-CM diagnosis codes, and other necessary administrative data (e.g., only patients 18 and older are included in the DSC stroke measures).

The DSC-Stroke measure set sampling populations are defined below:

- Patients with ICD-9-CM Codes for Ischemic Stroke as defined in the Appendices, Table 1
- Patients with ICD-9-CM Codes for Hemorrhagic Stroke as defined in the Appendices, Table 2

Sample Size Requirements

Programs selecting sample cases for the stroke measures should ensure that its measure population(s) and sample size(s) meet the following conditions:

- The patient population includes stroke patients with an ICD-9-CM Principal Diagnosis Code as listed in Table 1 or Table 2 (See Appendices).

- The sampling methodology is as follows:

Monthly Sample Size Based on Population Size

Patient Volume	Sample Size
1 - 9	100%
10 - 49	10
50 - 99	20%
> 100	20

Sample Size Examples

- A program has 8 discharges in the first reporting month. All 8 cases (100%) should be reviewed.
- A program has 47 discharges in the second reporting month. The sample size for this month would be 10 cases.
- A program has 95 discharges in the third reporting month. The sample size would be 20% of 95, or 19 cases.
- A program has 360 discharges in the fourth reporting month. The sample size would be 20 cases (maximum monthly sample size).

Systematic Random Sampling Approach

Systematic random sampling requires selecting every k^{th} record from a population of size N in such a way that a sample size of n is obtained, where $k \leq N/n$. The first sample record (i.e., the starting point) must be randomly selected before taking every k^{th} record. This is a two-step process:

- a) Select the starting point; and
- b) Then select every k^{th} record thereafter until the selection of the sample size is completed.

Example:

For a program with a population size of 360 discharges per month, the sample size would be 20. To select a random sample of 20 cases:

- 1) Determine the population size (total discharges) for the month;
- 2) Determine the sample size using the above table;
- 3) Divide the population size by the sample size and take the quotient (i.e., the integer as the sampling interval k . The sampling interval $k = 360/20 = 18$. Thus, every 18th patient record will be selected from the measure population until 20 cases are selected.)
- 4) To ensure that each patient has an equal chance of being selected, the “starting point” must be randomly determined before selecting every 18th record. Therefore a simple approach to determine where to start would be to write the numbers 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18 on separate pieces of paper and place the numbers in a container and pull one piece of paper. For example if you draw the number 3, start with the 3rd case on your list and select every 18th case after that until you reach 20 cases.

DATA UTILIZATION

Introduction

Improving the delivery of health care and the patient outcomes related to that care has always been a goal for health care providers. The last several decades have seen exciting advances in the methods employed toward this end. Through the study of work conducted in the industrial community and improvement methods with demonstrated effectiveness, tools and techniques of quality improvement have been applied to health care settings. However, the concept of collecting health care data to study care delivery and outcomes is not really new. Historical examples include the work of Florence Nightingale and Dr. Ernest Codman. Miss Nightingale is generally remembered as the founder of modern nursing, however her groundbreaking-work involving the collection of standardized data, the use of statistical analysis and graphical display is equally important. It was during the Crimean war that she invented the polar-area diagram to display various causes of death among soldiers as proportions of a wedge in a circle. Each wedge represented a month, thereby providing comparisons over time. Ernest Codman, a surgeon, was another pioneer in the use of data to track outcomes in healthcare. Early in the twentieth century he developed a system for collecting a set of standardized data on his surgical patients that included diagnosis, treatment, hospital complications and the result one year later. Called the End Result Idea, many of Codman's principles are now captured in current outcomes measurement. Both of these pioneers used data and scientific methods to evaluate performance and improve the quality of care. While advances in the science and technology of quality improvement have introduced additional tools and sophisticated types of data analysis, it is important to remember that measurement need not be difficult and complex to be effective, as illustrated by these historical examples.

For many readers of this guide, the methods and terminology associated with the use of performance measures, data collection, analysis and interpretation are very familiar and no introduction is needed. For others, this material may be less familiar. This section provides a brief review of some basic data analysis options as well as references for publications that address this topic in more detail.

The greater the understanding of the measurement process, the more effectively opportunities for improvement can be identified and changes implemented. Deciding what to measure, how to measure and how to analyze your data are important keys to success. The performance measures in this booklet are quantitative tools (for example, rate ratio, index, percentage) developed to provide an indication of your organization's performance on a selected process or outcome related to a specific disease or topic. The individual measure data provide the critical pieces that will be used in various analyses to identify patterns, trends, and opportunities for improvement, and to document performance and results. By using the standardized data definitions and calculation formulas (flowcharts) provided for each measure in this disease specific set, performance within your organization can be tracked over

time. In addition to these measures your organization may find it important to examine other processes and outcomes. The performance measurement tools and analysis approaches reviewed in this section may assist your organization to understand variations in processes, to identify improvement opportunities, and to document and sustain improved performance.

Analysis

Data are the critical components used for analysis. As such, a few words about the data themselves are warranted. Data include facts, observations, and measurements. As collected and recorded, they are often referred to as “raw data”. Through the application of appropriate statistical techniques and analysis tools, data can be interpreted and translated into information. Because analyses and ultimately conclusions are driven by data, the quality of the data is critical. The old adage “garbage in – garbage out” definitely applies here. Time spent up front to ensure that data are accurate, complete and consistent will support the integrity of the results. Data definitions and suggested sources have been provided for each measure in this set. It will be important to apply the definitions exactly as written and identify a consistent source for each data element within your organization’s documentation system. In some cases it may be necessary or more efficient to add a data element or a place to document observations/measurements to existing forms. These steps will help to streamline the collection process, minimize missing entries and ensure the credibility of your data.

There are a variety of tools used to facilitate the performance improvement process and analysis of performance measure data. Some are designed to support activities conducted by a team as part of a systematic approach to quality improvement. Many approaches are available but they share the use of methodology designed to systematically guide people through the stages of an improvement initiative. One example of a well known method is the Plan-Do-Study-Act (PDSA) cycle developed by Walter Shewart (1891-1967). Examples of performance measurement tools designed for group processes include brainstorming and multi-voting. Use of an organized approach to performance measurement is one of the expectations for Primary Stroke Center Certification. For an in-depth review of performance measurement methods and analysis tools/techniques several references are included at the end of this section. The overview of some of the common tools used for data analysis and display provided here may assist participants beginning the process of translating data into information. The tools described below are divided into two categories; those for understanding root causes for problems and those for analyzing/displaying data. For additional information on the methods and tools presented here, as well as others, see *Tools for Performance Measurement in Health Care: A Quick Reference Guide* and other suggested references for additional reading at the end of this section.

Root Cause Analysis (Identifying relationships and possible causes):

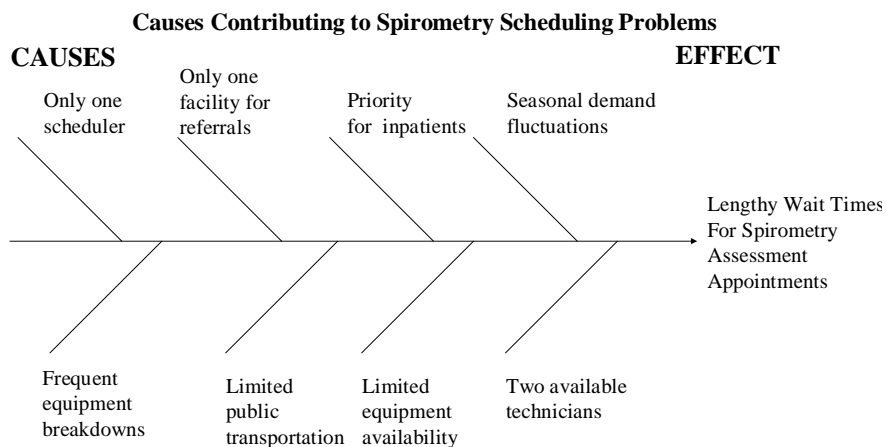
These tools are designed to assist your organization in examining the relationship of various factors to the targeted performance as well as identifying possible causes for unsatisfactory performance/outcomes.

Root Cause Analysis Tools

- a) **Cause and Effect (Fishbone) Diagram:** A schematic drawn to clearly illustrate the various causes affecting a process by sorting out the causes contributing to the effect. The notation format used takes on the appearance of a fish skeleton leading to the name “Fishbone Diagram”.
 - Key applications
 - Early in the performance improvement process
 - Assists in focusing on a number of possible causes
 - Benefits
 - To identify possible causes contributing to a possible problem
 - Depict the relationship between the problem and its causes

Performance Improvement in Asthma Care

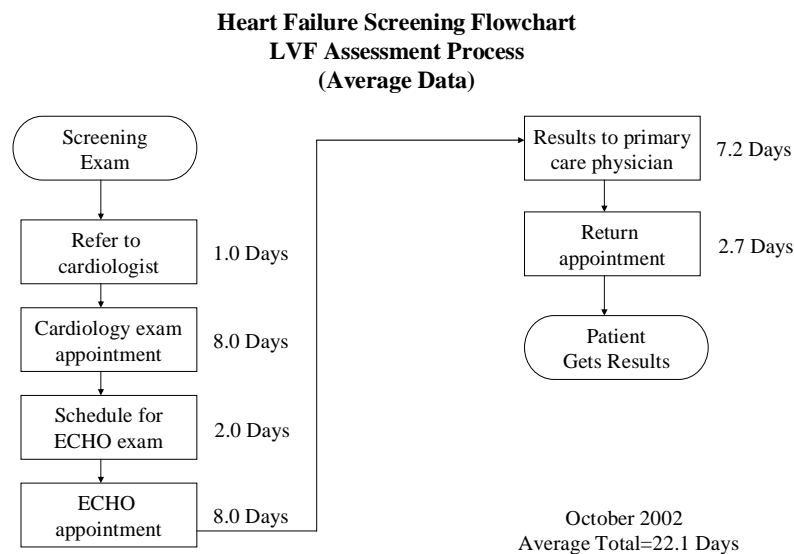
Sample Cause and Effect Diagram



- b) **Flowchart:** A diagram illustrating, through the use of common symbols (see Appendices) the step by step path a process follows. Generally a tool used in planning stages.

- Key applications
 - When designing new processes, identifying problems, planning solutions
- Benefits
 - Graphically presents the path a process follows, step by step
 - Helps identify inefficiencies, misunderstanding, and redundancies, while providing insight into how a given process should be performed

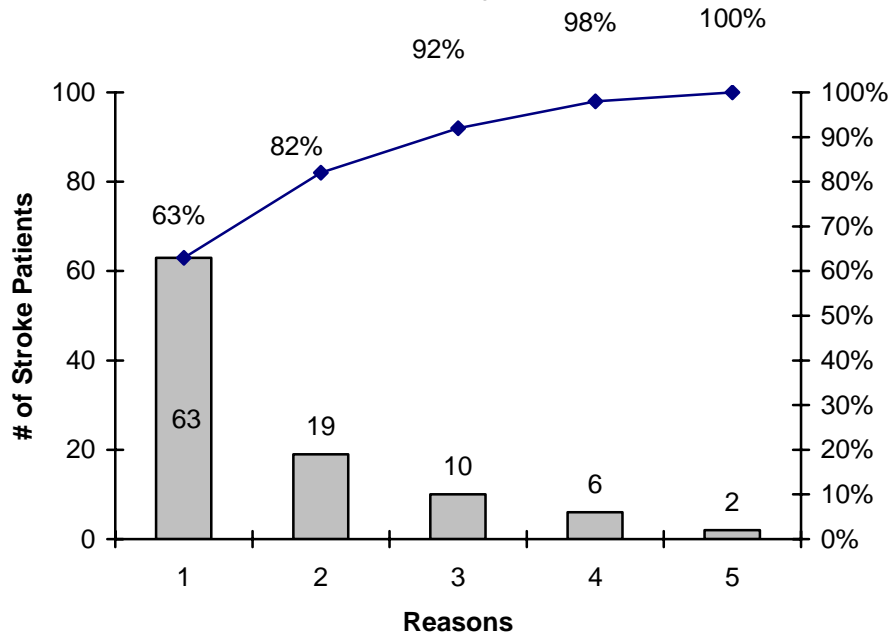
Performance Improvement in Heart Failure Care



c) **Pareto Chart:** A chart displaying the causes of a problem ranked by order of occurrence. By revealing which causes have the greatest influence, priorities can be set for interventions.

- Key applications
 - Finding causes of a problem, and setting priorities for intervention-focus efforts
 - Bars in rank order of occurrence
 - Bars represent a different variable or problem
- Benefits
 - Reveals which causes of a problem are most important
 - Separate “vital few” (80/20 rule)
- Drawbacks
 - Not applicable to problems with a single cause

Pareto Chart of Reasons for Not Administering IV t-PA



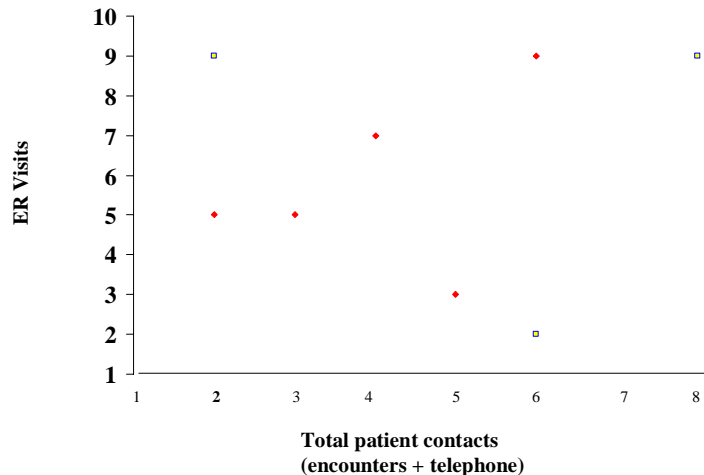
Key: 1= IV t-PA given at outside hospital prior to transfer
 2= Elevated PTT or PT/ INR
 3= History of intracranial hemorrhage
 4= IV t-PA offered but patient/family refused
 5= No IV access

d) **Scatter Diagram:** This tool is a graph on which variables are represented by individual points. The patterns formed by the individually plotted points reveal the relationship (or lack of) between variables. It does not establish causation but rather the correlation between two factors.

- Key applications
 - Determines whether a correlation exists between two variables: Is variable A related to or affecting variable B?
 - Chart facilitates searching for possible cause and effect relationship (e.g. education accompanied by written instructions with improved self-management)
- Benefits
 - Quick, easy and certain
- Drawbacks
 - Requires a large set of data
 - Indicates a relationship, but not causation

Performance Improvement in Asthma Care

Sample Scatter Diagram – Patient Contacts and number of ER Visits



Analysis – Display

These tools are useful for assessing your data. As part of data assessment, analysis tools support sorting, organizing, and aggregating data as well as displaying patterns/trends in performance. These tools provide the keys to unlocking what the data mean and they support accurate interpretation. Analysis can vary in complexity making the selection of techniques and tools an important consideration. It is also important to consider organizational expertise and resources (human and technological), and thoughtfully match the tools with the type and volume of data. The quality improvement professional at your organization is a valuable resource and, if available, should be consulted early and often. Fortunately, there are also many publications now available that provide “how to” guidance that demystifies data analysis and interpretation. Please see the suggested references at the end of this section for the names of a few.

When examining the data collected for the purpose of studying performance it is important to recognize that some variation will exist. For example, if the sales figures at a department store were examined monthly from October to January it would not be surprising to see a steady rise for October to December with a noticeable drop in January. This would be expected due to holiday shopping and would not necessarily mean that there was a problem requiring changes in operations. On the other hand, if sales fell between October and December, there may be some unusual cause; perhaps road construction diverted shoppers to another mall. The patterns of variation in healthcare performance are also subject to normal and unusual variation and therefore it is important to use techniques to understand the variation in a process before taking any action. It should be remembered that these tools will help discern processes that are in *statistical control* (normal variation) versus *out of*

statistical control (special causes of variation). It does not mean that the performance is satisfactory. Using the store example, sales could be in statistical control but be extremely low leading to bankruptcy. Several of the tools reviewed here are designed to help discern between these types of variation.

Common cause variation: Normal variation in any process; not indicative of a process that is out of statistical control.

Examples:

- Number of ambulatory patients seen daily
- Varying levels of patient acuity
- Percentage of incomplete records

Special cause variation: A factor that intermittently and unpredictably induces variation over and above that inherent in the system. When viewing a control chart, it often appears as an extreme point, such as the point beyond the control limits or as one of several defined patterns in the data.

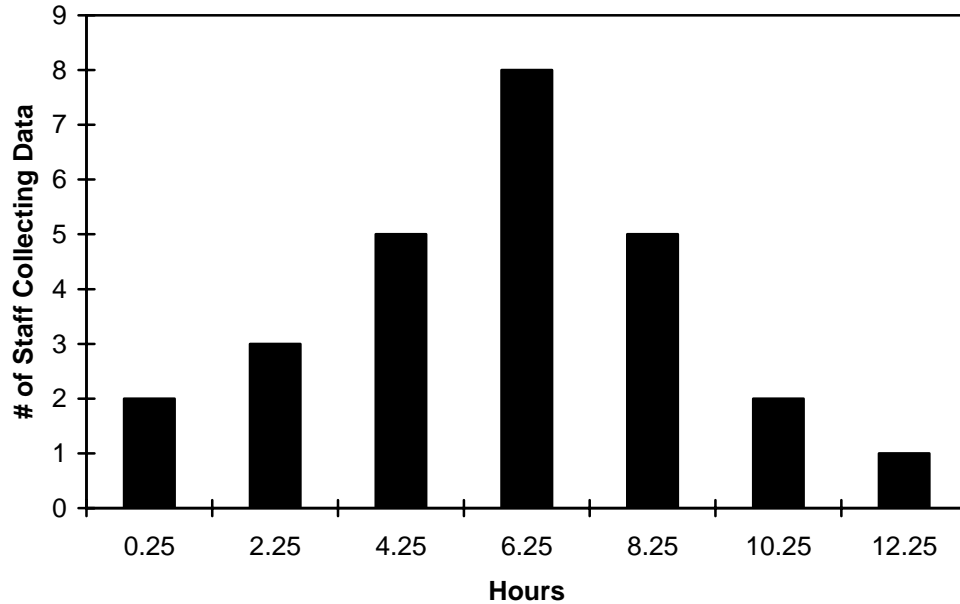
Examples:

- Damage to client records because of water damage from a burst pipe
- Increased volume of patients seeking laser surgery for vision correction following an extensive promotional media campaign
- Increase in telephone calls from parents to a public health department following news stories about several cases of bacterial meningitis in local children

Data Analysis/Display Tools

- a) **Histogram**: A bar chart that displays the variation and the distribution of that variation for a process at a single point in time.
- Key applications
 - Bar chart used for one variable
 - Evaluating a process at a specific point in time
 - Used when there is a wide variety of results
 - Benefits
 - Reveals whether the distribution in a process is normal and which areas are probable causes of trouble
 - Used to visualize central location, shape and spread of data
 - Drawbacks
 - Not applicable to binary (yes/no) outcomes
 - Needs a large set of data

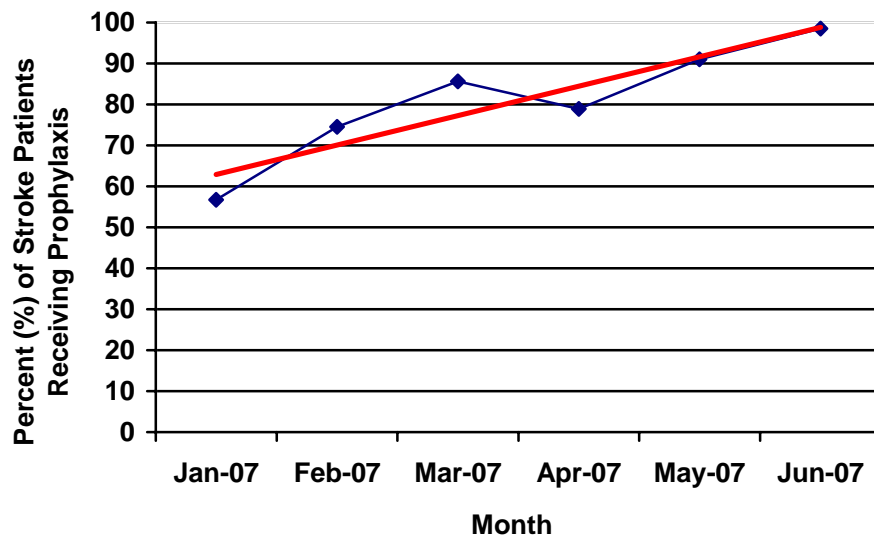
Average Number of Hours Spent on Data Collection in January



b) **Line Graph:** This is one of the simplest graphs that can be used to display measurements over specific time periods. Data are plotted and then connected with a line creating upward and downward patterns as performance varies.

- Key applications
 - Used to spot trends in a process
- Benefits
 - Quick, easy up-to-the-minute
- Drawbacks
 - Not able to show if a process is in statistical control

Performance Improvement in DVT Prophylaxis

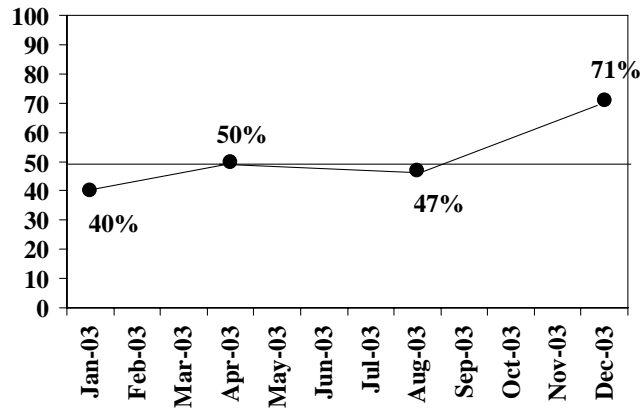


- c) **Run Chart:** A run chart is a line chart to which a calculated median value has been drawn as a line for the full length of the X axis. Using this line as a reference, three specific tests can be used to determine if there is special cause variation present.
- Key applications
 - Used when analysis is required that is more sophisticated than a line graph, but simpler than a control chart
 - Benefits
 - Can indicate whether variation is due to a common or special cause
 - Quicker and easier to construct than a control chart
 - Drawbacks
 - Not as sensitive as a control chart for diagnosing outlier data

Performance Improvement in Diabetic Care

Sample Run Chart -

Percentage of patients with 2 HbA1c done in past year at least 3 months apart



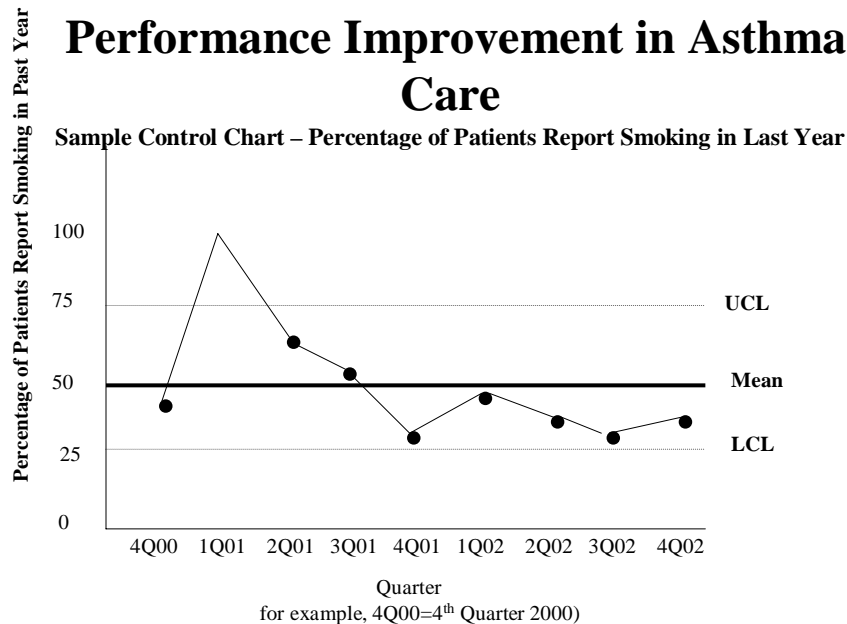
d) **Control Chart:** This is a line graph which includes a line depicting the mean. It also includes two lines, one on either side of the mean, that are referred to as the upper and lower control limits. These limits are calculated using the mean, standard deviation and the number of observations. The control chart is used to assess if a process is in or out of statistical control, through the application of a series of tests to identify patterns in data points. There are several types of control charts and choosing the correct chart is important. Factors including the type of data, type of performance measure (e.g., rate, ratio) and the size of the sample determine which control chart should be used.

- Key applications
 - To discover whether a process is in or out of statistical control

- Benefits
 - Monitor changes in performance over time
 - Ascertain causes of variation (special versus common)
 - Assist in developing change strategies
 - Demonstrate if change was an improvement
 - Provides an accurate basis for prediction

- Drawbacks
 - Not easy to construct unless using statistical process control (SPC) software
 - Requires knowledge to interpret

Performance Improvement in Asthma Care



Data analysis can be exciting and rewarding as it begins to provide meaning to a collection of facts, measurements or observations. The tools described here will help to answer some questions but may pose many more. Most importantly, data analysis will help to dispel assumptions and conserve resources by providing a scientific basis for making decisions about performance and selecting areas for improvement.

Suggested References for Additional Reading

Framework for Improving Performance: From Principle to Practice. Joint Commission on Accreditation of Healthcare Organizations, Oakbrook Terrace, Il. 1994.

Managing Performance Measurement Data in Health Care. Joint Commission Resources, Inc, Oakbrook Terrace, Il. Joint Commission on Accreditation of Healthcare Organizations, 2001.

Measuring Quality Improvement in Healthcare: a guide to statistical process control applications. In: Quality Resources. Carey RG, Lloyd RC. ASQ Press, Milwaukee, WI, 2001

Overcoming Performance Measurement Challenges For Hospitals. Joint Commission Resources, Oakbrook Terrace, Il. 2005.

The Team Handbook. PR Scholtes, BL Joiner, BJ Streibel. Oriel, Madison, WI, 2003.

Tools for Performance Measurement in Health Care: A Quick Reference Guide. Joint Commission on Accreditation of Healthcare Organizations, Oakbrook Terrace, IL. 2002.

Using Performance Improvement Tools in HEALTH CARE Settings. Joint Commission on Accreditation of Healthcare Organizations, Oakbrook Terrace, IL. 2006.

References

Florence Nightingale. Agnes Scott College. Available at: <http://www.agnesscott.edu/lriddle/women/nitegale.htm>. Accessed December 15, 2003.

Tools for Performance Measurement in Health Care: A Quick Reference Guide. Joint Commission on Accreditation of Healthcare Organizations, Oakbrook Terrace, IL. 2002

**DISEASE-SPECIFIC CARE
STROKE PERFORMANCE MEASURES
GLOSSARY**

Acute ischemic stroke: A measurable neurological deficit of sudden onset, presumed secondary to focal cerebral ischemia, and not otherwise attributable to intracerebral hemorrhage (ICH) or another disease process.

Acute hemorrhagic stroke: A non-traumatic intracerebral hemorrhage, subarachnoid hemorrhage or hemorrhagic infarction. (Georgia definitions)

- **Subarachnoid Hemorrhage (SAH):** Non-traumatic abrupt onset of headache or altered level of consciousness that is associated with blood in the subarachnoid space on CT or a clinical history and exam consistent with SAH (sudden onset of severe headache or altered level of consciousness) with xanthochromia and many red blood cells in the cerebrospinal fluid. (Reference = ASA coding manual)
- **Intracerebral Hemorrhage (ICH):** Non-traumatic abrupt onset of headache or altered level of consciousness and/or focal neurological deficit that is associated with a focal collection of blood within the brain parenchyma on CT scan and is not due to trauma or hemorrhagic conversion of a cerebral infarction. (Reference = ASA coding manual)

Administrative performance measures: Measures that address the organizational structure for coordinating and integrating services, functions, or activities across operational components, including financial management (for example, financial stability, utilization/length of stay, credentialing).

Aggregate (measurement data): Measurement data collected and reported by organizations as a sum or total over a given time period (e.g., monthly, quarterly), or for certain groupings (e.g., health care organization level).

Ambulatory: Patient walking without assistance (no help from another person); able to walk about, not bedridden or confined to bed.

Antithrombotic therapy: Pharmacologic agents (oral or parenteral) preventing or interfering with the formation of a thrombus or blood coagulation.

Atrial fibrillation: Cardiac arrhythmia characterized by disorganized electrical activity in the atria accompanied by an irregular ventricular response that is usually rapid. The atria quiver instead of pumping in an organized fashion, resulting in compromised ventricular filling and reduced stroke volume. Stasis of left atrial flow increases the risk of stroke.

Atrial flutter: Type of atrial tachycardia characterized by contraction rates between 230/min and 380/min.

Clinical performance measures: Measures designed to evaluate the processes or outcomes of care associated with the delivery of clinical services; allow for intra- and interorganizational comparisons to be used to continuously improve patient health outcomes; may focus on the appropriateness of clinical decision making and implementation of these decisions; must be condition specific, procedure specific, or address important functions of patient care (e.g., medication use, infection control, patient assessment, patient safety, etc.).

Cholesterol reducing medication: Pharmacologic agents (i.e., antilipidemic agents) that reduce the amount of cholesterol in the serum.

Common cause variation: Normal variation in any process; not indicative of a process that is out of statistical control.

Continuous variable: Aggregate data measure in which the value of each measurement can fall anywhere along a continuous scale (e.g., weight, age).

Continuous variable statement: Statement that describes the performance measure when numerator and/or denominator statements are not appropriate, such as a measure of central tendency (continuous variable).

Contraindication: Factor or condition that renders the administration of a drug or agent or the performance of a procedure or other practice inadvisable, inappropriate and/or undesirable.

Data collection: Act or process of capturing new or primary data from a single or number of sources. Also called “data gathering”.

Data element: Discrete piece of data (e.g., patient birth date, principal diagnosis).

Data integrity: Accuracy, consistency, and completeness of data.

Data point: Numeric value representing a set of observations or measurements at a specific time interval (e.g., perioperative mortality rate for the month of June, 2007).

Data source: Primary source document(s) used for data collection, (e.g., billing or administrative data, medical records, flowsheets, etc.),

Denominator: Lower part of a fraction used to calculate a proportion or ratio. Also, the proportion for a rate-based measure.

Denominator statement: Statement that depicts the population identified by the lower part of the performance measure (e.g., “Persons diagnosed with schizophrenia”).

DVT prophylaxis: Prevention of deep vein thrombosis through the use of prophylactic strategies. Non-pharmacologic approaches include early mobilization and use of intermittent pneumatic compression stockings. Pharmacologic approaches involve early anticoagulant therapy including the administration of subcutaneous unfractionated heparin, low-molecular-weight (LMW) heparins and heparinoids if there are no contraindications.

Dysphagia Screen: Assessment of the patient's ability to swallow. A variety of methods may be employed to assess swallowing status. These methods include but are not limited to:

- Clinical bedside examination
- Bedside swallowing assessment
- Simple standardized bedside swallowing assessment (SSA)
- Simple water swallow test
- Burke water swallow test
- Barium swallow
- Video fluoroscopy
- Double contrast esophagoscopy
- Radio nucleotide studies
- Manometry
- Endoscopy

Elective Carotid Endarterectomy: Surgical procedure performed by choice, involving excision of atheromatous segments of the endothelium and tunica media of the carotid artery, leaving a smooth tissue lining and facilitating blood flow through the vessel; surgery done to prevent stroke.

Emergency Medical System (EMS): Network of services coordinated to provide aid and medical assistance from primary response to definitive care, involving personnel trained in the rescue, stabilization, transportation, and advanced treatment of traumatic or medical emergencies.

Excluded population: Detailed information describing the population(s) which should not be included in the numerator, denominator or continuous variable measure calculation, (e.g., specific age groups, diagnoses, procedures, enrollment periods, etc.).

Flowchart: Ordered sequence of data element retrieval and aggregation through which numerator and denominator events or continuous variable values are identified by a measure.

Health status performance measures: Measures that address the functional well-being of specific populations, both in general and in relation to specific conditions, demonstrating change over time (e.g., physical functioning, bodily pain, social functioning, mental health).

Included population: Detailed information describing the population(s) that the numerator and denominator, or continuous variable intends to measure, (e.g.,

specific age groups, diagnoses, procedures, enrollment periods, insurance and health plan groups, etc.).

Intermittent pneumatic compression stockings: Device that uses sequential and/or intermittent compression to counteract blood flow stasis by increasing peak flow velocity. As a result, less blood is allowed to pool in veins thus decreasing chances for thrombus formation. In addition compression has an anticlotting effect by increasing fibrolytic activity which in turn stimulates the release of plasminogen activator. These two physiological effects, in combination with the mechanical movement of fluid in a proximal direction make the sequential devices effective in preventing and treating DVT.

Ischemic stroke: Cerebrovascular disorder caused by deprivation of blood flow to an area of the brain, generally as a result of thrombosis, embolism, or reduced blood pressure.

IV thrombolytic therapy: Administration of a thrombolytic agent, such as tissue plasminogen activator (TPA), to dissolve an arterial clot.

Low-density lipoprotein (LDL): Plasma protein provided by the liver, containing relatively more cholesterol and triglycerides than protein. The high cholesterol content may account for its greater atherogenic potential. Also known as “bad cholesterol”.

Measure information form (MIF): Tool to provide specific and technical information on a measure. The information contained includes: measure set, measure I.D., performance measure name / short name, rationale, type of measure, improvement noted as, numerator/denominator/continuous variable statement(s), inclusions, exclusions, data elements, data collection approach, sampling, data reported as, report period, and selected references.

Measure set: A unique grouping of carefully selected measures that, when viewed together, provides a comprehensive understanding or assessment of a unit's, department's or organization's performance

Non-ambulatory: Patient primarily confined to bed or only getting out of bed to the bedside commode; not able to walk about or mobilize their lower extremities.

Numerator: Upper portion of a fraction used to calculate a rate, proportion or ratio.

Numerator statement: Statement that depicts the portion of the denominator population that satisfies the conditions of the performance measure to an indicator event, (e.g., “Number of persons diagnosed with schizophrenia that report being homeless”).

Original source (of measure): An individual, group of individuals or an organization that is initially responsible for developing the measure.

Outcome measure: Measure that indicates the result of the performance (or non-performance) of a function(s) or process(es).

Paroxysmal: Occurring as sudden or periodic attacks or recurrences of symptoms of a disease; exacerbation.

Perception of care/services measures: Satisfaction measures that focus on the delivery of clinical care from the patient's/family's/caregiver's perspective, including but not limited to the following aspects of patient care: patient education, medication use, pain management, communication regarding plans and outcomes of care, prevention and illness, improvement in health status, etc. A measure may address one or more aspects of care.

Performance measure: Quantitative tool (e.g., rate, ratio, index, percentage) that provides an indication of an organization's performance in relation to a specified process or outcome.

Process measure: Measure which focuses on a process which leads to a certain outcome, meaning that a scientific basis exists for believing that the process, when executed well, will increase the probability of achieving a desired outcome.

Proportion: Type of rate in which the numerator is expressed as a subset of the denominator, (e.g., proportion of stroke patients receiving DVT prophylaxis).

Rate-based (measure): Aggregate data measure in which the value of each measurement is expressed as a proportion or as a ratio.

Ratio: Relationship between two counted sets of data, which may have a value of zero or greater. In a ratio, the numerator is not necessarily a subset of the denominator, (e.g., relapses to number of patients discharged from heroin detox program).

Rationale: Explanation of why an indicator is useful in specifying and assessing the process or outcome of care measured by the indicator. The rationale may include supportive evidence such as published literature, unpublished studies, focus group results, etc.

Reliability: Ability of an indicator to accurately and consistently identify the events it was designed to identify across multiple settings.

Special cause: Factor that intermittently and unpredictably induces variation over and above that inherent in the system. It often appears as an extreme point,

such as a point beyond the control limits on a control chart, or some specific, identifiable pattern in data.

Standardized measure: Performance measures that have precisely defined specifications and data collection protocols, meet established evaluation criteria, and can be uniformly adopted for use.

Statistical Process Control (SPC): Application of statistical techniques, such as control charts, to analyze a process or its output so as to take appropriate actions to achieve and maintain a state of statistical control and to improve the capability of the process

Time last known well: Time at which the patient was last known to be without the signs and symptoms of the current stroke or at his or her prior baseline. Variation may exist if the signs and symptoms are not witnessed. To reduce variation for data collection, refer to the definition(s) for the time last known well (also, date last known well) as specified in the data element dictionary.

Tissue plasminogen activator (TPA): Clot-dissolving substance produced naturally by cells in the walls of blood vessels, and also manufactured synthetically. TPA activates plasminogen to dissolve clots and is used therapeutically to open occluded arteries.

Validity: Ability to identify opportunities for improvement in the quality of care/service; demonstration that the indicator use results in improvements in outcomes and/or quality of care/service.

Variation: Differences in results obtained in measuring the same phenomenon more than once. The sources of variation in a process over time can be grouped into two major classes: common causes and special causes.

References:

Mosby's Dictionary of Medicine, Nursing & Health Professions, 7th Edition. Mosby Elsevier, St. Louis, MO. 2006.

Taber's Cyclopedic Medical Dictionary. F.A. Davis Company, Philadelphia, PA. 1997.

Disease-Specific Care Certification Manual, 2nd Edition. Joint Commission on Accreditation of Healthcare Organizations, Oakbrook Terrace, IL. 2005.

REFERENCES

Adams HP, Adams R, del Zoppo G, Goldstein LB. Guidelines for the early management of patients with ischemic stroke: Guidelines update a scientific statement from the Stroke Council of the American Heart Association/American Stroke Association. *Stroke*. 2005;36:916-923.

Adams HP, Adams RJ, et al. Guidelines for the early management of patients with ischemic stroke. *Stroke*. 2003;34:1056-1083.

Adams HP, Brott T, Crowell RM, et al. Guidelines for the management of patients with acute ischemic stroke: A statement for healthcare professionals from a special writing group of the Stroke Council, American Heart Association. *Circulation*. 1994;90:1588-1601.

Adams HP, Brott TG, Furlan AJ, et al. Guidelines for thrombolytic therapy for acute stroke: A supplement to the guidelines for the management of patients with acute stroke. *Circulation*. 1996; 94:1167-1174.

Adams HP, del Zoppo G, Alberts MJ, Bhatt DL, Brass L, Furlan A, Grubb RL, Higashida RT, Jauch EC, Kidwell C, Lyden PD, Morgenstern LB, Qureshi AI, Rosenwasser RH, Scott PA, Wijdicks EFM. Guidelines for the early management of adults with ischemic stroke: A guideline from the American Heart Association/American Stroke Association Stroke Council, Clinical Cardiology Council, Cardiovascular Radiology and Intervention Council, and the Atherosclerotic Peripheral Vascular Disease and Quality of Care Outcomes in Research Interdisciplinary Working Groups. *Stroke*. 2007;38:1655-1711.

AHA Scientific Statement - Primary prevention of ischemic stroke: a statement for healthcare professionals from the Stroke Council of the American Heart Association Larry B. Goldstein, MD, Chair; Robert Adams, MD; Kyra Becker, MD; Curt D. Furberg, MD; Philip B. Gorelick, MD; George Hademenos, PhD; Martha Hill, PhD, RN; George Howard, PhD; Virginia J. Howard, MSPH; Bradley Jacobs, MD; Steven R. Levine, MD; Lori Mosca, MD; Ralph L. Sacco, MD; David G. Sherman, MD; Philip A. Wolf, MD; Gregory J. del Zoppo, MD; Members – January 2001.

Albers GW, Amarenco P, Easton JD, Sacco RL, Teal P. Antithrombotic and thrombolytic therapy for ischemic stroke. The Seventh ACCP Conference on Antithrombotic and Thrombolytic Therapy. *CHEST*. 2004;126:483S–512S.

Albers GW, et al. Antithrombotic: Thrombolytic therapy for ischemic stroke. The Sixth ACCP Consensus Conference on Antithrombotic Therapy. *CHEST*. 2001; 119:3005-3205.

Albers GW, Easton D, Sacco RL, Teal P. Antithrombotic and thrombolytic therapy for ischemic stroke. *CHEST*. 2001;119:301S-320S.

Albers GW, Dalen JE, Laupacis A, Manning WJ, Petersen P, and Singer DE. Antithrombotic therapy in atrial fibrillation. *CHEST*. 2001;119:194S-206S. Retrieved August 2, 2007 from World Wide Web: http://chestjournal.org/cgi/content/full/119/1_suppl/194S.

Alberts MJ, Latchaw RE, Selman WR, Shephard T, Hadley MN, Brass LM, Koroshetz W, Marler JR, Booss J, Zorowitz RD, Croft JB, Magnis E, Mulligan D, Jagoda A, O'Connor R, Cawley CM, Connors JJ, Rose-DeRenzy JA, Emr M, Warren M, Walker MD. Recommendations for Comprehensive Stroke Centers: A consensus statement from the Brain Attack Coalition. *Stroke* published online Jun 16, 2005. Retrieved August 2, 2007 from World Wide Web: <http://stroke.ahajournals.org>.

Algra A, van Gijn J. Aspirin at any dose above 30 mg offers only modest protection after cerebral ischaemia. *Journal of Neurology, Neurosurgery & Psychiatry*. 1996;60:197-199.

Algra A, van Gijn J. Cumulative meta-analysis of aspirin efficacy after cerebral ischaemia of arterial origin. *Journal of Neurology, Neurosurgery & Psychiatry*. 1996;66:255-255.

American Academy of Physical Medicine and Rehabilitation. *Rehabilitation Helps Stroke Patients Recover Skills*. AAPM&R Chicago, IL Office: Author. Retrieved July 7, 2004 from World Wide Web: <http://www.aapmr.org'condtreat/rehab/recover.htm>.

American Academy of Physical Medicine and Rehabilitation. *Rehabilitation Helps Stroke Patients Recover Skills Therapy, Helps in Regaining Coordination, Full Speech, and Other Abilities*. AAPM&R Chicago, IL Office: Author. Retrieved July 7, 2004 from World Wide Web: <http://www.aapmr.org'condtreat/rehab/recover.htm>.

American Academy of Physical Medicine and Rehabilitation. *Urgency Key But Perseverance Pays Off*. AAPM&R Chicago, IL Office: Author. Retrieved July 7, 2004 from World Wide Web: <http://www.aapmr.org'condtreat/rehab/recover.htm>.

American College of Emergency Physicians. ACEP Policy Statement: Use of tPA for the management of acute stroke in the emergency department. Dallas, TX: Author, 2002.

American Diabetes Association - Professional Association. Aspirin therapy in diabetes. *Diabetes Care*. 1999;22(1):1-4.

American Heart Association Task Force on Risk Reduction. Guide to primary prevention of CV diseases. *Circulation*. 1997;95:2329-2331.

American Heart Association Task Force on Risk Reduction. Primary prevention of coronary heart disease: Guidance from Framingham. Professional Statement. *Circulation*. 1998;97:1876-1887.

American Heart Association. Preventing ischemic stroke in patients with prior stroke and transient ischemic attack: A statement for healthcare professionals from the Council of the American Heart Association. *Stroke*. 1999;30:1991-1994.

American Heart Association. Acute stroke care in the US: Results from 4 pilot prototypes of the Paul Coverdell National Acute Stroke Registry. The Paul Coverdell Prototype Registry Writing Group. *Stroke*. 2005;36: 1232-1240.

Antiplatelet Trialists' Collaboration. Collaborative overview of randomized trials of antiplatelet therapy-I: Prevention of death, myocardial infarction, and stroke by prolonged antiplatelet therapy in various categories of patients. *BMJ*. 1994;308:81-106.

ASA Scientific Statement -Preventing ischemic stroke in patients with prior stroke and transient ischemic attack: A statement for healthcare professionals from the Stroke Council of the American Heart Association, Philip A. Wolf, MD, Chair; G. Pat Clagett, MD; J. Donald Easton, MD; Larry B. Goldstein, MD; Philip B. Gorelick, MD; Margaret Kelly-Hayes, EdD, RN; Ralph L. Sacco, MD; Jack P. Whisnant, MD – September 1999.

Barnett HJM, Eliasziw M, Meldrum HE. Drug therapy: Drugs and surgery in the prevention of ischemic stroke. *NEJM*. 1995;332:238-248.

Barnett HJM, Eliaziw M, Meldrum HE. Evidence-based cardiology: Prevention of ischaemic stroke. *BMJ*. 1999;318:1539.

Benavente O, Hart RG. Stroke: Part II. Management of acute ischemic stroke. *American Family Physician*. 1999.

Bero LA, Grilli R, Grimshaw JM, Harvey E, Oxman AD, Thomson MA. Closing the gap between research and practice: An overview of systematic reviews of interventions to promote the implementation of research findings. The Cochrane Effective Practice and Organization of Care Review Group. *BMJ*. 1998;317:465-8.

Biller J, Feinberg WM, Castaldo JE, et al. Guidelines for carotid endarterectomy: A statement of healthcare professionals from a special writing group of the stroke council, American Heart Association. *Stroke* 1998;29:554-562.

Biller, J, et al. Guidelines for carotid endarterectomy: A statement for healthcare professionals from a special writing group of the Stroke Council, American Heart Association. *Circulation*. 1998;97(5):501-9.

Bousser MG, Eschwege E, Haguenu M, et al. "AICLA" controlled trial of aspirin and dipyridamole in the secondary prevention of athero-thrombotic cerebral ischemia. *Stroke*. 1983;14:5-14.

Broderick J, Connolly, Feldmann E, Hanley D, Kase, C, Kriegerr D, Mayberg M, Morgenstern L, Ogilvy CS, Vespa P, and Zuccarello M. Guidelines for the management of spontaneous intracerebral hemorrhage in adults: 2007 update: A guideline from the American Heart Association/American Stroke Association Stroke Council, High Blood Pressure Research Council, and the Quality of Care and Outcomes in Research Interdisciplinary Working Group. *Stroke*. 2007;38;2001-2023.

Brott TG, Clark WM, Grotta JC, et al. Stroke the first hours. Guidelines for acute treatment. Consensus Statement. National Stroke Association. 2000.

Caplan LR, Mohr JP, Kistler JP, Koroshetz W, Grotta J. Should thrombolytic therapy be the first-line treatment for acute ischemic stroke? *NEJM*. 1997;337:1309-1313.

CAPRIE Steering Committee. A randomized, blinded, trial of clopidogrel versus aspirin in patients at risk of ischaemic events (CAPRIE). *Lancet*. 1996;348:1329-1339.

Chen ZM, Sandercock P, Pan HC, et al. Indications for early aspirin use in acute ischemic stroke: a combined analysis of 40,000 randomized patients from the Chinese acute stroke trial and the international stroke trial. On behalf of the CAST and IST collaborative groups. *Stroke*. 2000;31:1240-1249.

Clagett GP, Anderson FA, Geerts W, et al. Prevention of venous thromboembolism. *CHEST*. 1998;114:531S-560S.

Clinical Efficacy Assessment Subcommittee HaPPC. Guidelines for medical treatment for stroke prevention. American College of Physicians. *Ann Intern Med*. 1994;121:54-55.

Coull BM, Williams LS, Goldstein LB, et al. Anticoagulants and antiplatelet agents in acute ischemic stroke. Report of the Joint Stroke Guideline Development Committee of the American Academy of Neurology and the American Stroke Association (a Division of the American Heart Association). *Stroke*. 2002;33:1934-1942.

Counsell C, Sandercock P. Low-molecular-weight heparins or heparinoids versus standard unfractionated heparin for acute ischaemic stroke (Cochrane Review). *The Cochrane Library*. 1999;1-13.

Desmukh M, Bisignami M, Landau P, Orchard TJ. Deep vein thrombosis in rehabilitating stroke patients: Incidence, risk factors and prophylaxis. *American Journal Physical Medicine Rehabilitation*. 1991; 70:313-316.

Diagnosis and Treatment of Swallowing Disorders (Dysphagia) in Acute-Care Stroke Patients. Summary, Evidence Report/Technology Assessment: Number 8, March 1999. Agency for Health Care Policy and Research, Rockville, MD. <http://www.arhq.gov/clinic/epcsums/dysphsum.htm>.

Diener HCCL, Forbes CD, Sivenius J, Smets J, Lowenthal A. European stroke prevention study. Dipyridamole and acetylsalicylic acid in the secondary prevention of stroke. *Journal of the Neurological Sciences*. 1996;143:1-13.

Doggett DL, Tappe KA et al. Prevention of pneumonia in elderly stroke patients by systemic diagnosis and treatment of dysphagia: An evidence-based comprehensive analysis of the literature. *Dysphagia*. 2001;16:279-295.

EAF (European Atrial Fibrillation Trial) Study Group. Secondary prevention in non-rheumatic atrial fibrillation after transient ischaemic attack or minor stroke. *Lancet*. 1993;342:1255-1262.

Duncan, et al. Stroke rehabilitation clinical practice guidelines. *Stroke*. 2005; 36:e100-e143.

Ebrahim, S. *Clinical Epidemiology of Stroke*. Oxford, Oxford University Press; 1990:177-178.

Eccles M, Freemantle N, Mason J, North of England Aspirin Guideline Development Group. Education and debate: North of England evidence based guideline development project: Guideline on the use of aspirin as secondary prophylaxis for vascular disease in primary care. *BMJ*. 1998;316:1303-1309.

ECRI Investigators. Diagnosis and treatment of swallowing disorders (dysphagia) in acute-care stroke. Agency for Health Care Policy and Research. Evidence Report/Technology Assessment: Number 8. 1999.

Elkind MS, Prabhakaran S, Pittman J, Koroshetz W, Jacoby M, Johnston KC; GAIN Americas Investigators. Sex as a predictor of outcomes in patients treated with thrombolysis for acute stroke. *Neurology*. 2007 Mar 13;68(11)842-8.

Evans RL, Matlock AL, Bishop DS, Stranahan S, Pederson C. Family intervention after stroke: Does counseling or education help? *Stroke*. 1988;19:1243-1249.

Excerpt taken from Holloway RG, Benesch CG, Vickrey BG, and Hinchey JA. Stroke Quality of Care Study: Draft quality indicators and literature review. University of Rochester, Rochester NY, 1999. [Literature Monograph]
Fagan SC, Morgenstern LB, Petitta A, et al. Cost-effectiveness of tissue plasminogen activator for acute ischemic stroke. *Neurology*. 1998;50:883-890.

Farrell B, Godwin J, Richards S, Warlow CP. The United Kingdom Transient Ischaemic Attack (UK-TIA) Aspirin Trial: Final results. *Journal of Neurology, Neurosurgery & Psychiatry*. 1991;54:1044-1054.

Feinberg WM, Albers GW, Barnett HJM, et al. Guidelines for the management of transient ischemic attacks. From the Ad Hoc Committee on Guidelines for the Management of Transient Ischemic Attacks of the Stroke Council of the American Heart Association. 1994.

Fuster V, Ryden LE, Cannom DS, Crijns HJ, Curtis AB, Ellenbogen KA, Halperin JL, Le Heuzey J, Kay GN, Lowe JE, Olsson SB, Prystowsky EN, Tamargo JL, Wann, et al. ACC/AHA/ESC 2006 guidelines for the management of patients with atrial fibrillation – executive summary: A report of the American College of Cardiology/American Heart Association Task Force on Practice Guidelines and the European Society of Cardiology Committee for Practice Guidelines (Writing Committee to Revise the 2001 Guidelines for the Management of Patients With Atrial Fibrillation): Developed in collaboration with the European Heart Rhythm Association and the Heart Rhythm Society. *Circulation* 2006. Retrieved August 2, 2007 from World Wide Web: <http://www.circ.ahajournals.org>.

Fuster et al., ACC/AHA/ESC Guidelines for the management of patients with atrial fibrillation. *JACC*. August 2001;38:1231-6.

Geerts WH, Pineo GF, Heit JA, et al. Prevention of venous thromboembolism: The Seventh ACCP Conference on Antithrombotic and Thrombolytic Therapy. *CHEST*. Sep 2004;126(3 Suppl):338S-400S.

Gent M, Blakely JA, Easton JD. The Canadian American Ticlopidine Study (CATS) in thromboembolic stroke. *Lancet*. 1989;1:1215-1220.

Goldstein LB, Hey LA, Laney R. North Carolina stroke prevention and treatment facilities survey. Statewide availability of programs and services. *Stroke*. 2000;31:66-70.

Goldstein LB, Adams R, Albert MJ, Appel LJ, Brass LM, Bushnell CD, Culebras A, DeGrua TJ, Gorelick PB, Guyton JR, Hart RG, Howard G, Kelly-Hayes M, Nixon JV, Sacco RL. Primary prevention of ischemic stroke: A guideline from the American Heart Association/American Stroke Association Stroke Council: Cosponsored by the Atherosclerotic Peripheral Vascular Disease Interdisciplinary Working Group; Cardiovascular Nursing Council; Clinical Cardiology Council;

Nutrition, Physical Activity, and Metabolism Council; and the Quality of Care and Outcomes Research Interdisciplinary Working Group: The American Academy of Neurology affirms the value of this guideline. *Stroke*. 2006;37:1583.

Gorelick PB, Sacco RL, Smith DB, Alberts M, Mustone-Alexander I, Rader D, Ross JL, Raps E, Ozer MN, Brass LM, Malone ME, Goldberg S, Booss J, Hanley DF, Toole JF, Greengold NL, Rhew DC. Prevention of first stroke: A review of guidelines and a multidisciplinary consensus statement from the National Stroke Association. *JAMA*. 1999;281:1112-1120.

Gubitz G, Counsell C, Sandercock P, Signorini D. Anticoagulants for acute ischaemic stroke. *Cochrane Database Syst Rev*. 2000;2.

Gubitz G, Counsell C, Sandercock P, Signorini D. Anticoagulants for acute ischaemic stroke (Cochrane Review). *The Cochrane Library*, Issue 3, 1999. Oxford: Update Software, 1-23.

Guideline on the Use of Aspirin as Secondary Prophylaxis for Vascular Disease in Primary Care, Centre for Health Services Research University of Newcastle upon Tyne, & Centre for Health Economics of York, 1998.

Hacke W, Kaste M, Fieschi C, et al. Intravenous thrombolysis with recombinant tissue plasminogen activator for acute hemispheric stroke. The European Cooperative Acute Stroke Study (ECASS). *JAMA*. 1995;274:1017-1025.

Harper G. Treatment of stroke in older patients. A state of the art review. *Drugs & Aging*. 1995;6:29-44.

Hass WK, Easton JD, Adams HPJ, et al. A randomized trial comparing ticlopidine hydrochloride with aspirin for the prevention of stroke in high-risk patients. Ticlopidine Aspirin Stroke Study (TASS) Group. *NEJM*. 1989; 321:501-507.

Helgason CM, Wolf PA. American Heart Association Prevention Conference IV: Prevention and rehabilitation of stroke: Executive summary. *Circulation*. 1997;96:701-707.

Hennekens CH, Dyken ML, Fuster V. Aspirin as a therapeutic agent in cardiovascular disease: A statement for healthcare professionals from the American Heart Association. *Circulation*. 1997;96:2751-2753.

Hirsh J, Dalen JE, and Guyatt G. The Sixth (2000) ACCP Guidelines for Antithrombotic Therapy for Prevention and Treatment of Thrombosis. *CHEST*. 2001;119:1S-2S.

Hirsh J, Fuster V. Guide to anticoagulant therapy Part 1: Heparin. *Circulation*. 1994;89:1449-1468.

Holloway RG, Benesch CG, Vickrey BG, and Hinchey JA. Stroke Quality of Care Study: Draft Quality Indicators and Literature Review. University of Rochester, Rochester NY, 1999. [Literature Monograph]
Institute for Clinical Systems Improvement (ICSI). Diagnosis and initial treatment of ischemic stroke. Bloomington (MN): Institute for Clinical Systems Improvement (ICSI); 2003 Oct. 65 p. [113 references]

International Stroke Trial Collaborative Group. The International Stroke Trial (IST): A randomised trial of aspirin, subcutaneous heparin, both, or neither among 19435 patients with acute ischaemic stroke. *Lancet*. 1997;349:1569-1581.

Ischemic Stroke. *Stroke*. 2003;34:1056-1083.

Kaiser Permanente Clinical Practice Guidelines for Acute Stroke Quartet III Inpatient Management, 1998.

Kresowik TF, Nilasena DS, et al. Deep Vein Thrombosis Prophylaxis in Medicare Patients with Ischemic Stroke: Results from the National Stroke Project. *Oral Abstract Presentation 26th International Stroke Conference*. 2001.

Lindsay MP, Kapral MK, Silver FL, Hill M, Gladstone DJ, Jaigobin C, Bayley M, Tu JV, Laupacis A. Canadian Stroke Quality of Care Study: Consensus-Based Performance Measures Across the Continuum of Stroke Care Master List. Canadian Stroke Network, Ottawa Ontario. April 2006.

Liu M, Counsell C, Sandercock P. Anticoagulants for preventing recurrence following ischaemic stroke or transient ischaemic attack (Cochrane Review). *The Cochrane Library*, Issue 3, 1999. Oxford: Update Software, 1-18.

Loewen P, Sunderji R, Gin K. The efficacy and safety of combination warfarin and ASA therapy: A systematic review of the literature and update of guidelines. *Canadian Journal of Cardiology*. 1998;14:717-726.

Loring KR, Sobel DS, Stewart AL, et al. Evidence suggesting that a chronic disease self-management program can improve health status while reducing hospitalization: A randomized trial. *Medical Care*. 1999; 37:5-14.

Marler JR, Tilley BC, Lu M, Brott TG, Lyden PC, Grotta JC, Broderick JP, Levine SR, Frankel MP, Horowitz SH, Haley EC, Lewandowski CA, Kwiatkowski TP. Early stroke treatment associated with better outcome The NINDS rt-PA Stroke Study. *Neurology*. 2000;55:1649-1655.

McCarthy ST, Turner J. Low-dose subcutaneous heparin in the prevention of deep-vein thrombosis and pulmonary emboli following acute stroke. *Age & Aging*. 1986;15:84-88.

McCarthy ST, Turner JJ, Robertson D. Low dose heparin as a prophylaxis against deep vein thrombosis after acute stroke. *Lancet*. 1977;2:800-801.

Mosca L, Manson JE, Sutherland SE, Langer RD, Manolio R, Barrett-Connor E. Cardiovascular disease in women. *Circulation*. 1997;96:2468-2482.

National Institute of Neurological Disorders and Stroke. National Institute of Neurological Disorders and Stroke, Proceedings of a National Symposium of Rapid Identification and Treatment of Acute Stroke. Marler, J. R., Winters-Jones, P., and EMR, M. NIH Publication No. 97-4239. 1997. Bethesda, MD, National Institutes of Health.

National Institute of Neurological Disorders. *Post-Stroke Rehabilitation Fact Sheet*. National Institute of Neurological Disorders Bethesda, MD Office: Author. Retrieved July 7, 2004 from World Wide Web:
http://www.ninds.nih.gov/health_and_medical/pubs/poststrokerehab.htm.

National Institutes of Health. Third Report of the National Cholesterol Education Program (NCEP) Expert Panel on Detection, Evaluation, and Treatment of High Blood Cholesterol in Adults (Adult Treatment Panel III) Final Report. National Cholesterol Education Program National Heart, Lung, and Blood Institute National Institutes of Health. NIH Publication No. 12-5215. 2002.

National Stroke Association (NSA). STROKE the first hours Guideline for Acute Treatment. Englewood, CO: National Stroke Association (NSA); 2000.

Norris J, Buchan AM, Cote R, et al. Canadian guidelines for intravenous thrombolytic treatment with acute stroke. *Can J Neurol Sci*. 1998;25:257-259.

Ockene IS, Miller NH. Cigarette Smoking, Cardiovascular Disease and Stroke. *Circulation*. 1997;96:3243-3247.

Odderson IR, Keaton JC, et al. Swallow management in patients on an acute stroke pathway: Quality is cost effective. *Arch Phys Med Rehabil*. 1995;76:1130-1133.

Plehn Y F, Davis BR, Sacks FM, et al. Reduction of stroke incidence after myocardial infarction with pravastatin the cholesterol and recurrent events (CARE) study. *Circulation*. 1999; 99: 216-223.

Preventive Services Task Force. Smoking Cessation. In: Guide to Clinical Prevention Services. AHCPR Publication No. 96-0692 ed. Baltimore, MD: Williams and Wilkins, 1996:432-446.

Prins MH, den Ottolander GJH, Gelsema R, et al. Deep vein thrombosis prophylaxis with a low molecular weight heparin (Kabi 2165) in stroke patients. *Thromb Haemost.* 1987;58:117.

Pushpangadan M, Wright J, Young J. Evidence-based guidelines for early stroke management. *Hospital Medicine.* 1999;60:105-114.
Report of the Quality Standards Subcommittee of the American Academy of Neurology. Practice Advisory: Thrombolytic therapy for acute ischemic stroke - summary statement. *Neurology.* 1996;47:835-839.

Sacco RL, Adams R, Albers G, Alberts MJ, Benavente O, Furie K, Goldstein LB, Gorelick P, Halperin J, Harbaugh R, Johnston SC, Katzan I, Kelly-Hayes M, Kenton EJ, Marks M, Schwamm LH, Tomsick T. Guidelines for prevention of stroke in patients with ischemic stroke or transient ischemic attack: A statement for healthcare professionals from the American Heart Association/American Stroke Association Council on Stroke: Co-Sponsored by the Council on Cardiovascular Radiology and Intervention. *Stroke.* 2006;37:577.

Sacco RL, Adams R, Albers G, Alberts MJ, Benavente O, Furie K, Goldstein LB, Gorelick P, Halperin J, Harbaugh R, Johnston SC, Katzan I, Kelly-Hayes M, Kenton EJ, Marks M, Schwamm LH, Tomsick T. Guidelines for prevention of stroke in patients with ischemic stroke or transient ischemic attack: A statement for healthcare professionals from the American Heart Association/American Stroke Association Council on Stroke: Co-Sponsored by the Council on Cardiovascular Radiology and Intervention. *Circulation.* 2006;113(10):e409-49. Retrieved August 2, 2007 from World Wide Web: <http://www.ncbi.nlm.nih.gov/sites/entrez?Db=pubmed&Cmd=ShowDetailView&TermToSear...>

Sandset PM, Dahl T, Stiris M, Rostad B, Scheel B, Abildgaard U. A double-blind and randomized placebo-controlled trial of low molecular weight heparin once daily to prevent deep-vein thrombosis in acute ischemic stroke. *Seminars in Thrombosis & Hemostasis.* 1990;16 Supplement:25-33.

Schooley, Y. Recommendations for the Nursing Management of the Hyperacute Ischemic Stroke Patient. Shepard, TJ. 1-20. 98. American Association of Neuroscience Nurses. Clinical Guidelines Series.

Scottish Intercollegiate Guidelines Network. Management of patients with stroke: Assessment, investigation, immediate management and secondary prevention. Scottish Intercollegiate Guidelines Network, 1997.

Scottish Intercollegiate Guidelines Network. Management of patients with stroke: Identification and management of dysphagia. Scottish Intercollegiate Guidelines Network, 1997.

Scottish Intercollegiate Guidelines Network. Management of patients with stroke: Rehabilitation, prevention and management of complications and discharge planning. Scottish Intercollegiate Guidelines Network, 2002.

Shinton R, Beevers G. Meta-analysis of relation between cigarette smoking and stroke. *BMJ*. 1989;298:789-794.

Smith, PEM. Smoking and stroke: A causative role. (Editorial) *BR Med J*. 1998; 317: 962-3.

Stroke Prevention by Aggressive Reduction in Cholesterol Levels (SPARCL) Investigators. High-dose atorvastatin after stroke or transient ischemic attack. *NEJM*. 2006;355:459-559.

Stroke Prevention: Recommendations. Research findings for clinicians. AHCPR Publication No. 95-0091,1-3. 1999.

Stroke Unit Trialists' Collaboration. Collaborative systematic review of the randomized trials of organized inpatient (stroke unit) care after stroke. *BMJ*. 1997;314:1151-1159.

The ATLANTIS, ECASS, and NINDS rt-PA Study Group Investigators. Association of outcome with early stroke treatment: pooled analysis of ATLANTIS, ECASS, and NINDS rt-PA stroke Trials. *Lancet*. 2004;363:768-774.

The Dutch TIA Trial Study Group. A comparison of two doses of aspirin (30 mg vs. 283 mg a day) in patients after a transient ischemic attack or minor ischemic stroke. *NEJM*. 1991;325:1261-1266.

The European Ad Hoc Consensus Group. European strategies for early intervention in stroke. *Cerebrovasc Dis*. 1996;6:315-324.

The European Ad Hoc Consensus Group. Optimizing intensive care in stroke: A European perspective. *Cerebrovasc Dis*. 1997;7:113-128.

The National Institute of Neurological Disorders and Stroke rt-PA Stroke Study Group. Tissue plasminogen activator for acute ischemic stroke. The National Institute of Neurological Disorders and Stroke rt-PA Stroke Study Group. *NEJM*. 1995;333:1581-1587.

The SALT Collaborative Group. Swedish Aspirin Low-Dose Trial (SALT) of 75 mg aspirin as secondary prophylaxis after cerebrovascular ischaemic events. *Lancet*. 1991;338:1345-1349.

Turpie AG, Gent M, Cote R, et al. A low-molecular-weight heparinoid compared with unfractionated heparin in the prevention of deep vein thrombosis in patients with acute ischemic stroke. A randomized, double-blind study. *Ann Intern Med*. 1992;117:353-357.

Turpie AG, Levine MN, Powers PJ, et al. A double-blind randomized trial of ORG 10172 low molecular weight heparinoid versus unfractionated heparin in the prevention of deep vein thrombosis in patients with thrombotic stroke. *Thromb Haemost.* 1991;65:753.

US Department of Health and Human Services. Post-stroke rehabilitation: Assessment, referral, and patient management. In: Agency for Health Care Policy and Research, ed. Quick Reference Guide for Clinicians Number 16. AHCPR Publication No. 95-0062 ed. Rockville, MD: Public Health Service, 1995.

U.S. Department of Health and Human Services. Agency for Health Care Policy and Research. Smoking cessation, Clinical Practice Guideline No. 18. ACHPR Publication No. 96-0692. Rockville, MD: Public Health Service, 1996.

Veterans Affairs/Department of Defense Clinical Practice Guideline for the Management of Stroke Rehabilitation in the Primary Care Setting. Department of Veteran Affairs Department of Defense, 2003.

Veterans Affairs/Department of Defense Clinical Practice Guideline for the Management of Adult Stroke Rehabilitation Care. *Stroke.* 2005;36:2049. Retrieved August 2, 2007 from World Wide Web: <http://stroke.ahajournals.org/cgi/content/full/36/9/2049>.

Vanek V. Meta-analysis of effectiveness of intermittent pneumatic compression devices with a comparison of thigh high to knee high sleeves. *American Surgeon.* 1998;64:1050-1058.

Wardlaw J, Warlow CP, Counsell C. Systematic review of evidence on thrombolytic therapy for acute ischaemic stroke. *Lancet.* 1997;350:607-614.

Wardlaw J, Yamaguchi T, del Zoppo G. Thrombolysis for acute ischaemic stroke (Cochrane Review). *The Cochrane Library*, Issue 3, 1999. Oxford: Update Software, 1-19.

Wattigney WA, Croft JB, Mensah GA, Alberts MJ, Shephard TJ, Gorelick PB, et al. Establishing data elements for the Paul Coverdell National Acute Stroke Registry – Part 1: Proceedings of an expert panel. *Stroke.* 2003;34: 151-156.

Wolf P, Kannel W, Bonita R, Belanger A. Cigarette smoking as a risk factor for stroke: The Framingham Study. *JAMA.* 1988;259:1025-1029.

Wolf PA, Clagett GP, Easton D, Goldstein LB, Gorelick PB, Kelly-Hayes M, Sacco RL, Whisnant JP. AHA Scientific Statement Preventing Ischemic Stroke in Patients With Prior Stroke and Transient Ischemic Attack. *Stroke* 1999;30:1991-1994.

Xie J, George MG, Ayala C, McGruder HF, Denny CH, Croft JB. Outpatient Rehabilitation Among Stroke Survivors---21 States and the District of Columbia, 2005. *CDC MMWR*. May 25, 2007 / 56(20);504-507. Retrieved August 2, 2007 from World Wide Web:
http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5620a4.htm?s_cid=mm5620a4_e.

Zorowitz RD, et al. The Post-Stroke Rehabilitation Outcomes Project (PSROP), *Top Stroke Rehabil*. 2005 Fall;12(4).

Appendices Table 1
ICD-9-CM Principal Diagnosis Codes for Ischemic Stroke

433.01	OCCLUSION AND STENOSIS OF BASILAR ARTERY WITH CEREBRAL INFARCTION
433.10	OCCLUSION AND STENOSIS OF CAROTID ARTERY WITHOUT CEREBRAL INFARCTION
433.11	OCCLUSION AND STENOSIS OF CAROTID ARTERY WITH CEREBRAL INFARCTION
433.21	OCCLUSION AND STENOSIS OF VERTEBRAL ARTERY WITH CEREBRAL INFARCTION
433.31	OCCLUSION AND STENOSIS OF MULTIPLE AND BILATERAL PRECEREBRAL ARTERIES WITH CEREBRAL INFARCTION
433.81	OCCLUSION AND STENOSIS OF OTHER SPECIFIED PRECEREBRAL ARTERY WITH CEREBRAL INFARCTION
433.91	OCCLUSION AND STENOSIS OF UNSPECIFIED PRECEREBRAL ARTERY WITH CEREBRAL INFARCTION
434.00	CEREBRAL THROMBOSIS WITHOUT MENTION OF CEREBRAL INFARCTION
434.01	CEREBRAL THROMBOSIS WITH CEREBRAL INFARCTION
434.11	CEREBRAL EMBOLISM WITH CEREBRAL INFARCTION
434.91	CEREBRAL ARTERY OCCLUSION UNSPECIFIED WITH CEREBRAL INFARCTION
436	ACUTE, BUT ILL-DEFINED, CEREBROVASCULAR DISEASE

Appendices Table 2
ICD-9-CM Principal Diagnosis Codes for Hemorrhagic Stroke

430	SUBARACHNOID HEMORRHAGE
431	INTRACEREBRAL HEMORRHAGE

**Appendices Table 3
Cholesterol-Reducing Medications**

Abitrate
Advicor
Altacor
Atorvastatin
Atorvastatin/amlodipine
Atromid-S
B-3-50
B3-500-Gr
Caduet
Cholestyramine
Cholestyramine Light
Choloxin
Clofibrate
Colesevelam
Colestid
Colestid Flavored
Colestipol
Crestor
Dextrothyroxine Sodium
Ezetimibe
Ezetimibe/simvastatin
Fenofibrate
Fluvastatin
Gemcor
Gemfibrozil
Lescol
Lescol XL
Lipitor
Locholest
Locholest Light
Lofibra
Lopid
Lorelco
Lovastatin
Mevacor
Niacin
Niacin ER
Niacin ER Starter Pack
Niacin Extended Release
Niacin SR
Niacin TD
Niacin TR

Table 3 Cholesterol-Reducing Medications (cont.)
Niacor
Niacor B3
Niaspan
Niaspan ER
Niaspan ER Starter Pack
Nico-400
Nicobid Tempules
Nicolar
Nicotinex
Nicotinic Acid
Pravachol
Pravachol/aspirin
Pravastatin
Pravastatin/aspirin
Pravigard
Pravigard PAC
Prevalite
Prevalite Powder
Probucol
Questran
Questran Light
Rosuvastatin
Simvastatin
Slo-Niacin
Tricor
Vytorin
Welchol
Zetia
Zocor

Performance Measure Data Report # (--)

Complete one report for each measure

PART I:

Performance Measure Short Name:			
Reporting Time Period	Number Numerator Cases	Number Denominator Cases	Measurement Results* (e.g., rate or value)

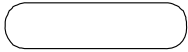
*Numerator/denominator cases are not applicable for Continuous Variable Measures. Report only measurement results in the form of a value.

Performance Measure Data Report # (--), cont.

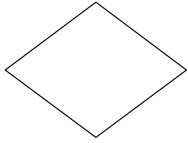
PART II: Provide current information for this measure as follows:

Have any modifications been made to this measure since the Measure Information Form was submitted?	[]Yes	[]No
<p><u>If this measure has been modified:</u></p> <ul style="list-style-type: none"> • <u>Describe the modifications and note when the change took place</u> • <u>Describe what prompted the need for the change</u> <p>NOTE: If the measure has undergone significant reconstruction during the certification cycle, e.g., redefining of numerator and/or denominator, submit a revised Measurement Information Form. Please contact your Account Representative.</p>		
<p>PART III:</p> <p><u>Describe how data for this measure have been used to evaluate processes and/or patient outcomes of care.</u></p>		
<p><u>Identify potential opportunities for improvement.</u></p>		
<p><u>Describe any interventions and/or process modifications that may have been made based on measurement results and how the effectiveness of these changes were/will be measured.</u></p>		
<p><u>Explain any significant variations occurring in the updated data submitted for this measure. This would include any interruption in continuous data collection or change in the normal pattern of the data, that is, those variations that may be attributable to a special cause.</u></p>		

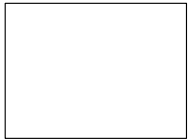
Flowchart Symbols



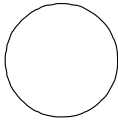
Start/Stop denotes the beginning or end of an algorithm.



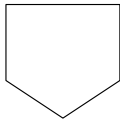
Diamonds represent "If...Then" decision points for logic tests and comparisons. Two or three flow lines exit the decision point to reflect alternative actions based upon an evaluation of the condition(s) stated around the decision point.



Rectangles or process boxes show when computation or manipulation of the data are required, such as a calculation or summarization.

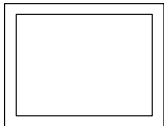


Circle or "On-page" connectors, labeled with a letter, show a link to sections of the algorithm which are continued on the same page.



Five-sided or "Off-page" connectors, labeled with a letter, show a link to sections of the algorithm which are continued on different pages.

Note: Both circular, On-page, and five-sided, Off-page, Connectors containing the letters A, B, C, D, E, F, or G lead to measure Outcome Boxes.



Outcome Boxes represent the result of data passed through the algorithm. Connectors extending from outcome boxes lead to the end of the algorithm, or to risk adjustment procedures, where applicable. This symbol is also used to identify the strata within a stratified measure.



Symbol to represent comments that should be taken into account when programming flowchart.

Measure Contributor List

American Academy of Neurology, Stroke Practice Improvement Network (SPIN)
St. Paul, Minnesota

American Heart Association / American Stroke Association
Dallas, Texas

Centers for Disease Control and Prevention,
Division of Heart Disease and Stroke Prevention
Atlanta, Georgia

Georgia Hospital Association: An Association of Hospitals and Health Systems
Marietta, Georgia

The Joint Commission
Oakbrook Terrace, Illinois

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Manual Section	Impacts	Rationale	Description of Changes	Page	Implementation Date
General Data Elements					
<i>Admission Source</i>					
Data Dictionary	Alphabetical Data Element List	Changes made by the National Uniform Billing Committee (NUBC)	Replace data element, <i>Admission Source</i> , with data element, <i>Point of Origin for Admission or Visit</i>	Section 5, Page 1	01/01/2008
Data Dictionary	<i>Admission Source</i> data element	Changes made by the NUBC	Delete Admission Source	Section 5, Pages 3 & 4	01/01/2008
<i>Point of Origin for Admission or Visit</i>					
Data Dictionary	<i>Point of Origin for Admission or Visit</i> data element	Changes made by the NUBC	Add <i>Point of Origin for Admission or Visit</i>	Section 5, Pages 53 & 54	01/01/2008
Measure Information	All Measures	Changes made by the NUBC	Delete Admission Source from list of General Data Elements Add <i>Point of Origin for Admission or Visit</i> to list of General Data Elements	Section 4, Pages 4-6; 4-10; 4-14; 4-18; 4-22; 4-30; 4-33; 4-38; 4-42	01/01/08
<i>Discharge Status</i>					
Data Dictionary	<i>Discharge Status</i> data element	Changes made by the NUBC	Add "usage Note" to Value "05": Cancer hospitals excluded from Medicare PPS and children's hospitals are examples of such other types of health care	Section 5, Page 29	01/01/08

			institutions.		
Stroke					
<i>Discharged on Cholesterol Reducing Medication</i>					
Data Dictionary	<i>Cholesterol Reducing Therapy Prescribed At Discharge</i> data element	Abstraction clarification	Add <u>Notes for Abstraction</u> -If documentation by a physician, nurse practitioner, or physician assistant is present in the chart that indicates that the stroke was not of an atherosclerotic origin or that the patient does not meet NCEP ATP III criteria for lipid lowering therapy, select "NC".	Section 5, Page 22	01/01/08
Measure Information	<i>STK-6: Cholesterol Reducing Therapy Prescribed At Discharge</i>	Rationale clarification	Change "Based on these guidelines, all patients with ischemic stroke should have lipid profile measurement performed within 48 hours of admission unless outpatient results are available from within the past 30 days. Treatment for secondary prevention should be initiated in the presence of LDL > 100 mg/dL, or continued for patients who were previously on lipid-lowering therapy and have an LDL < 100 mg/dL" to "Based on	Section 4, Page 4-25	01/01/08

			these guidelines, all patients with ischemic stroke should have lipid profile measurement performed within 48 hours of admission unless outpatient results are available from within the past 30 days. Treatment for secondary prevention should be initiated in patients who meet NCEP ATP III criteria in the presence of LDL > 100 mg/dL, or continued for patients who were previously on lipid-lowering therapy and have an LDL < 100 mg/dL.”		
<i>Deep Vein Thrombosis (DVT) Prophylaxis</i>					
Data Dictionary	<i>Patient Ambulatory at End of Hospital Day Two</i> data element	Abstraction clarification	Change Notes for Abstraction, “To compute end of hospital day two, count the day of admission as hospital day one.” to “To compute end of hospital day two, count the arrival date as hospital day one.”	Section 5, Page 51	01/01/08
<i>Thrombolytic Therapy Administered</i>					
Measure Information	<i>STK-4: Thrombolytic</i>	Flowchart clarification	Add “ND” (= Time not documented or	Section 4, Page 4-20	01/01/08

	<i>Therapy Administered</i>		unknown at the time treatment decision was made) to string "> 2hrs → Stop. Not in population".		
<i>Assessed for Rehabilitation</i>					
Measure Information	<i>STK-10: Assessed for Rehabilitation</i>	Flowchart clarification	Add "07" to string of "Discharge Status" codes not included in population. Delete "07" from string of "Discharge Status" codes included in measure population. Add "43" to string of "Discharge Status" codes included in measure population.	Section 4, Page 4-43	01/01/08
<i>Antithrombotic Therapy by End of Hospital Day Two</i>					
Data Dictionary	<i>Antithrombotic Therapy Administered by End of Hospital Day Two</i> data element	Abstraction clarification	Add <u>Notes for Abstraction</u> "Thrombolytic therapy administered within past 24 hours" to list of conditions or factors making the administration of antithrombotic therapy inadvisable, inappropriate and/or undesirable	Section 5, Page 10	01/01/08