

NQF ENDORSED VOLUNTARY CONSENSUS STANDARDS FOR HOSPITAL CARE

**Measure Information Form
Collected For:
The Joint Commission Only
CMS Voluntary Only**

Measure Set: Stroke (STK)

Set Measure ID #: STK-2

Performance Measure Name: Discharged on Antithrombotic Therapy

Description: Ischemic stroke patients prescribed antithrombotic therapy at hospital 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 venous thromboembolism are insufficient antithrombotic therapy to prevent recurrent ischemic stroke or TIA.

Type of Measure: Process

Improvement Noted As: An increase in rate

Numerator Statement: Ischemic stroke patients prescribed antithrombotic therapy at hospital discharge.

Included Populations: Not applicable

Excluded Populations: None

Data Elements:

Antithrombotic Therapy Prescribed at Discharge

Denominator Statement: Ischemic stroke patients.

Included Populations:

Discharges with an *ICD-9-CM Principal Diagnosis Code* for ischemic stroke as defined in Appendix A, Table 8.1.

Excluded Populations:

- Patients less than 18 years of age
- Patients who have a Length of Stay greater than 120 days
- Patients with *Comfort Measures Only* documented
- Patients enrolled in clinical trials
- Patients admitted for *Elective Carotid Intervention*
- Patients discharged to another hospital
- Patients who left against medical advice
- Patients who expired
- Patients discharged to home for hospice care
- Patients discharged to a health care facility for hospice care
- Patients with a documented *Reason For Not Prescribing Antithrombotic Therapy at Discharge*

Data Elements:

- *Admission Date*
- *Birthdate*
- *Clinical Trial*
- *Comfort Measures Only*
- *Discharge Date*
- *Discharge Disposition*
- *Elective Carotid Intervention*
- *ICD-9-CM Principal Diagnosis Code*
- *Reason For Not Prescribing Antithrombotic Therapy at Discharge*

Risk Adjustment: No

Data Collection Approach: Retrospective data sources for required data elements include administrative data and medical record documents. Some hospitals may prefer to gather data concurrently by identifying patients in the population of interest. This approach provides opportunities for improvement at the point of care/service. However, complete documentation includes the principal or other ICD-9-CM diagnosis and procedure codes, which require retrospective data entry.

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

Measure Analysis Suggestions: None

Sampling: Yes, please refer to the measure set specific sampling requirements and for additional information see the Population and Sampling Specifications section.

Data Reported As: Aggregate rate generated from count data reported as a proportion

Selected References:

- Adams, H., R. Adams, G. Del Zoppo, L. B. Goldstein, Association Stroke Council of the American Heart, and Association American Stroke. "Guidelines for the Early Management of Patients with Ischemic Stroke: 2005 Guidelines Update a Scientific Statement from the Stroke Council of the American Heart Association/American Stroke Association." [In eng]. *Stroke* 36, no. 4 (Apr 2005): 916-23.
- Adams, H. P., Jr., G. del Zoppo, M. J. Alberts, D. L. Bhatt, L. Brass, A. Furlan, R. L. Grubb, *et al.* "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: The American Academy of Neurology Affirms the Value of This Guideline as an Educational Tool for Neurologists." [In eng]. *Stroke* 38, no. 5 (May 2007): 1655-711.
- Albers, G. W., P. Amarenco, J. D. Easton, R. L. Sacco, and P. Teal. "Antithrombotic and Thrombolytic Therapy for Ischemic Stroke." *Chest* 119 (2001): 300-20.
- Albers, G. W., P. Amarenco, J. D. Easton, R. L. Sacco, and P. Teal. "Antithrombotic and Thrombolytic Therapy for Ischemic Stroke: The Seventh Accp Conference on Antithrombotic and Thrombolytic Therapy." [In eng]. *Chest* 126, no. 3 Suppl (Sep 2004): 483S-512S.
- Antithrombotic Trialists, Collaboration. "Collaborative Meta-Analysis of Randomised Trials of Antiplatelet Therapy for Prevention of Death, Myocardial Infarction, and Stroke in High Risk Patients." [In eng]. *BMJ* 324, no. 7329 (Jan 12 2002): 71-86.
- Bhatt, D. L., K. A. Fox, W. Hacke, P. B. Berger, H. R. Black, W. E. Boden, P. Cacoub, *et al.* "Clopidogrel and Aspirin Versus Aspirin Alone for the Prevention of Atherothrombotic Events." [In eng]. *N Engl J Med* 354, no. 16 (Apr 20 2006): 1706-17.
- Brott, T. G., W. M. Clark, S. C. Fagan, J. C. Grotta, L. N. Hopkins, E. C. Jauch, R. E. Latchaw, and S. Starkman. "Stroke: The First Hours. Guidelines for Acute Treatment." *National Stroke Association (NSA)* (2000).
- Centers for Disease Control and Prevention. "Prevalence and Most Common Causes of Disability among Adults--United States, 2005." [In eng]. *MMWR Morb Mortal Wkly Rep* 58, no. 16 (May 1 2009): 421-6.
- Chen, Z. M., P. Sandercock, H. C. Pan, C. Counsell, R. Collins, L. S. Liu, J. X. Xie, C. Warlow, and R. Peto. "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." [In eng]. *Stroke* 31, no. 6 (Jun 2000): 1240-9.
- "Collaborative Overview of Randomised Trials of Antiplatelet Therapy--I: Prevention of Death, Myocardial Infarction, and Stroke by Prolonged Antiplatelet Therapy in Various Categories of Patients. Antiplatelet Trialists' Collaboration." [In eng]. *BMJ* 308, no. 6921 (Jan 8 1994): 81-106.

- Committee, Caprie Steering. "A Randomised, Blinded, Trial of Clopidogrel Versus Aspirin in Patients at Risk of Ischaemic Events (Caprie). Caprie Steering Committee." [In eng]. *Lancet* 348, no. 9038 (Nov 16 1996): 1329-39.
- "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. The Dutch Tia Trial Study Group." [In eng]. *N Engl J Med* 325, no. 18 (Oct 31 1991): 1261-6.
- Coull, B. M., L. S. Williams, L. B. Goldstein, J. F. Meschia, D. Heitzman, S. Chaturvedi, K. C. Johnston, *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)." [In eng]. *Stroke* 33, no. 7 (Jul 2002): 1934-42.
- Diener, H. C., J. Bogousslavsky, L. M. Brass, C. Cimminiello, L. Csiba, M. Kaste, D. Leys, *et al.* "Aspirin and Clopidogrel Compared with Clopidogrel Alone after Recent Ischaemic Stroke or Transient Ischaemic Attack in High-Risk Patients (Match): Randomised, Double-Blind, Placebo-Controlled Trial." [In eng]. *Lancet* 364, no. 9431 (Jul 24-30 2004): 331-7.
- Eccles, M., N. Freemantle, and J. Mason. "North of England Evidence Based Guideline Development Project: Guideline on the Use of Aspirin as Secondary Prophylaxis for Vascular Disease in Primary Care. North of England Aspirin Guideline Development Group." [In eng]. *BMJ* 316, no. 7140 (Apr 25 1998): 1303-9.
- "The European Stroke Prevention Study (EspS). Principal End-Points. The EspS Group." [In eng]. *Lancet* 2, no. 8572 (Dec 12 1987): 1351-4.
- Farrell, B., J. Godwin, S. Richards, and C. Warlow. "The United Kingdom Transient Ischaemic Attack (Uk-Tia) Aspirin Trial: Final Results." [In eng]. *J Neurol Neurosurg Psychiatry* 54, no. 12 (Dec 1991): 1044-54.
- Furie, K. L., S. E. Kasner, R. J. Adams, G. W. Albers, R. L. Bush, S. C. Fagan, J. L. Halperin, *et al.* "Guidelines for the Prevention of Stroke in Patients with Stroke or Transient Ischemic Attack: A Guideline for Healthcare Professionals from the American Heart Association/American Stroke Association." [In eng]. *Stroke* 42, no. 1 (Jan 2011): 227-76.
- Gaspoz, J. M., P. G. Coxson, P. A. Goldman, L. W. Williams, K. M. Kuntz, M. G. Hunink, and L. Goldman. "Cost Effectiveness of Aspirin, Clopidogrel, or Both for Secondary Prevention of Coronary Heart Disease." [In eng]. *N Engl J Med* 346, no. 23 (Jun 6 2002): 1800-6.
- Gent, M., J. A. Blakely, J. D. Easton, D. J. Ellis, V. C. Hachinski, J. W. Harbison, E. Panak, *et al.* "The Canadian American Ticlopidine Study (Cats) in Thromboembolic Stroke." [In eng]. *Lancet* 1, no. 8649 (Jun 3 1989): 1215-20.
- Gorelick, P. B., D. Richardson, M. Kelly, S. Ruland, E. Hung, Y. Harris, S. Kittner, S. Leurgans, and Investigators African American Antiplatelet Stroke Prevention Study. "Aspirin and Ticlopidine for Prevention of Recurrent Stroke in Black Patients: A Randomized Trial." [In eng]. *JAMA* 289, no. 22 (Jun 11 2003): 2947-57.
- Group, Esprit Study, P. H. Halkes, J. van Gijn, L. J. Kappelle, P. J. Koudstaal, and A. Algra. "Aspirin Plus Dipyridamole Versus Aspirin Alone after Cerebral Ischaemia of Arterial Origin (Esprit): Randomised Controlled Trial." [In eng]. *Lancet* 367, no. 9523 (May 20 2006): 1665-73.

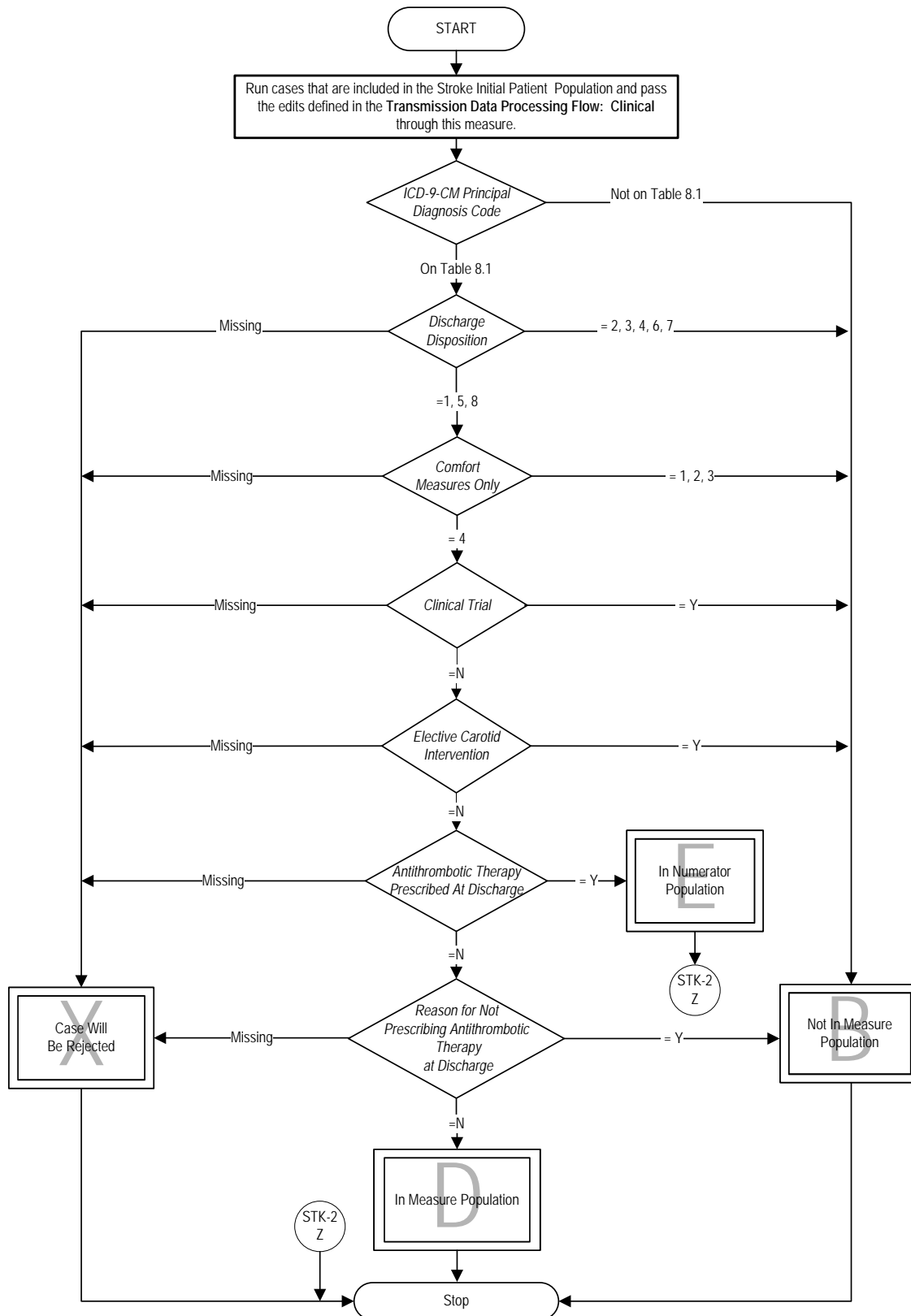
- Guyatt, G. H., E. A. Akl, M. Crowther, D. D. Gutterman, H. J. Schunemann, Therapy American College of Chest Physicians Antithrombotic, and Panel Prevention of Thrombosis. "Executive Summary: Antithrombotic Therapy and Prevention of Thrombosis, 9th Ed: American College of Chest Physicians Evidence-Based Clinical Practice Guidelines." [In eng]. *Chest* 141, no. 2 Suppl (Feb 2012): 7S-47S.
- Guyatt, G., H. Schunemann, D. Cook, R. Jaeschke, S. Pauker, H. Bucher, and Physicians American College of Chest. "Grades of Recommendation for Antithrombotic Agents." [In eng]. *Chest* 119, no. 1 Suppl (Jan 2001): 3S-7S.
- Hass, W. K., J. D. Easton, H. P. Adams, Jr., W. Pryse-Phillips, B. A. Molony, S. Anderson, and B. Kamm. "A Randomized Trial Comparing Ticlopidine Hydrochloride with Aspirin for the Prevention of Stroke in High-Risk Patients. Ticlopidine Aspirin Stroke Study Group." [In eng]. *N Engl J Med* 321, no. 8 (Aug 24 1989): 501-7.
- "The International Stroke Trial (Ist): A Randomised Trial of Aspirin, Subcutaneous Heparin, Both, or Neither among 19435 Patients with Acute Ischaemic Stroke. International Stroke Trial Collaborative Group." [In eng]. *Lancet* 349, no. 9065 (May 31 1997): 1569-81.
- Jauch, E. C., J. L. Saver, H. P. Adams, Jr., A. Bruno, J. J. Connors, B. M. Demaerschalk, P. Khatri, *et al.* "Guidelines for the Early Management of Patients with Acute Ischemic Stroke: A Guideline for Healthcare Professionals from the American Heart Association/American Stroke Association." [In Eng]. *Stroke* (Jan 31 2013).
- Johnson, E. S., S. F. Lanes, C. E. Wentworth, 3rd, M. H. Satterfield, B. L. Abebe, and L. W. Dicker. "A Metaregression Analysis of the Dose-Response Effect of Aspirin on Stroke." [In eng]. *Arch Intern Med* 159, no. 11 (Jun 14 1999): 1248-53.
- Kennedy, J., M. D. Hill, K. J. Ryckborst, M. Eliasziw, A. M. Demchuk, A. M. Buchan, and Faster Investigators. "Fast Assessment of Stroke and Transient Ischaemic Attack to Prevent Early Recurrence (Faster): A Randomised Controlled Pilot Trial." [In eng]. *Lancet Neurol* 6, no. 11 (Nov 2007): 961-9.
- "A Randomized Trial of Aspirin and Sulfinpyrazone in Threatened Stroke. The Canadian Cooperative Study Group." [In eng]. *N Engl J Med* 299, no. 2 (Jul 13 1978): 53-9.
- Roger, V. L., A. S. Go, D. M. Lloyd-Jones, E. J. Benjamin, J. D. Berry, W. B. Borden, D. M. Bravata, *et al.* "Heart Disease and Stroke Statistics--2012 Update: A Report from the American Heart Association." [In eng]. *Circulation* 125, no. 1 (Jan 3 2012): e2-e220.
- Sacco, R. L., R. Adams, G. Albers, M. J. Alberts, O. Benavente, K. Furie, L. B. Goldstein, *et al.* "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: The American Academy of Neurology Affirms the Value of This Guideline." [In eng]. *Stroke* 37, no. 2 (Feb 2006): 577-617.
- Sacco, R. L., H. C. Diener, S. Yusuf, D. Cotton, S. Ounpuu, W. A. Lawton, Y. Palesch, *et al.* "Aspirin and Extended-Release Dipyridamole Versus Clopidogrel for Recurrent Stroke." [In eng]. *N Engl J Med* 359, no. 12 (Sep 18 2008): 1238-51.

- "Swedish Aspirin Low-Dose Trial (Salt) of 75 Mg Aspirin as Secondary Prophylaxis after Cerebrovascular Ischaemic Events. The Salt Collaborative Group." [In eng]. *Lancet* 338, no. 8779 (Nov 30 1991): 1345-9.
- "United Kingdom Transient Ischaemic Attack (Uk-Tia) Aspirin Trial: Interim Results. Uk-Tia Study Group." [In eng]. *Br Med J (Clin Res Ed)* 296, no. 6618 (Jan 30 1988): 316-20.

STK-2: Discharged on Antithrombotic Therapy

Numerator: Ischemic stroke patients prescribed antithrombotic therapy at hospital discharge

Denominator: Ischemic stroke patients.



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1. Start processing. Run cases that are included in the Stroke (STK) Initial Patient Population and pass the edits defined in the Transmission Data Processing Flow: Clinical through this measure.
2. Check ICD-9-CM Principal Diagnosis Code
 - a. If the ICD-9-CM Principal Diagnosis Code is not on Table 8.1, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing.
 - b. If the ICD-9-CM Principal Diagnosis Code is on Table 8.1, continue processing and proceed to Discharge Disposition.
3. Check Discharge Disposition
 - a. If Discharge Disposition equals 2, 3, 4, 6 or 7, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing.
 - b. If Discharge Disposition equals 1, 5 or 8 continue processing and proceed to Comfort Measures Only.
4. Check Comfort Measures Only
 - a. If Comfort Measures Only is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing.
 - b. If Comfort Measures Only equals 1, 2, or 3, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing.
 - c. If Comfort Measures Only equals 4, continue processing and proceed to Clinical Trial.
5. Check Clinical Trial
 - a. If Clinical Trial is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing.
 - b. If Clinical Trial equals Yes, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing.
 - c. If Clinical Trial equals No, continue processing and proceed to Elective Carotid Intervention.

6. Check admitted for Elective Carotid Intervention
 - a. If Elective Carotid Intervention is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing.
 - b. If Elective Carotid Intervention equals Yes, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing.
 - c. If Elective Carotid Intervention equals No, continue processing and proceed to Antithrombotic Therapy Prescribed at Discharge.

7. Check Antithrombotic Therapy Prescribed at Discharge
 - a. If Antithrombotic Therapy Prescribed at Discharge is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing.
 - b. If Antithrombotic Therapy Prescribed at Discharge equals Yes, the case will proceed to a Measure Category Assignment of E and will be in the Numerator Population. Stop processing.
 - c. If Antithrombotic Therapy Prescribed at Discharge equals No, continue processing and check Reason for Not Prescribing Antithrombotic Therapy at Discharge.

8. Check Reason for Not Prescribing Antithrombotic Therapy at Discharge
 - a. If Reason for Not Prescribing Antithrombotic Therapy at Discharge is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing.
 - b. If Reason for Not Prescribing Antithrombotic Therapy at Discharge equals Yes, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing.
 - c. If Reason for Not Prescribing Antithrombotic Therapy at Discharge equals No, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing.