



National Hospital Quality
Measures

Measure Definitions

***Excerpts from the Specifications Manual for
National Hospital Quality Measures for
Immunization Measure Set***

***Applicable to Cases Discharged January 1, 2012
through June 30, 2012***

Document Information

The *Specifications Manual for National Hospital Quality Measures* Version 4.0a, January 2012 is the collaborative work of the Centers for Medicare & Medicaid Services and the Joint Commission. The *Specifications Manual* is periodically updated by the Centers for Medicare & Medicaid Services and the Joint Commission. Users of the *Specifications Manual for National Hospital Quality Measures* must update their software and associated documentation based on the published manual production timelines.



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IMMUNIZATION NATIONAL HOSPITAL INPATIENT QUALITY MEASURES

Set Measure ID#	Measure Short Name
IMM-1a	Pneumococcal Immunization (PPV23) – Overall Rate
IMM-1b	Pneumococcal Immunization (PPV23) – Age 65 and Older
IMM-1c	Pneumococcal Immunization (PPV23) – High Risk Populations (Age 6 through 64 years)
IMM-2	Influenza Immunization

IMMUNIZATION DATA ELEMENT LIST

General Data Element Name	Collected For:
<i>Admission Date</i>	All Records
<i>Birthdate</i>	All Records
<i>Discharge Date</i>	All Records
First Name	All Records ¹
Hispanic Ethnicity	All Records ¹
<i>ICD-9-CM Other Diagnosis Codes</i>	All Records (Used in Algorithm for IMM-1)
<i>ICD-9-CM Other Procedure Codes</i>	All Records (Used in Algorithm for all IMM measures)
<i>ICD-9-CM Other Procedure Dates</i>	All Records
<i>ICD-9-CM Principal Diagnosis Code</i>	All Records (Used in Algorithm for IMM-1)
<i>ICD-9-CM Principal Procedure Code</i>	All Records (Used in Algorithm for all IMM measures)
<i>ICD-9-CM Principal Procedure Date</i>	All Records
Last Name	All Records ¹
Patient HIC#	All Records Collected by CMS for patients with a standard HIC#
Patient Identifier	All Records ¹
<i>Payment Source</i>	All Records
Physician 1	Optional for all Records ¹
Physician 2	Optional for all Records ¹
Postal Code	All Records ¹
Race	All Records ¹
<i>Sample</i>	Used in transmission of the Joint Commission's aggregate data file and the Hospital Clinical Data file ²
<i>Sex</i>	All Records

Algorithm Output Data Element Name	Collected For:
<i>Measure Category Assignment</i>	Used in the calculation of the Joint Commission's aggregate data and in the transmission of the Hospital Clinical Data file ^{2,3}

¹ CMS Only

² Transmission Data Element

³ The Joint Commission ONLY

IMMUNIZATION DATA ELEMENT LIST

Immunization Data Element Name	Collected For:
<i>Pneumococcal Vaccination (PPV23) Status</i>	IMM-1
<i>Influenza Vaccination Status</i>	IMM-2
<i>Discharge Disposition</i>	All IMM Measures

Global National Hospital Inpatient Quality Measures

Global Initial Patient Population

Global is an umbrella name for four measure sets, Emergency Department (ED), Immunization (IMM), Substance Use (SUB) and Tobacco Treatment (TOB).

The purpose of defining an umbrella name was to apply one population flow and one sampling on the Global population and reduce the burden of sampling for four measure sets or any number of these four measure sets that are selected.

Therefore, if only two of the Global measure sets are selected and reported, the process would only apply for those two measure sets.

The Global Initial Patient Population is defined by two data elements:

- *Admission Date*
- *Discharge Date*

All patients discharged from acute inpatient care with Length of Stay (Discharge Date minus Admission Date) less than or equal to 120 days are included in the Global Initial Population and are eligible for sampling.

The cases that are accepted into the Global Initial patient population and are sampled would be selected for the specific measure set and return to the **Transmission Data Processing Flow: Clinical** in the Data Transmission section.

Hospitals must submit the same case for all applicable measure sets (i.e., ED, IMM, SUB and TOB) under the Global Initial Patient Population. Example:

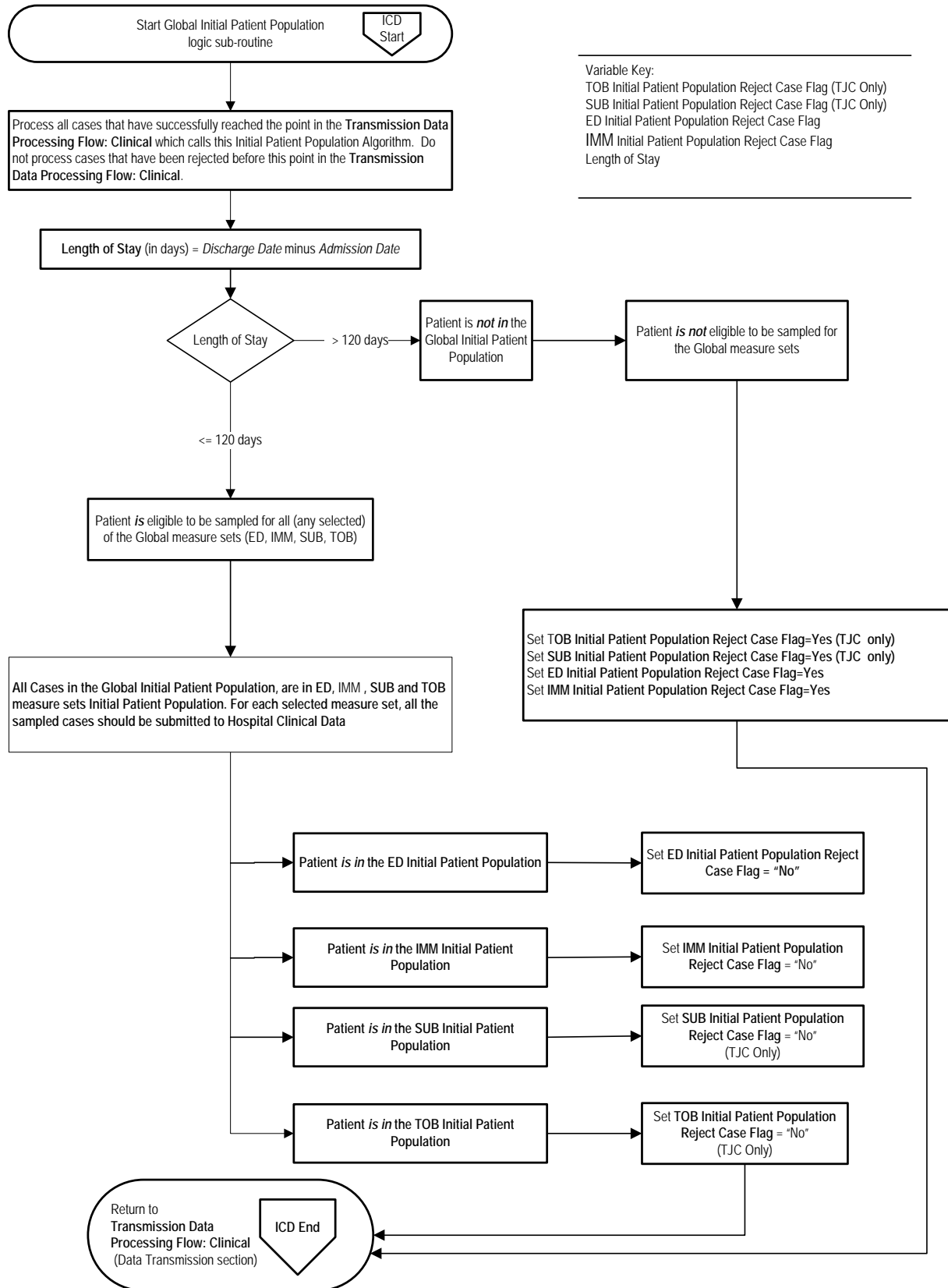
- For every ED case that is submitted to the QIO Clinical Warehouse the same case must also be submitted as an IMM case to the QIO Clinical Warehouse.
- If a hospital has elected to submit ED, TOB and IMM to The Joint Commission, for every ED case that is submitted the same case must also be submitted as a TOB case and an IMM case to The Joint Commission's Data Warehouse. The same holds true regardless of the combination of measure sets (ED, IMM, SUB, TOB) the hospital has elected to submit to The Joint Commission.

The Global Initial Patient Population only contains the population information and flow. There is no measure associated to Global; therefore there is no measure flow or MIF for Global.

For Emergency Department (ED), Immunization (IMM), Substance Use (SUB) and Tobacco Treatment (TOB) Initial Patient Population definitions, please refer to the Global Initial Patient Population.

For Emergency Department, Immunization, Substance Use and Tobacco Treatment Initial Patient Population Algorithms please refer to the Global Initial Patient Population Algorithm.

Global Initial Patient Population Algorithm



Global Initial Patient Population Algorithm

Variable Key:

Length of Stay

TOB Initial Patient Population Reject Case Flag (TJC only)

SUB Initial Patient Population Reject Case Flag (TJC only)

ED Initial Patient Population Reject Case Flag

IMM Initial Patient Population Reject Case Flag

1. Start Global Initial Patient Population logic sub-routine. Process all cases that have successfully reached the point in the Transmission Data Processing Flow: Clinical, which calls this Initial Patient Population Algorithm. Do not process cases that have been rejected before this point in the Transmission Data Processing Flow: Clinical.
2. Calculate the Length of Stay, in days, which is equal to the Discharge Date minus the Admission Date.
3. Check Length of Stay
 - a. If the Length of Stay is greater than 120 days, the patient is not in the Global Initial Patient Population and is not eligible to be sampled for the Global measure sets. For CMS and The Joint Commission, set ED and IMM Initial Patient Population Reject Case Flag to equal Yes. For The Joint Commission Only, set TOB and SUB Initial Patient Population Reject Case Flag to equal Yes. Return to Transmission Data Processing Flow: Clinical in the Data Transmission section.
 - b. If the Length of Stay is less than or equal to 120 days, the patient is eligible to be sampled for all (any selected) of the Global measure sets. All Cases in the Global Initial Patient Population are in ED, IMM, SUB, and TOB measure sets Initial Patient Population. For each selected measure set, all the sampled cases should be submitted to Hospital Clinical Data. Continue processing.
4. For CMS and The Joint Commission set the ED and IMM Initial Patient Population Reject Case Flag to equal No. For The Joint Commission Only set the TOB and SUB Initial Patient Population Reject Case Flag to equal No. Return to Transmission Data Processing Flow: Clinical in the Data Transmission section.

Global Sample Size Requirements

Hospitals that choose to sample have the option of sampling quarterly or sampling monthly. A hospital may choose to use a larger sample size than is required. Hospitals whose Initial Patient Population size is less than the minimum number of cases per quarter for the measure set cannot sample.

Regardless of the option used, hospital samples must be monitored to ensure that sampling procedures consistently produce statistically valid and useful data. Due to exclusions, hospitals selecting sample cases **MUST** submit **AT LEAST** the minimum required sample size.

To reduce the burden of multiple sampling for different measure sets, those hospital's that are submitting any of the **measure sets under the Global Initial Patient Population**, the pulled sample **must** be used to identify the data for all measure sets or stratum that are transmitted to the QIO Clinical Warehouse and The Joint Commission's Data Warehouse. For more information concerning how to perform sampling and using the Global sample size for other measure sets, please refer to the Population and Sampling Specifications section in this manual.

The following sample size tables for each option automatically build in the number of cases needed to obtain the required sample sizes for **the measure sets under the Global initial patient population**.

Quarterly Sampling

Hospitals performing quarterly sampling for Global must ensure that its Initial Patient Population and sample size meet the following conditions:

Quarterly Sample Size Based on Initial Patient Population Size for the Global

Hospital's Measure

Average Quarterly Initial Patient Population Size "N"	Minimum Required Sample Size "n"
≥ 1530	306
765 – 1529	20% of Initial Patient Population size
153 – 764	153
6 – 152	No sampling; 100% Initial Patient Population required
0 - 5	Submission of patient level data is encouraged but not required: <ul style="list-style-type: none">• CMS: if submission occurs, 1 – 5 cases of the Initial Patient Population may be submitted• The Joint Commission: if submission occurs, 100% Initial Patient Population required

Monthly Sampling

Hospitals performing monthly sampling for Global must ensure that its Initial Patient Population and sample size meet the following conditions:

Monthly Sample Size Based on Global Initial Patient Population Size

Hospital's Measure

Average Monthly Initial Patient Population Size "N"	Minimum Required Sample Size "n"
≥ 510	102
255 – 509	20% of Initial Patient Population size
51 – 254	51
< 51	No sampling; 100% Initial Patient Population required

Sample Size Examples

- *Quarterly sampling:*
 - A hospital's Global Initial Patient Population size is 3000 patients during the fourth quarter. The required sample size is seen to be a minimum of 306 Global patients for this quarter.
 - A hospital's Global Initial Patient Population size 803 patients during the third quarter. The required sample size is 20% of the patient population or 161 cases for the quarter (twenty percent of 803 equals 160.6 rounded to the next highest whole number equals 161).
 - A hospital's Global Initial Patient Population size is 4 patients during the first quarter. Submission of patient level data is not required. If the hospital chooses to submit patient level data:
 - CMS: the quarterly sample size would be 1 – 4 cases for the quarter
 - The Joint Commission: the required quarterly sample size would be 100% of the patient population or 4 cases for the quarter.
- *Monthly sampling*
 - A hospital's Global Initial Patient Population size is 600 patients during March. The required sample size is 102 cases from the patient population.
 - A hospital's Global Initial Patient Population size is 303 patients during July. The required sample size is 20% of the patient population or 61 cases for the month (twenty percent of 303 equals 60.6 rounded to the next highest whole number equals 61).

Measure Information Form

Measure Set: Immunization

Set Measure ID#: IMM-1

Performance Measure Name: Pneumococcal Immunization (PPV23)

Set Measure ID#	Stratified Measure Name
IMM-1a	Pneumococcal Immunization (PPV23) – Overall Rate
IMM-1b	Pneumococcal Immunization (PPV23) – Age 65 and Older
IMM-1c	Pneumococcal Immunization (PPV23) – High Risk Populations (Age 6 through 64 years)

Description: This prevention measure addresses acute care hospitalized inpatients 65 years of age and older (IMM-1b) AND inpatients aged between 6 and 64 years (IMM-1c) who are considered high risk and were screened for receipt of 23-valent pneumococcal polysaccharide vaccine (PPV23) and were vaccinated prior to discharge if indicated. The numerator captures two activities; screening and the intervention of vaccine administration when indicated. As a result, patients who had documented contraindications to PPV23, patients who were offered and declined PPV23 and patients who received PPV23 anytime in the past are captured as numerator events.

Rationale: Pneumococcal infection causes an estimated 5,000 deaths from invasive disease annually in the United States (CDC). All pneumococcal infections, including invasive and non-invasive disease, result in approximately 2.4 million days of hospitalization. A sizable proportion of these cases and deaths are potentially preventable through vaccination. Case-fatality rates are highest for meningitis and bacteremia, and the highest mortality occurs among the elderly and patients who have underlying medical conditions. The overall case-fatality rate for invasive pneumococcal disease is 10-18% among adults (Pilishvili CID 2010;201:32-41). While there is limited evidence that PPV23 can prevent pneumonia, multiple studies have demonstrated the effectiveness of that vaccine against pneumococcal bacteremia in vaccinated patients.

In the United States today, PPV23 coverage is suboptimal. Although inpatient vaccine screening and administration are recommended, hospitalization is an underutilized opportunity for vaccination.

Type of Measure: Process

Improvement Noted As: An increase in the rate

Numerator Statement: Inpatient discharges who were screened for PPV23 status and received PPV23 prior to discharge, if indicated.

Included Populations:

- Patients who received PPV23 during this inpatient hospitalization
- Patients who received PPV23 anytime in the past
- Patients who were offered and declined PPV23
- Patients who have an allergy/sensitivity to the vaccine or the vaccine is not likely to be effective due to the following:
 - Hypersensitivity to component(s) of the vaccine
 - Bone marrow transplant within the past 12 months
 - Receipt of chemotherapy or radiation during this hospitalization or less than 2 weeks prior to this inpatient hospitalization
 - Received the shingles vaccine (Zostavax) within the last 4 weeks
 - Patients 6 years of age who received a conjugate vaccine within the previous 8 weeks

Excluded Populations: None

Data Elements:

- ICD-9-CM Principal Diagnosis Code
- ICD-9-CM Other Diagnosis Codes
- Pneumococcal Vaccination (PPV23) Status

Denominator Statement: Inpatient discharges 65 years of age and older, and 6 through 64 years of age who have a high risk condition.

Included Populations:

- Inpatient discharges 65 years and older
- Inpatient discharges 6-64 years of age with an ICD-9-CM Principal Diagnosis Code or ICD-9-CM Other Diagnosis Code of diabetes, nephritic syndrome, ESRD, CHF, COPD, HIV or asplenia as defined in Appendix A, Tables 12.1, 12.2, 12.5-12.8 and 2.1.
- Inpatient discharges 19-64 years of age with an ICD-9-CM Principal Diagnosis Code or ICD-9-CM Other Diagnosis Code of asthma as defined in Appendix A, Table 12.4.

Excluded Populations:

- Patients less than 6 years of age
- Patients who expire prior to hospital discharge
- Patients who are pregnant (Appendix A, Table 12.3)
- Patients with an organ transplant during the current hospitalization (Appendix A, Table 12.10)

Data Elements:

- *Admission Date*
- *Birthdate*
- *Discharge Disposition*
- *ICD-9-CM Other Diagnosis Codes*
- *ICD-9-CM Principal Diagnosis Code*
- *ICD-9-CM Other Procedure Codes*
- *ICD-9-CM Principal Procedure Code*

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 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: Hospitals may wish to analyze the measure data by individual high risk populations, for example, diabetes, COPD, etc., in order to determine if all defined high risk populations are equally vaccinated or if there are opportunities to improve care to a specific population of patients.

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:

- Centers for Disease Control. ACIP Provisional Recommendations for Use of Pneumococcal Vaccines, December 8, 2008.
- Bratzler DW, Houck PM, Jiang H, et al. Failure to vaccinate Medicare inpatients: a missed opportunity. *Arch Intern Med* 2002;162:2349-2356.
- Centers for Disease Control. General Recommendations on Immunization. Recommendations of the Advisory Committee on Immunization Practices (ACIP). *MMWR*. December 1, 2006 (RR-15);1-48.
- Centers for Disease Control. Pneumococcal polysaccharide vaccine usage, United States. *MMWR* 1984;33:273-6,281.
- Centers for Disease Control [Internet]. Active Bacterial Core Surveillance (ABCs) Report emerging infectious program network *Streptococcus pneumoniae*, 2009; [updated October 2010; cited 2010 Feb 8]. Available from <http://www.cdc.gov/abcs/reports-findings/survreports/spneu09.pdf>.

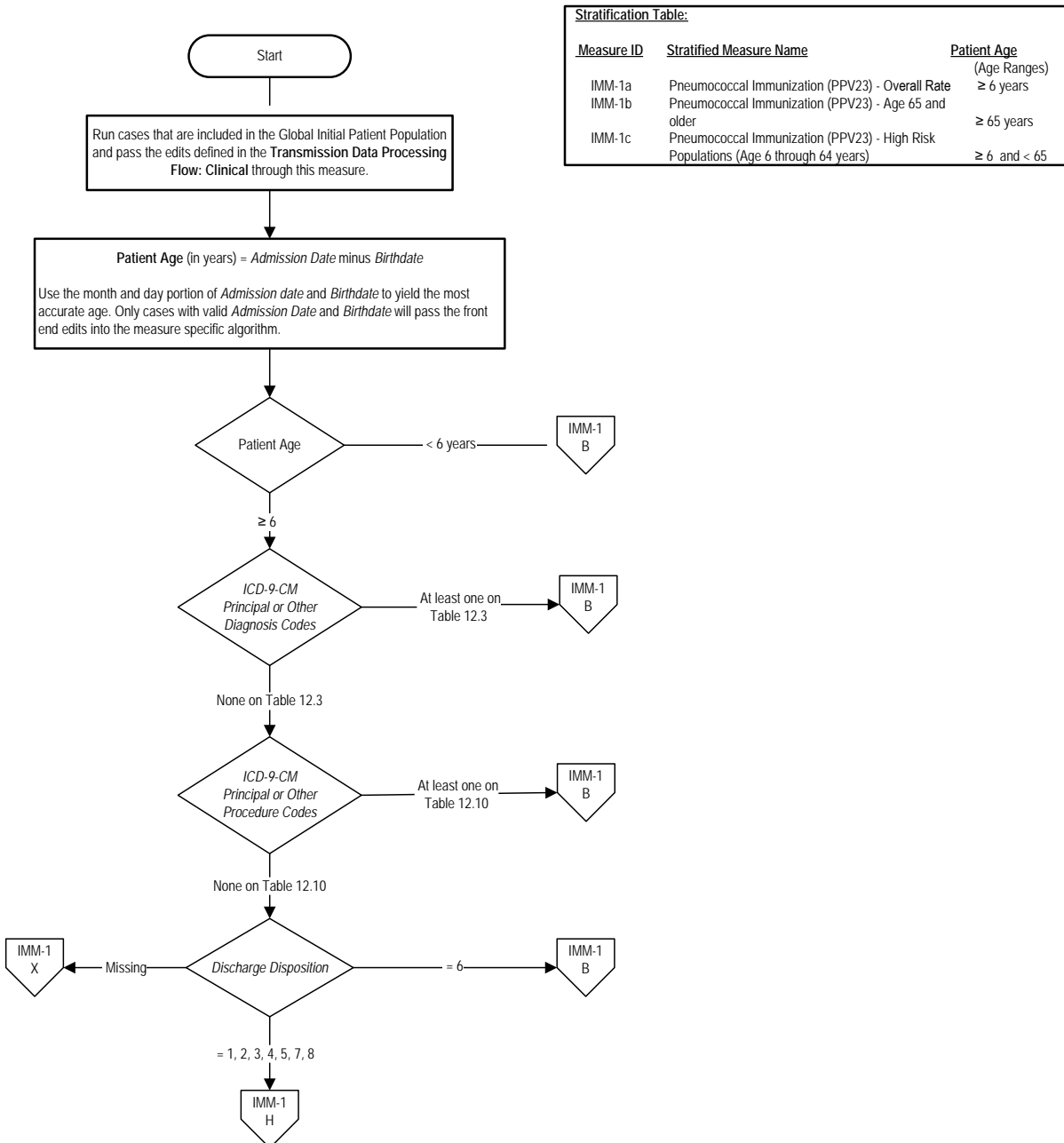
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- Gardner P, Schaffner W. Immunization of adults. *N Engl J Med* 1993;328:1252-8.
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- Johnstone J, Marrie TJ, Eurich DT, Majumdar SR. Effects of pneumococcal vaccination in hospitalized adults with community-acquired pneumonia. *Arch Intern Med*. 2007;167(18):1938-1943.
- Kissam S, Gifford DR, Patry G, et al. Is signed consent for influenza or pneumococcal polysaccharide vaccination required? *Arch Intern Med* 2004;164:13-16.
- Pilishvili T, Lexau C, Farley M, et al. Sustained Reductions in Invasive Pneumococcal Disease in the Era of Conjugate Vaccine. *Clin Infect Dis* 2010;201:32-41.
- Sisk JE, Moskowitz AJ, Whang W, et al. Cost effectiveness of vaccination against pneumococcal bacteremia among elderly people. *JAMA*. 1997;278:1333-1339.
- Williams WW, Hickson MA, Kane MA, Kendal AP, Spika JS, Hinman AR. Immunization policies and vaccine coverage among adults: the risk for missed opportunities. *Ann Intern Med* 1988;108:616-25.

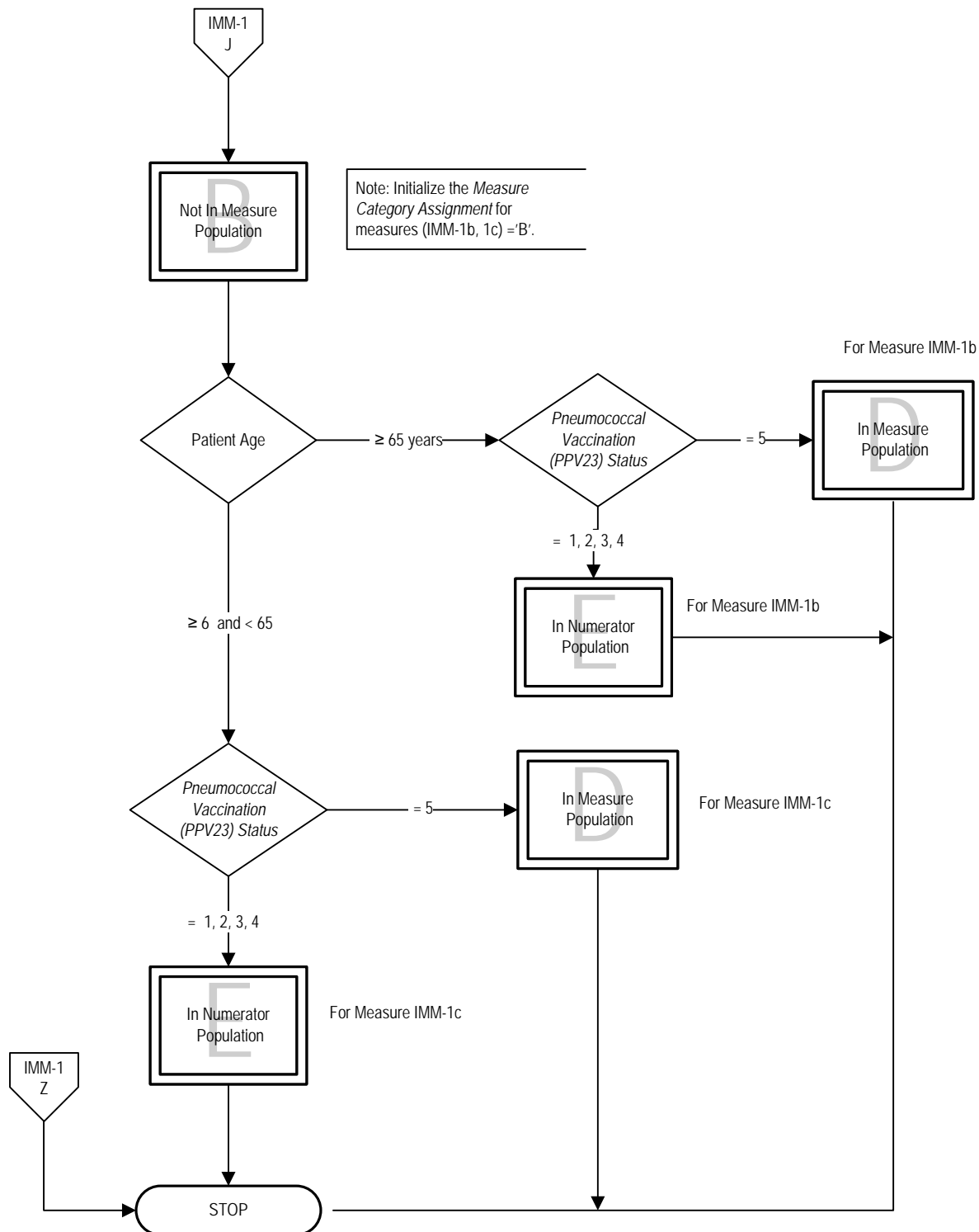
IMM-1: Pneumococcal Immunization (PPV23) .

Numerator Statement: Inpatient discharges who were screened for PPV23 status and received PPV23 prior to discharge, if indicated.

Denominator Statement: Inpatient discharges 65 years of age and older, and 6 through 64 years of age who have a high risk condition.

Variable Key:
Patient Age





IMM-1: Pneumococcal Immunization (PPV23)

Numerator: Inpatient discharges who were screened for PPV23 status and received PPV23 prior to discharge, if indicated.

Denominator: Inpatient discharges 65 years of age and older and 6 through 64 years of age who have a high risk condition.

Variable Key: Patient Age

Stratification Table:

Set Measure ID #	Stratified Measure Name
IMM-1a	Pneumococcal Immunization (PPV23) – Overall Rate
IMM-1b	Pneumococcal Immunization (PPV23) – Age 65 and Older
IMM-1c	Pneumococcal Immunization (PPV23) – High Risk Populations (Age 6 through 64 years)

1. Start processing. Run cases that are included in the Global Initial Patient Population and pass the edits defined in the Transmission Data Processing Flow: Clinical through this measure.
2. Calculate Patient Age. Patient Age, in years, is equal to the Admission Date minus the Birthdate. Use the month and day portion of Admission Date and Birthdate to yield the most accurate age. Only cases with valid Admission Date and Birthdate will pass the front end edits into the measure specific algorithms.
3. Check Patient Age
 - a. If the Patient Age is less than 6 years old, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Assign the Measure Category to B for IMM-1a and proceed to step 13.
 - b. If the Patient Age is greater than or equal to 6 years old, continue processing and proceed to ICD-9-CM Principal or Other Diagnosis Codes.
4. Check ICD-9-CM Principal or Other Diagnosis Codes
 - a. If at least one of ICD-9-CM Principal or Other Diagnosis Codes is on Table 12.3, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Assign the Measure Category to B for IMM-1a and proceed to step 13.

- b. If none of the ICD-9-CM Principal or Other Diagnosis Codes is on Table 12.3, continue processing and proceed to check ICD-9-CM Principal or Other Procedure Codes.
5. Check ICD-9-CM Principal or Other Procedure Codes
 - a. If at least one of ICD-9-CM Principal or Other Procedure Codes is on Table 12.10, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Assign the Measure Category to B for IMM-1a and proceed to step 13.
 - b. If none of the ICD-9-CM Principal or Other Procedure Codes is on Table 12.10, continue processing and check Discharge Disposition.
6. Check Discharge Disposition
 - a. If Discharge Disposition is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. For CMS, stop processing. For The Joint Commission, assign the Measure Category to X for IMM-1a and proceed to step 13.
 - b. If Discharge Disposition equals 6, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Assign the Measure Category to B for IMM-1a and proceed to step 13.
 - c. If Discharge Disposition equals 1, 2, 3, 4, 5, 7, or 8, proceed to recheck Patient Age.
7. Recheck Patient Age
 - a. If the Patient Age is greater than or equal to 65 years, proceed to step 11 and check Pneumococcal Vaccination (PPV23) Status.
 - b. If the Patient Age is greater than or equal to 6 years and less than 65 years, proceed to recheck ICD-9-CM Principal or Other Diagnosis Codes.
8. Recheck ICD-9-CM Principal or Other Diagnosis Codes
 - a. If at least one of ICD-9-CM Principal or Other Diagnosis Codes is on Table 12.1, 12.2, 12.5, 12.6, 12.7, 12.8, or 2.1, proceed to step 11 and check Pneumococcal Vaccination (PPV23) Status.
 - b. If none of the ICD-9-CM Principal or Other Diagnosis Codes is on Table 12.1, 12.2, 12.5, 12.6, 12.7, 12.8, or 2.1, proceed to recheck Patient Age.
9. Recheck Patient Age
 - a. If the Patient Age is less than 19 years, the case will proceed to a Measure Category Assignment of B and will not be in the Measure

Population. Assign the Measure Category to B for IMM-1a and proceed to step 13.

- b. If the Patient Age is greater than or equal to 19 years old, proceed to recheck ICD-9-CM Principal or Other Diagnosis Codes.

10. Recheck ICD-9-CM Principal or Other Diagnosis Codes

- a. If none of the ICD-9-CM Principal or Other Diagnosis Codes is on Table 12.4, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Assign the Measure Category to B for IMM-1a and proceed to step 13.

- b. If at least one of ICD-9-CM Principal or Other Diagnosis Codes is on Table 12.4, proceed to check Pneumococcal Vaccination (PPV23) Status.

11. Check Pneumococcal Vaccination (PPV23) Status

- a. If Pneumococcal Vaccination (PPV23) Status is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. For CMS, stop processing. For The Joint Commission, assign the Measure Category to X for IMM-1a and proceed to step 13.

- b. If Pneumococcal Vaccination (PPV23) Status equals 5, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Assign the Measure Category to D for IMM-1a and proceed to step 12.

- c. If Pneumococcal Vaccination (PPV23) Status equals 1, 2, 3, or 4, the case will proceed to a Measure Category Assignment of E and will be in the Numerator Population. Assign the Measure Category to E for IMM-1a and proceed to step 12.

12. Initialize the Measure Category Assignment for measures (IMM-1b and IMM-1c) to a Measure Category Assignment of B and proceed to step 14 and Recheck Patient Age.

13. Initialize the Measure Category Assignment measures (IMM-1b and IMM-1c) to a Measure Category Assignment of B. Stop Processing.

14. Recheck Patient Age

- a. If the Patient Age is greater than or equal to 65 years, proceed to check Pneumococcal Vaccination (PPV23) Status.

1. If Pneumococcal Vaccination (PPV23) Status equals 5, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population for IMM-1b. Stop Processing.

2. If Pneumococcal Vaccination (PPV23) Status equals 1, 2, 3, or 4, the case will proceed to a Measure Category Assignment of E and will be in the Numerator Population for IMM-1b. Stop processing.
- b. If the Patient Age is greater than or equal to 6 years and less than 65 years, proceed to check Pneumococcal Vaccination (PPV23) Status.
 1. If Pneumococcal Vaccination (PPV23) Status equals 5, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population for IMM-1c. Stop Processing.
 2. If Pneumococcal Vaccination (PPV23) Status equals 1, 2, 3, or 4, the case will proceed to a Measure Category Assignment of E and will be in the Numerator Population for IMM-1c. Stop Processing.

Measure Information Form

Measure Set: Immunization

Set Measure ID #: IMM-2

Performance Measure Name: Influenza Immunization

Description: This prevention measure addresses acute care hospitalized inpatients age 6 months and older who were screened for seasonal influenza immunization status and were vaccinated prior to discharge if indicated. The numerator captures two activities: screening and the intervention of vaccine administration when indicated. As a result, patients who had documented contraindications to the vaccine, patients who were offered and declined the vaccine and patients who received the vaccine during the current year's influenza season but prior to the current hospitalization are captured as numerator events.

Influenza (flu) is an acute, contagious, viral infection of the nose, throat and lungs (respiratory illness) caused by influenza viruses. Outbreaks of seasonal influenza occur annually during late autumn and winter months although the timing and severity of outbreaks can vary substantially from year to year and community to community. Influenza activity most often peaks in February, but can peak rarely as early as November and as late as April. In order to protect as many people as possible before influenza activity increases, most flu-vaccine is administered in September through November, but vaccine is recommended to be administered throughout the influenza season as well. Because the flu vaccine usually first becomes available in September, health systems can usually meet public and patient needs for vaccination in advance of widespread influenza circulation.

Rationale: Up to 1 in 5 people in the United States get influenza every season (CDC, Key Facts). Each year an average of approximately 226,000 people in the US are hospitalized with complications from influenza and between 3,000 and 49,000 die from the disease and its complications (Thompson WW, JAMA). Combined with pneumonia, influenza is the nation's 8th leading cause of death (Minino, 2004 National Center for Health Statistics). Up to two-thirds of all deaths attributable to pneumonia and influenza occur in the population of patients that have been hospitalized during flu season regardless of age (Fedson). The Advisory Committee on Immunization Practices (ACIP) recommends seasonal influenza vaccination for all persons 6 months of age and older to highlight the importance of preventing influenza. Vaccination is associated with reductions in influenza among all age groups (CDC Press Release February 24, 2010).

The influenza vaccination is the most effective method for preventing influenza virus infection and its potentially severe complications. Screening and vaccination of inpatients is recommended, but hospitalization is an underutilized opportunity to provide vaccination to persons 6 months of age or older.

Type of Measure: Process

Improvement Noted As: An increase in the rate

Numerator Statement: Inpatient discharges who were screened for influenza vaccine status and were vaccinated prior to discharge if indicated.

Included Populations:

- Patients who received the influenza vaccine during this inpatient hospitalization
- Patients who have an ICD-9-CM Principal Procedure Code or Other Procedure Codes from Table 12.9 for Prophylactic Vaccination against Influenza during this inpatient hospitalization
- Patients who received the influenza vaccine during the current year's flu season but prior to the current hospitalization
- Patients who were offered and declined the influenza vaccine
- Patients who have an allergy/sensitivity to the vaccine or the vaccine is not likely to be effective due to the following:
 - Hypersensitivity to eggs or other component(s) of the vaccine
 - History of Guillain-Barré Syndrome within 6 weeks after a previous influenza vaccination
 - Bone Marrow transplant within the past 6 months
 - Anaphylactic latex allergy

Excluded Populations: None

Data Elements:

- *Influenza Vaccination Status*
- *ICD-9-CM Other Diagnosis Codes*
- *ICD-9-CM Principal Diagnosis Code*
- *ICD-9-CM Other Procedure Codes*
- *ICD-9-CM Principal Procedure Code*

Denominator Statement: Acute care hospitalized inpatients age 6 months and older discharged during October, November, December, January, February or March.

Included Populations: Inpatient discharges 6 months of age and older.

Excluded Populations:

- Patients less than 6 months of age
- Patients who expire prior to hospital discharge
- Patients with an organ transplant during the current hospitalization (Appendix A, Table 12.10)

- Patients with hospital discharges Oct 1 through March 31 when the provider's vaccine supply is on order but provider has not yet been received

Data Elements:

- *Admission Date*
- *Birthdate*
- *Discharge Date*
- *Discharge Disposition*
- *ICD-9-CM Other Procedure Codes*
- *ICD-9-CM Principal Procedure Code*

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 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: Hospitals may wish to analyze the measure data by individual high risk populations, for example, diabetes, COPD, etc., in order to determine if all defined high risk populations are equally vaccinated or if there are opportunities to improve care to a specific population of patients.

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:

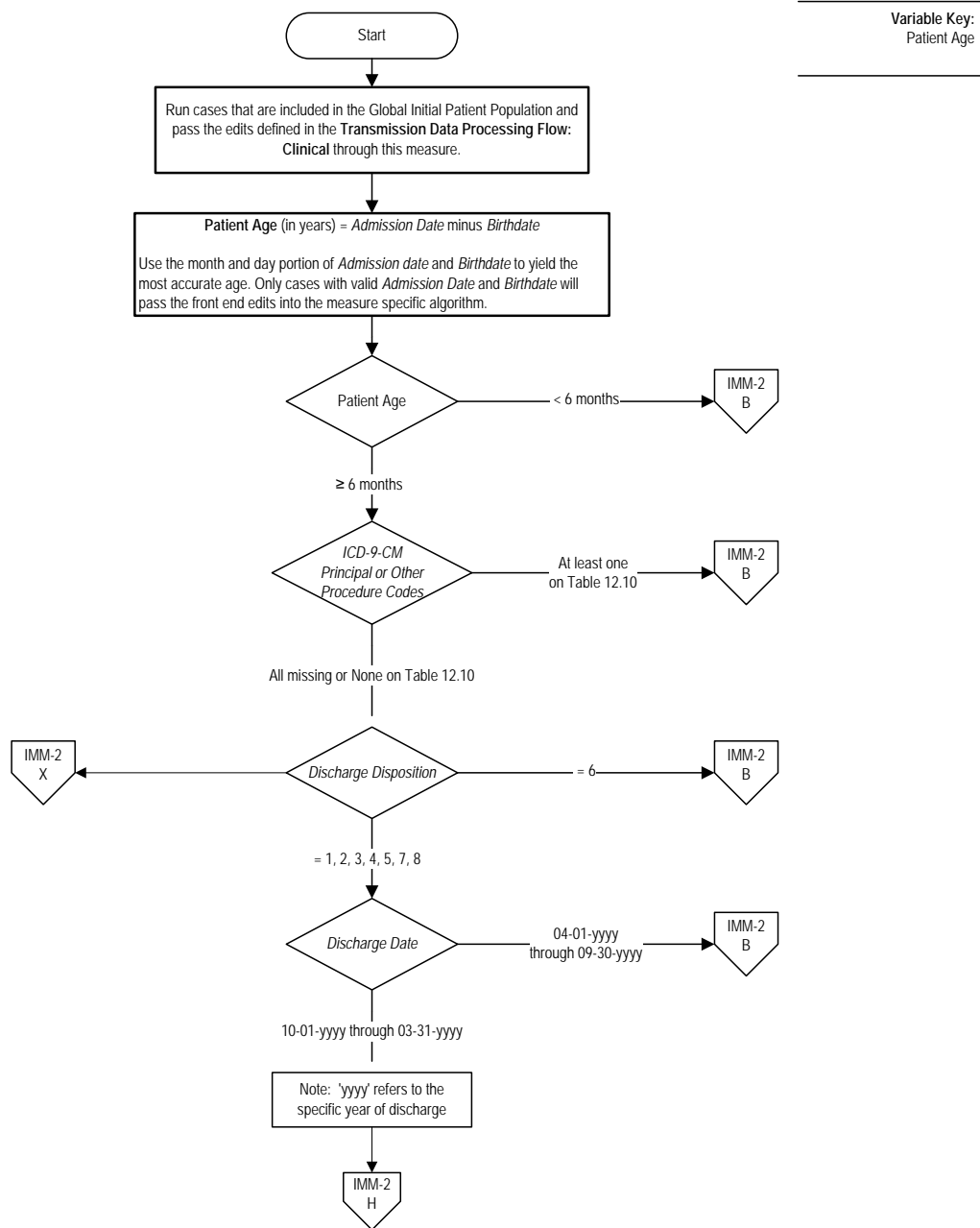
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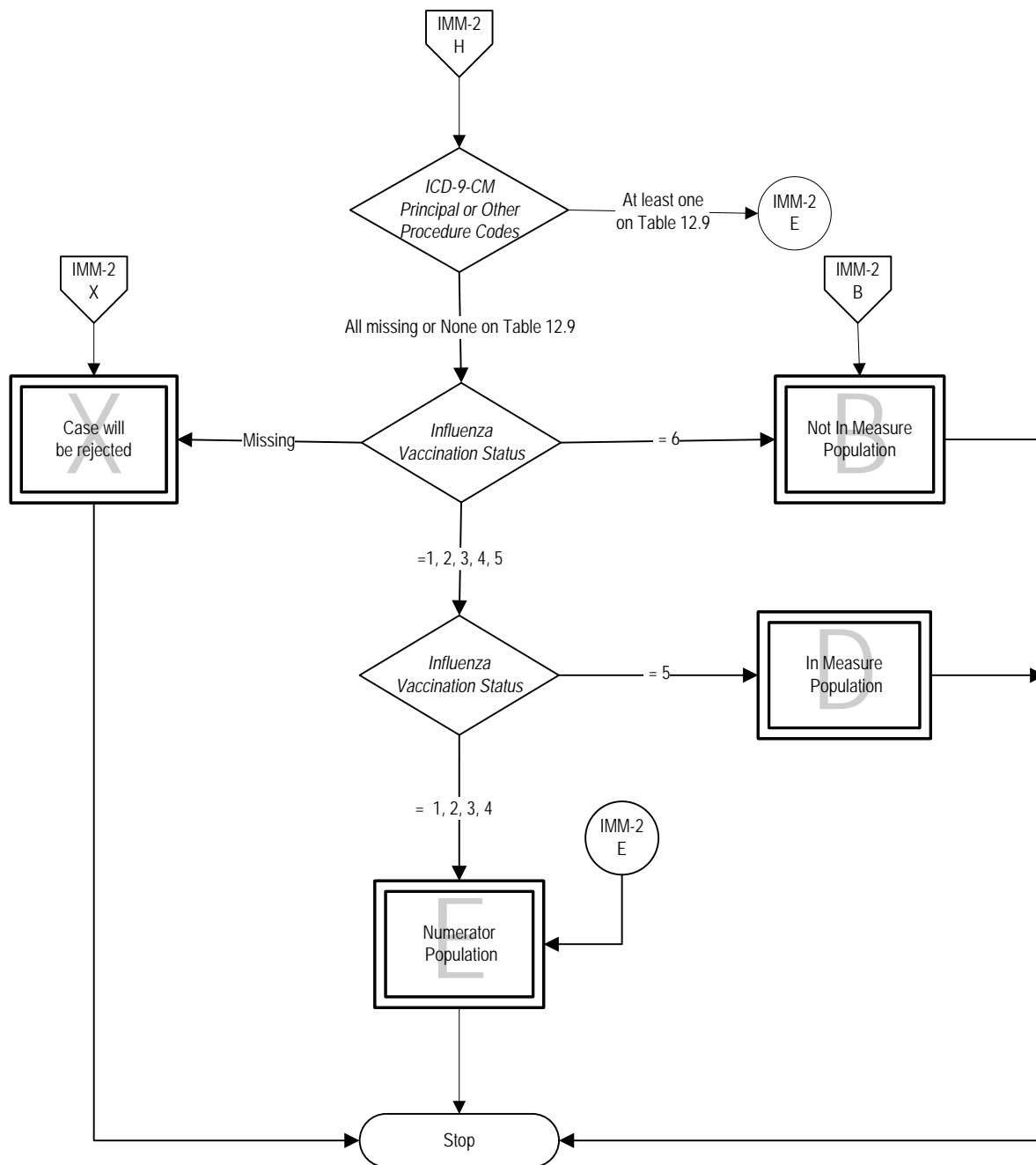
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IMM-2: Influenza Immunization

Numerator Statement: Inpatient discharges who were screened for Influenza vaccine status and were vaccinated prior to discharge if indicated.

Denominator Statement: Acute care hospitalized inpatients age 6 months and older discharged during October, November, December, January, February or March.





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Variable Key: Patient Age

1. Start processing. Run cases that are included in the **Global** Initial Patient Population and pass the edits defined in the Transmission Data Processing Flow: Clinical through this measure.
2. Calculate Patient Age. Patient Age, in years, is equal to the Admission Date minus the Birthdate. Use the month and day portion of admission date and birthdate to yield the most accurate age. Only cases with valid Admission Date and Birthdate will pass the front end edits into the measure specific algorithms.
3. Check Patient Age
 - a. If the Patient Age is less than 6 months old, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing.
 - b. If the Patient Age is greater than or equal to 6 months, continue processing and proceed to ICD-9-CM Principal or Other **Procedure** Codes.
4. Check ICD-9-CM Principal or Other **Procedure** Codes
 - a. If at least one of ICD-9-CM Principal or Other **Procedure** Codes is on Table **12.10** the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing.
 - b. **If all of the ICD-9-CM Principal or Other Procedure Codes are missing or none of the ICD-9-CM Principal or Other Procedure Codes is on Table 12.10**, continue processing and check Discharge Disposition.
5. Check Discharge Disposition
 - a. If Discharge Disposition equals 6, 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, 2, 3, 4, 5, 7, or 8 continue processing and proceed to Discharge Date.

- c. If Discharge Disposition is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing.
6. Check Discharge Date. Note: 'yyyy' refers to the specific year of discharge.
 - a. If the Discharge Date is 04-01-yyyy through 09-30-yyyy, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing.
 - b. If the Discharge Date is 10-01-yyyy through 03-31-yyyy, continue processing and proceed to ICD-9-CM Principal or Other Procedure Code.
7. Check ICD-9-CM Principal or Other Procedure Codes
 - a. If at least one of the ICD-9-CM Principal or Other Procedure Codes is on Table 12.9 the case will proceed to a Measure Category Assignment of E and will be in the Numerator Population. Stop processing.
 - b. If all of the ICD-9-CM Principal or Other Procedure Codes are missing or none are on Table 12.9, continue processing and proceed to Influenza Vaccination Status.
8. Check Influenza Vaccination Status
 - a. If Influenza Vaccination Status is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing.
 - b. If Influenza Vaccination Status equals 6, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing.
 - c. If Influenza Vaccination Status equals 1, 2, 3, 4, or 5, continue processing and recheck Influenza Vaccination Status.
9. Recheck Influenza Vaccination Status
 - a. If Influenza Vaccination Status equals 5, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing.
 - b. If Influenza Vaccination Status equals 1, 2, 3, or 4 the case will proceed to a Measure Category Assignment of E and will be in the Numerator Population. Stop processing.