

Measure Information Form

Measure Set: Pneumonia (PN)

Set Measure ID #:

Organization	Set Measure ID#	Time Intervals
CMS/ The Joint Commission	PN-5b	0-4 hours
CMS/ The Joint Commission	PN-5c	0-6 hours

Please refer to the Federal Register for the current official list of measures required under the CMS Reporting Hospital Quality Data for Annual Payment Update (RHQDAPU) program. **The final list of RHQDAPU measures published in August 2007 for Fiscal Year 2008 payment includes the PN-5b measure.**

Performance Measure Name:

- (PN-5b) Initial Antibiotic Received Within 4 Hours of Hospital Arrival
- (PN-5c) Initial Antibiotic Received Within 6 Hours of Hospital Arrival (NQF-ENDORSED VOLUNTARY CONSENSUS STANDARDS FOR HOSPITAL CARE)

Description:

- (PN-5b) Pneumonia patients who receive their first dose of antibiotics within 4 hours after arrival at the hospital
- (PN-5c) Pneumonia patients who receive their first dose of antibiotics within 6 hours after arrival at the hospital

Rationale: Time to first antibiotic dose for CAP has recently received significant attention from a quality-of-care perspective. This emphasis is based on 2 large retrospective studies of Medicare beneficiaries that demonstrated statistically significantly lower mortality among patients who received early antibiotic therapy (Meehan, Houck). The initial study by Meehan demonstrated a 15% relative reduction in 30-day mortality when antibiotics were administered within a 8 hours of arrival, whereas the subsequent analysis by Houck et al found that delivery of antibiotics within 4 hours was associated with lower mortality 30-day mortality (15% relative reduction). The studies differed in that Houck and colleagues excluded patients who were on antibiotics prior to hospital arrival. Several small prospective studies that document the time to first antibiotic dose do not consistently demonstrate this reduction in 30-day mortality, although none had as large a patient population as those in the studies of Meehan and Houck. The IDSA/ATS guideline committee did recommend that antibiotic therapy should be administered as soon as possible after the diagnosis of pneumonia is considered likely and specifically state that delivery of first antibiotic dose would be expected within 6–8 h of presentation whenever the admission diagnosis is likely CAP.

Type of Measure: Process

Improvement Noted As: An increase in the rate

Numerator Statement: Number of pneumonia patients who received their first antibiotic dose within a specified timeframe (as specified under the Set Measure Identifier and description above) from hospital arrival

Included Populations: Not Applicable

Excluded Populations: None

Data Elements:

- *Antibiotic Administration Date*
- *Antibiotic Administration Time*
- *Antibiotic Name*
- *Arrival Date*
- *Arrival Time*

Denominator Statement: Pneumonia patients 18 years of age and older

Included Populations: Discharges with:

- An *ICD-9-CM Principal Diagnosis Code* of pneumonia as defined in Appendix A, Table 3.1 OR *ICD-9-CM Principal Diagnosis Code* of septicemia or respiratory failure (acute or chronic) as defined in Appendix A, Tables 3.2, or 3.3
AND
- An *ICD-9-CM Other Diagnosis Code* of pneumonia (Appendix A, Table 3.1)

Excluded Populations:

- Patients received in transfer from an acute care facility where they were an inpatient or outpatient
- Patients received as a transfer from one distinct unit of the hospital to another distinct unit of the same hospital
- Patients received as a transfer from an emergency department of another hospital
- Patients received as a transfer from an ambulatory surgery center
- Patients who had no diagnosis of pneumonia either as the ED final diagnosis/impression or direct admission diagnosis/impression
- Patients receiving *Comfort Measures Only* on day of or day after arrival
- Patients who have received antibiotics within 24 hours prior to hospital arrival
- Patients less than 18 years of age
- Patients involved in clinical trials
- Patients who had no chest x-ray or CT scan that indicated abnormal findings within 24 hours prior to hospital arrival or anytime during this hospitalization
- Patients with Cystic Fibrosis (Appendix A, Table 3.4)
- Patients transferred to another acute care hospital or federal hospital on day of or day after arrival

- Patients who expired on day of or day after arrival
- Patients who left against medical advice on day of or day after arrival
- Patients with *Diagnostic Uncertainty* as defined in the Data Dictionary
- Patients who do not receive any antibiotics within 36 hours after arrival or who received antibiotics the day of arrival (prior to arrival to the hospital) or the day prior to arrival
- Patients who have a Length of Stay >120 days

Data Elements:

- *Admission Date*
- *Antibiotic Administration Date*
- *Antibiotic Administration Time*
- *Antibiotic Name*
- *Antibiotic Received*
- *Birthdate*
- *Chest X-Ray*
- *Clinical Trial*
- *Comfort Measures Only*
- *Diagnostic Uncertainty*
- *Discharge Date*
- *Discharge Status*
- *ICD-9-CM Other Diagnosis Codes*
- *ICD-9-CM Principal Diagnosis Code*
- *Pneumonia Diagnosis: ED/Direct Admit*
- *Point of Origin for Admission or Visit*
- *Transfer From Another ED*

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 and 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.
- Health care organizations may want to work with their hospital pharmacy to identify and list the antibiotics that are used in their organization. This list can serve as a reference for the abstractor.
- To be part of the measure population, a patient must have received an antibiotic during the hospitalization.

- The date and time for the initial antibiotic refer to the initial antibiotic administered during the hospital stay, not the antibiotic taken prior to hospital arrival.

Measure Analysis Suggestions: Health care organizations should investigate any patients whose time to antibiotic administration was greater than 2160 minutes (36 hours) for a possible data entry error or a performance improvement opportunity.

This measure seeks to identify the timing of the first antibiotic administered. It is important to note that the measure focuses on the administration of any antibiotic, not necessarily the antibiotic consistent with consensus guidelines. Therefore, data from this measure should be reviewed in conjunction with PN-6, PN-6a, and PN-6b that address appropriate antibiotic selections. For example, an HCO could receive excellent indicator rates for antibiotic administered timing but low rates for giving the appropriate antibiotics consistent with guidelines.

Sampling: Yes, for additional information see the Sampling Section.

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

Selected References:

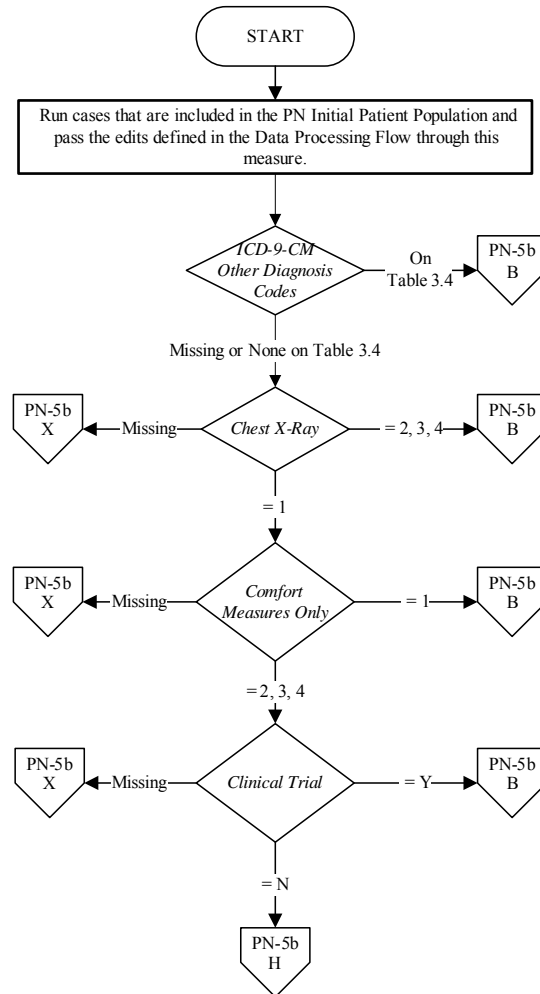
- Bratzler, DW, Houck PM, Nsa W, et al. Initial processes of care and outcomes in elderly patients with pneumonia. {abstract} American College of Emergency Physicians Research Forum, October 15, 2001, Chicago, IL.
- Heffelfinger JD, Dowell SF, Jorgensen JH, Klugman KP, Mabry LR, Musher DM, Plouffle JF, Rakowsky A, Schuchat A, Whitney C and the Drug-Resistant Streptococcus pneumoniae Therapeutic Working Group, “Management of Community-Acquired Pneumonia in the Era of Pneumococcal Resistance: A Report From the Drug-Resistant Streptococcus pneumoniae Therapeutic Working Group.” *Arch Intern Med*, 160:1399-1408, May 22, 2000.
- Houck PM, Bratzler DW, Nsa W, et al. Timing of antibiotic administration and outcomes for Medicare patients hospitalized with community-acquired pneumonia. *Arch Intern Med* 2004; 164: 637-644.
- Khan KL, Rogers WH, Rubenstein LV, et al. Measuring quality of care with explicit process criteria before and after implementation of the DRG-based prospective payment system. *JAMA*. 1990;264:1969-1973.
- Mandell LA, Wunderink RG, Anzueta A, Bartlett JG, Infectious Diseases Society of America; American Thoracic Society. Infectious Diseases Society of America/American Thoracic Society consensus guidelines on the management of community-acquired pneumonia in adults. *Clin Infect Dis*. 2007 March 1;44 Suppl 2:S27-72.
- McGarvey RN, Harper JJ. Pneumonia mortality reduction and quality improvement in a community hospital. *Qual Rev Bull*. 1993;19:124-130.
- Meehan TP, Fine MJ, Krumholz HM, et al. Quality of care, process and outcomes in elderly patients with pneumonia. *JAMA*. 1997;278:2080-2084.

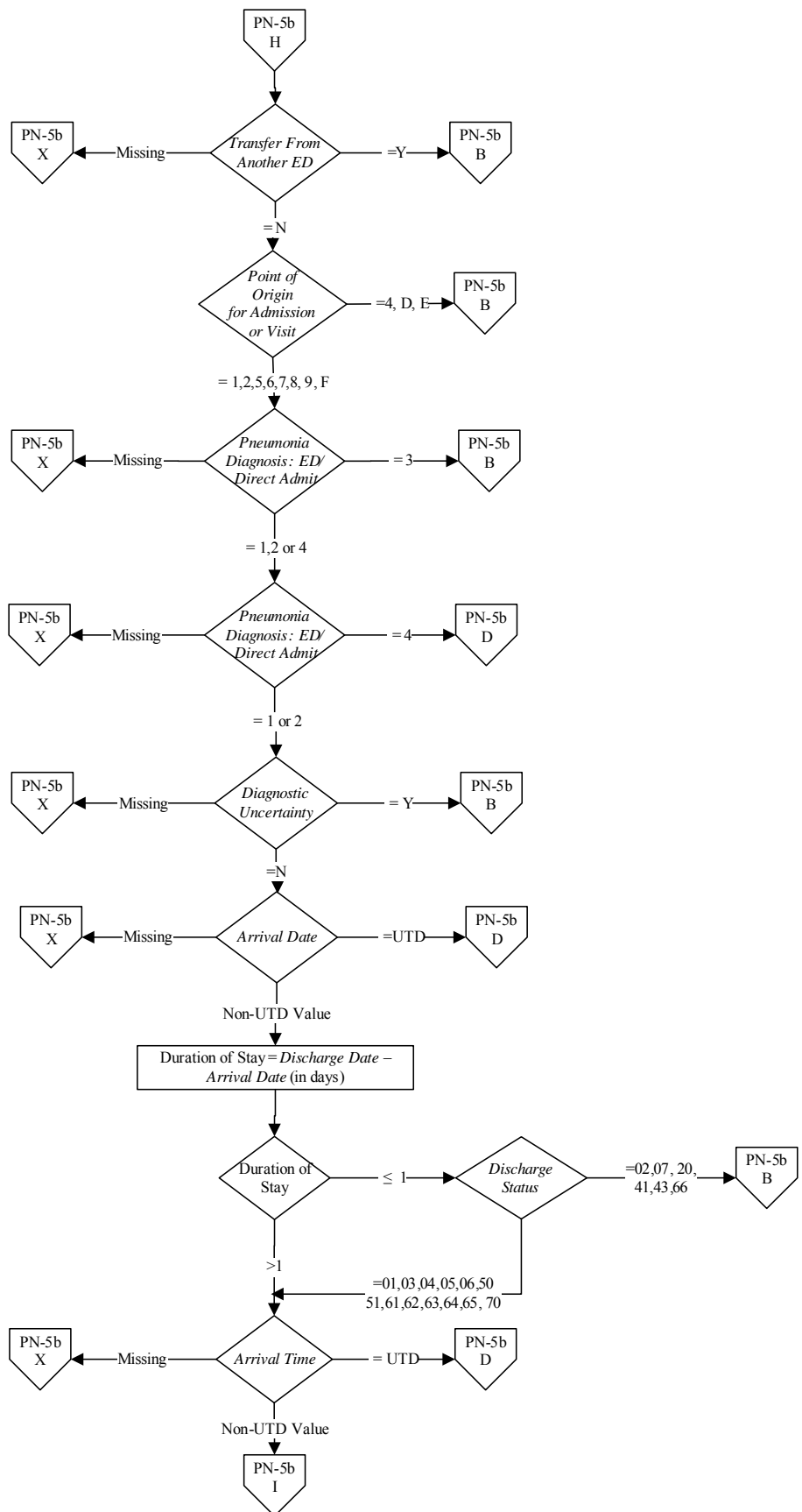
PN-5b: Initial Antibiotic Received Within 4 Hours Of Hospital Arrival .

Numerator: Number of Pneumonia patients who received their first antibiotic dose within 4 hours from hospital arrival .

Denominator: Pneumonia patients 18 years age and older.

Variable Key:
 Duration of Stay
 Initial Antibiotic Date
 Initial Antibiotic Time
 AbxTiming



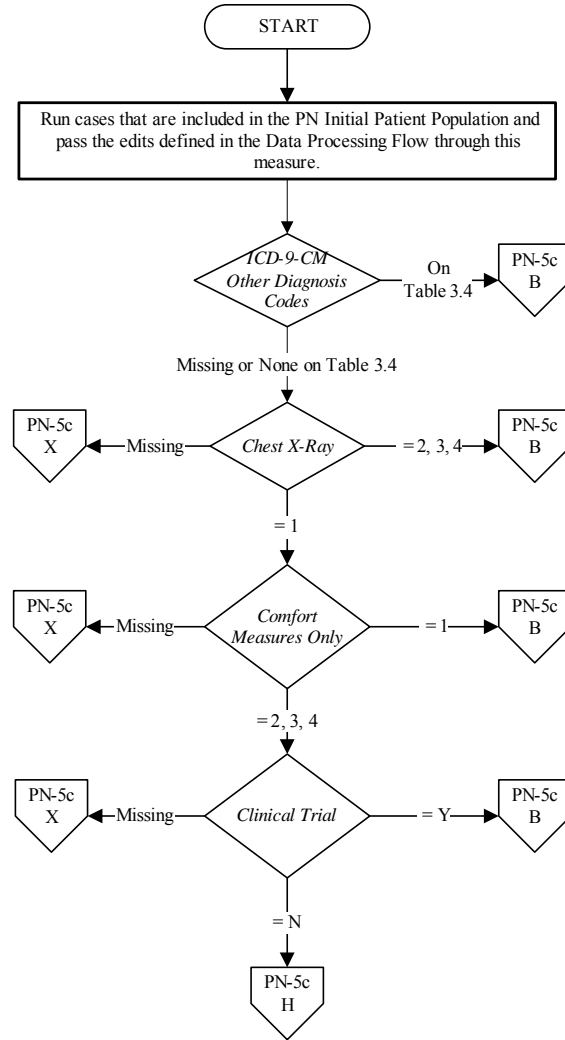


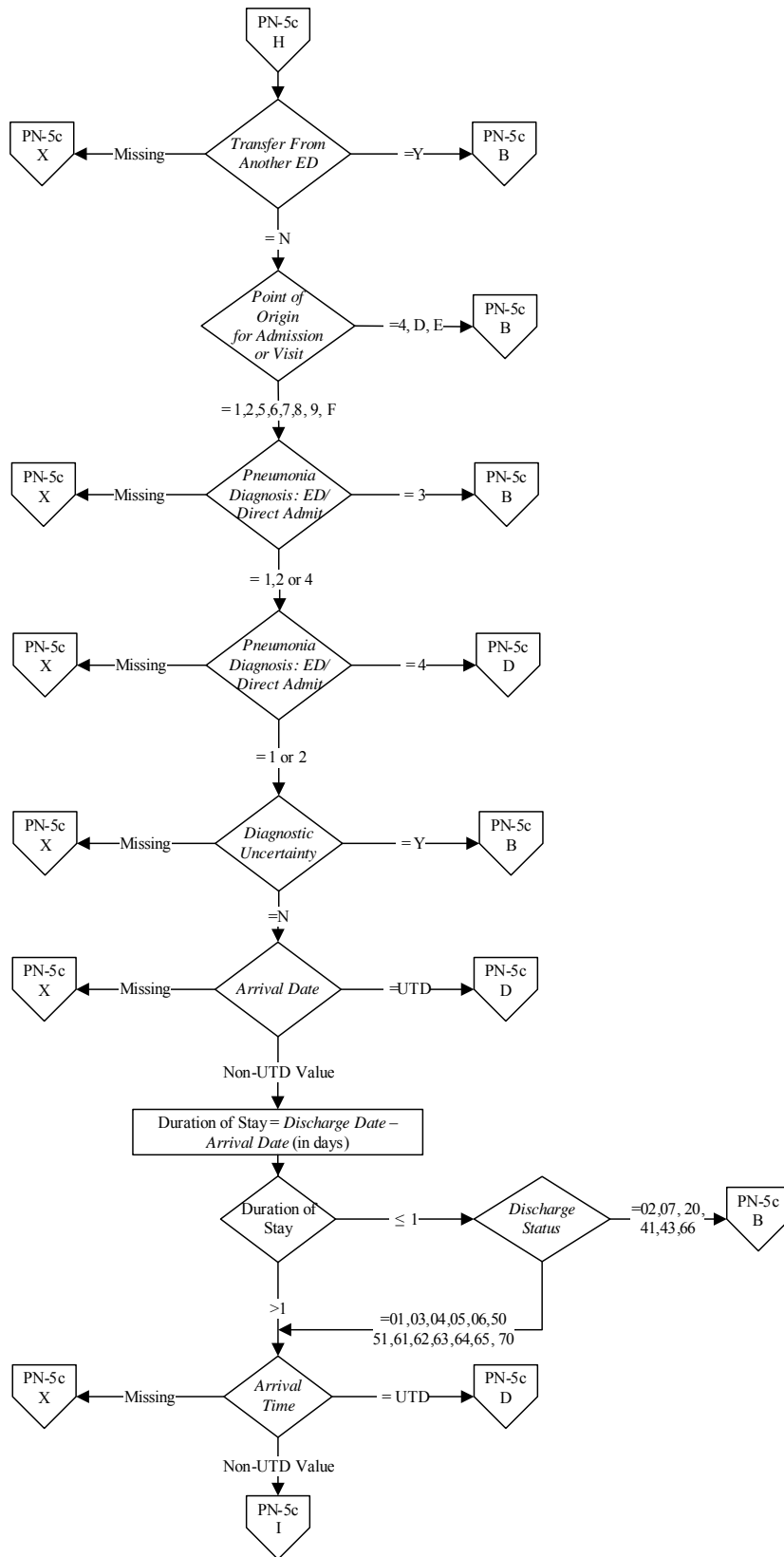
PN-5c: Initial Antibiotic Received Within 6 Hours Of Hospital Arrival .

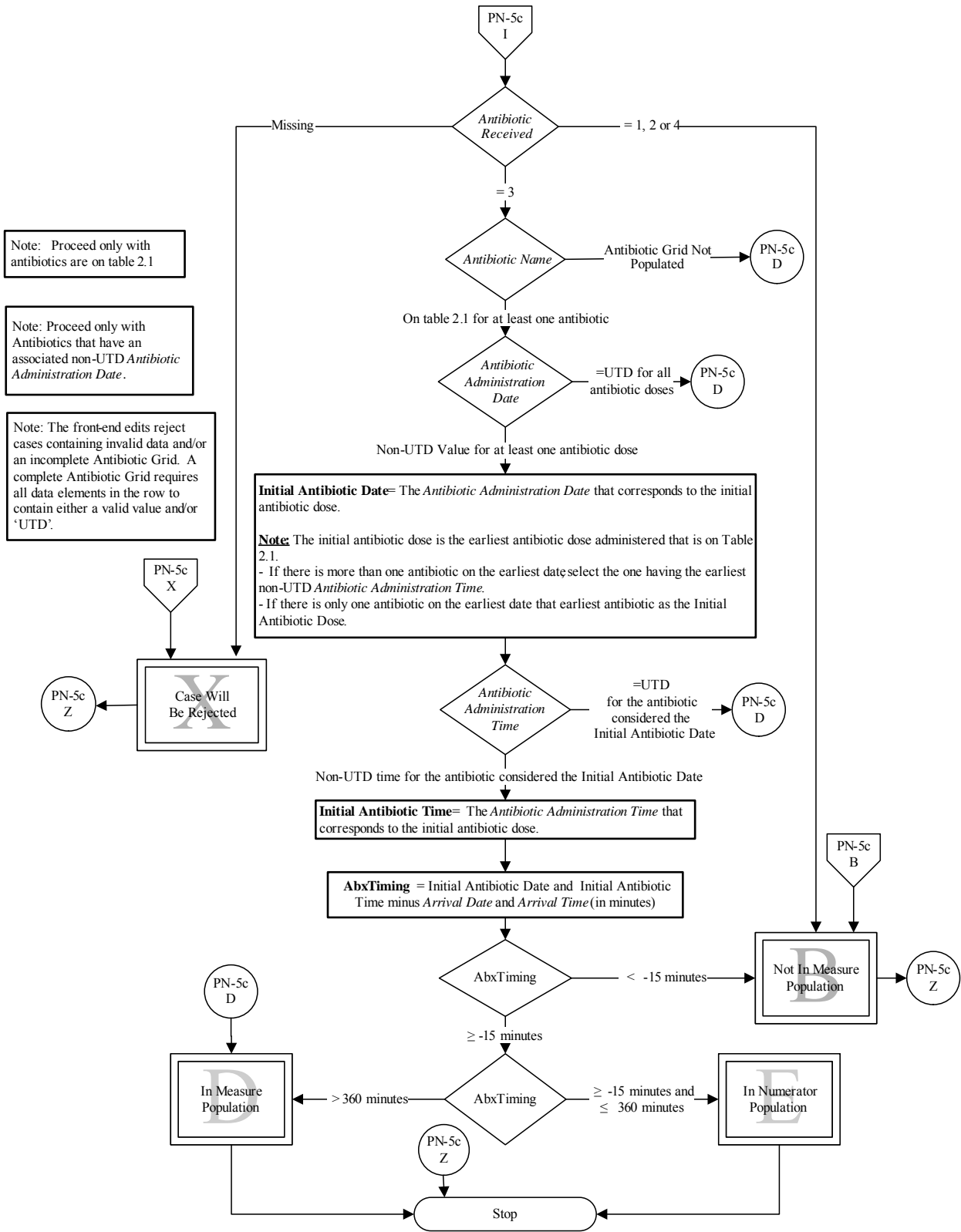
Numerator: Number of Pneumonia patients who received their first antibiotic dose within 6 hours from hospital arrival .

Denominator: Pneumonia patients 18 years of age and older .

Variable Key:
 Duration of Stay
 Initial Antibiotic Date
 Initial Antibiotic Time
 AbxTiming







Note: Proceed only with antibiotics are on table 2.1

Note: Proceed only with Antibiotics that have an associated non-UTD *Antibiotic Administration Date*.

Note: The front-end edits reject cases containing invalid data and/or an incomplete Antibiotic Grid. A complete Antibiotic Grid requires all data elements in the row to contain either a valid value and/or 'UTD'.