High Risk Inpatient Influenza Vaccination (HRIIV) Module

Background

Influenza viruses can cause severe disease in certain patient populations. The Centers for Disease Control and Prevention (CDC) estimates an average of 36,000 deaths and 226,000 hospitalizations in the United States (U.S.) every year, resulting from influenza infection.[1] Seasonal influenza illness occurs in all age groups, but the risk of serious illness and death following infection is highest among persons aged ≥ 65 years, children aged ≤ 2 years, and persons with certain chronic medical conditions[2-3] These groups have been targeted for influenza vaccination in the U.S. since the early 1960s.[4] CDC's Advisory Committee on Immunization Practices (ACIP) has expanded seasonal influenza vaccination recommendations based on a combination of high risk age categories and medical conditions on several occasions[5-6] and recently[7] included children between the ages of 6 months and 18 years, adults aged ≥50 years, and specific groups of adults or children over 6 months of age with certain medical conditions. Occasionally, a variant strain of influenza will emerge that is distinct from the expected seasonal strain and requires a separate vaccination for prevention. In 2009-10, this non-seasonal strain was novel Influenza A (H1N1) 2009.[8-9]

The high risk groups for serious illness and death for non-seasonal novel Influenza A (H1N1) illness varied somewhat from the seasonal high risk populations. (Table 1) Signs and symptoms of novel Influenza A (H1N1) 2009 virus infection were similar to those of seasonal influenza; however, the age distribution was different.[10-11] Specific diagnostic testing is required to distinguish novel Influenza A (H1N1) 2009 virus from seasonal influenza virus[12]. The highest infection incidence is among persons 5-24 years, the lowest incidence was among persons ≥ 65 years.[8-9] The high risk medical conditions and reasons for declination for seasonal and non-seasonal influenza are the same for influenza season 2009-10.[10-11]

There are two types of influenza vaccine: trivalent inactivated influenza (TIV) vaccine and live attenuated influenza vaccine (LAIV)[13]. Seasonal and non-seasonal vaccines are available in both types for the 2009-10 influenza season. The Federal Drug Administration (FDA) licensed the TIV vaccine for use in persons over 6 months of age, including those individuals with high risk conditions. The FDA licensed in 2007 the current LAIV for use among health children and adults from 2 through 49 years of age, if they are healthy and not pregnant.[12-13]

Methodology

The High Risk Inpatient Influenza Vaccination (HRIIV) Module targets the healthcare facility's inpatient population, who are identified using the high risk criteria for seasonal and non-seasonal influenza vaccination (Table 1).
The High Risk Inpatient Influenza Vaccination (HRIIV) Module can be completed using either retrospective medical record review (Method A or Method B) *or* prospective surveillance of

inpatient admissions (Method B). Two separate approaches (Method A or Method B), requiring two separate sets of forms, are used to report data for the HRIIV Module. The same method should be used for each month of the influenza season in which the module is completed. The same method should also be used for monitoring seasonal and non-seasonal influenza in the same facility. Multiple admissions by the same patient during the same month should be evaluated as separate encounters for this module. For those patients who decline influenza vaccination, reasons for declination (medical contraindications and personal) are captured (Table 2).

A trained individual (e.g., an infection preventionist [IP], staff nurse) shall initially seek to classify all inpatient admissions as either meeting or not meeting high risk criteria for seasonal and/or non-seasonal influenza vaccination during the review period, and then determine if influenza vaccination was offered, and then either accepted or declined during the course of the patient's admission. Personnel other than the IP may be trained to perform these observations. When denominator data (e.g., number of inpatient admissions) are available from electronic databases, these sources may be used as long as the counts are not substantially different (+/- 5%) from manually collected counts.

The CDC forms 57.130, 57.131, 57.132 and 57.133 (Tables of Instructions, Tables 14, 15, 16, and 17 respectively) are used to collect all required HRIIV data depending on whether Method A or Method B is the selected surveillance approach.

An optional tool, *HRIIV Standing Orders* form (CDC 57.134), is also available to provide a chart document that will allow for the capture of needed data elements to complete this module. The minimum requirement to participate in this module is one month during the influenza season (September through March), but maximal benefit is obtained by completing the module for each month of the entire influenza season.

Table 1: High Risk Criteria for Inpatient Seasonal and Non-Seasonal Influenza Vaccination[+] High Risk Criteria for Seasonal Influenza Vaccination:
Person aged $\geq$ 50 years
Person aged 6 months – 18 years
Person 6-18 receiving long-term aspirin therapy
Resident of nursing homes or other chronic-care facility
Person who lives with or cares for children younger than 6 months of age
Pregnancy
Person aged > 6 months who has chronic health disorder(s) or compromised immune system (see below for high risk conditions)

High Risk Criteria for Non- Seasonal Influenza Vaccination:
Person aged 6 months–24 years
Person who lives with or cares for children younger than 6 months of age
Pregnancy
Healthcare or emergency medical services worker
Person aged 25–64 who has chronic health disorder(s) or compromised immune system (see below for high risk conditions)

High Risk Conditions (applies to both seasonal and non-seasonal vaccine recipients)
- Chronic pulmonary (including asthma), cardiovascular (except hypertension), renal, hepatic, hematological, or metabolic disorders (including diabetes mellitus)
- Any condition (e.g., cognitive dysfunction, spinal cord injuries, seizure disorders, or other neuromuscular disorders) that can compromise respiratory function or the handling of respiratory secretions or that can increase the risk for aspiration
- Immunosuppression (including immunosuppression caused by medications or by human immunodeficiency virus [HIV]

Examples of ICD-9-CM diagnosis codes associated with high risk disease conditions that may make patients candidates for influenza vaccination (may not be all inclusive).

High-risk category	High-risk sub-category and ICD-9 codes ("x" indicates can be any value)
Chronic cardiac disease	☐ Acute rheumatic fever (391.xx–392.xx) ☐ Chronic rheumatic heart disease (393.xx–398.xx) ☐ Hypertensive heart disease (402.xx, 404.xx) ☐ Ischemic heart disease (410.xx–414.xx) ☐ Diseases of pulmonary circulation (416.xx, 417.xx) ☐ Other forms of heart disease (421.xx, 423.xx, 424.xx, 425.xx, 427.1–427.5, 427.8, 428.xx, 429.xx) ☐ Atherosclerosis, polyarteritis nodosa (440.xx, 446.xx) ☐ Congenital anomalies (745.xx–747.xx) ☐ Surgical/device conditions (V42.1, V45.0, V45.81, V45.82) ☐ Cardiovascular syphilis (093.xx) ☐ Candidal endocarditis (112.81) ☐ Myocarditis due to toxoplasmosis (130.3)

Chronic pulmonary	☐ Other metabolic and immunity disorders (277.0, 277.6) ☐ COPD and allied conditions (491.xx–496.xx) ☐ Pneumoconioses/other lung diseases due to external agents (500.xx–506.xx, 507.0, 507.1, 508.xx) ☐ Other diseases of respiratory system (510.xx, 513.xx–517.xx, 518.0–518.3, 519.0, 519.9) ☐ Congenital anomalies (748.4–748.6, 759.3) ☐ Lung transplant (V426) ☐ Tuberculosis (011.xx, 012.xx) ☐ Diseases due to other mycobacteria (031.0) ☐ Sarcoidosis (135.xx)
Chronic renal disease	☐ Hypertensive renal disease (403.xx) ☐ Nephritis, nephrotic syndrome, nephrosis (581.xx–583.xx, 585.xx–587.xx, 588.0, 588.1) ☐ Chronic pyelonephritis (590.0) ☐ Other specified disorders of kidney and ureter (593.8) ☐ Dialysis and transplant (V42.0, V45.1, V56)
Diabetes mellitus	☐ Diabetes mellitus (250.xx, 251.xx, 648.0) ☐ Complications of diabetes (357.2, 362.0, 362.11, 366.41)
Hemoglobinopathies	☐ Anemias (282.xx–284.xx)
Immunosuppressive disorders	☐ HIV/retroviral disease (042.xx–044.xx, 079.5, V08) ☐ Disorders involving immune mechanism (279.xx) ☐ Diseases of blood and blood-forming organs (288.0, 288.1, 288.2) ☐ Polyarteritis nodosa (446.xx) ☐ Diseases of musculoskeletal system and connective tissue (710.0, 710.2, 710.4, 714.xx) ☐ Organ/tissue transplants (V420–V422, V426–V429) ☐ Radiation/chemotherapy (V580, V581) ☐ Malignancies (140.xx–208.xx)
Other metabolic and immunity disorders	☐ Disorders of adrenal glands (255.xx) ☐ Other disorders (270.xx, 271.xx, 277.2, 277.3, 277.5, 277.8)
Liver diseases	☐ Chronic liver disease and cirrhosis (571.xx) ☐ Liver abscess and sequelae of chronic liver disease (572.1–572.8)
Neurological/musculoskeletal	☐ Psychotic conditions (290.xx, 294.1) ☐ Mental retardation (318.1, 318.2) ☐ Hereditary and degenerative diseases of CNS (330.xx, 331.xx, 333.0, 333.4–333.9, 334.xx, 335.xx) ☐ Other disorders of CNS (340.xx-341.xx, 343.xx, 344.0) ☐ Disorders of peripheral nervous system (358.0, 358.1, 359.1, 359.2) ☐ Late effects of CVD (438.xx) ☐ Chondrodystrophy (756.4)

Table 2: Examples of Medical Contraindications to Seasonal and Non-Seasonal Influenza Vaccination and for Declining Influenza Vaccination for Personal (non-medical) Reasons	
Medical Contraindications (may not be all-inclusive):	☐ Allergy to vaccine components ☐ History of Guillain-Barré syndrome within 6 weeks of previous influenza vaccination ☐ Current Febrile illness (Temp > 101.5°)
Personal (non-medical) reasons for declining vaccination (may not be all-inclusive):	☐ Fear of needles/injections ☐ Fear of side effects ☐ Perceived ineffectiveness of vaccine ☐ Religious or philosophical objections ☐ Concern for transmitting vaccine virus to contacts

High Risk Inpatient Influenza Vaccination – Method A

Introduction: Method A requires the use of a single form, the *HRIIV Monthly Monitoring Form – Method A* (CDC 57.130 and Tables of Instructions, Table 14) to collect all data for the period of surveillance. The Method A form must be completed for each influenza subtype (seasonal or non-seasonal) followed by the facility. There will be two Method A forms completed for each month the facility is following both seasonal and non-seasonal influenza vaccination for the 2009-10 influenza season. This retrospective method consists of determining the total number of patients in seven separate categories (6 required, 1 optional) during the surveillance month(s). The value of this method for data collection is the simplicity of data collection requirements.

HRIIV Method A will enable participating facilities and CDC to calculate a variety of rates for both seasonal and non-seasonal influenza vaccination including the following:
  a. Prevalence of admissions meeting high risk criteria for influenza vaccination, both those who have previously received influenza vaccine during the current influenza season and those that have not been previously vaccinated.
  b. Percent adherence to recommended guidance for influenza vaccination in high risk inpatients not previously vaccinated during the current influenza season.
The rates for seasonal and non-seasonal influenza will be tabulated separately.

Settings: This is a facility-wide surveillance in which all NHSN inpatients will be monitored during the selected month(s).

Requirements: Surveillance will consist of a review of all NHSN inpatients facility-wide to 1) determine whether they meet high risk criteria for seasonal influenza and/or non-seasonal influenza vaccination and 2) determine the number of inpatients meeting high risk criteria for influenza vaccination(s) who are offered influenza vaccination(s) during the course of their admission and all those who receive influenza vaccination(s) during their admission. During

seasons when seasonal and non-seasonal subtype vaccinations are recommended, such as 2009-10, monitoring is required for all influenza vaccinations. Two doses of non-seasonal H1N1 monovalent influenza vaccine are required for patients meeting high risk criteria for non-seasonal influenza (e.g., children 4-9), (See latest ACIP/ CDC recommendations for complete listing). Two doses of seasonal influenza vaccine are required for certain patients (e.g., children 6 months -8 years) who have not received seasonal vaccine previously,(See latest ACIP/CDC recommendations for complete listing). Patients requiring second vaccine in second month of hospitalization will be listed as not-previously vaccinated in the *High Risk Inpatient Influenza Vaccination Monthly Monitoring Form –Method A*. Surveillance must be conducted for at least one calendar month during the influenza season as indicated in the *Patient Safety Monthly Reporting Plan* (CDC 57.106). Ideally the facility should conduct the surveillance during each month of the influenza season (September through March).

Definitions:
(All box numbers refer to boxes on *HRIIV Monthly Monitoring Form – Method A*, [CDC 57.130].)

NHSN inpatient: A patient whose date of admission to the healthcare facility and the date of discharge are different calendar days.

Total number of patient admissions (Box 1): During the month selected for surveillance, the count of all NHSN inpatients admitted to the facility.

Total number of patients meeting high risk criteria for influenza vaccination (Box 2): During the month selected for surveillance, the count of NHSN inpatients meeting one or more of the high risk criteria listed in Table 1. Include in this count any patients who meet high risk criteria but who have been previously vaccinated during the current influenza season.

Total number of patients previously vaccinated during current influenza season (Box 3-optional): During the month selected for surveillance, the count of all NHSN inpatients who had previously received influenza vaccination during the current influenza season by either history or documentation.

Total number of patients meeting high risk criteria previously vaccinated during the current influenza season (Box 4): During the month selected for surveillance, the count of all NHSN inpatients meeting high risk criteria (Table 1) who had previously received influenza vaccination during the current influenza season by either history or documentation. The number in this box should be less than or equal to the number in Box 2.

Total number of patients meeting high risk criteria not previously vaccinated during the current influenza season (Box 5): During the month selected for surveillance, the count of NHSN inpatients meeting high risk criteria (Box 2) minus the count of NHSN inpatients meeting high

risk criteria previously vaccinated during the current influenza season (Box 4). Refer to Table 1 for list of high risk criteria for inpatient influenza vaccination.

Patients meeting high risk criteria offered vaccination but declining for reasons other than medical contraindication (Box 6): During the month selected for surveillance, the count of NHSN inpatients meeting high risk criteria offered vaccination but who declined for reasons other than medical contraindication. Refer to Table 2 for examples of personal (non-medical) reasons for declining vaccination.

Patients meeting high risk criteria offered vaccination but having medical contraindication (Box 7): During the month selected for surveillance, the count of NHSN inpatients offered vaccination but who declined because of medical contraindication(s). Refer to Table 2 for examples of medical contraindication.

Patients meeting high risk criteria receiving vaccination during admission (Box 8): During the month selected for surveillance, the count of all NHSN inpatients with documentation in the medical record of receiving influenza vaccination during the course of their hospital admission prior to being discharged.

Total number of patients offered vaccination for high risk criteria (Box 9): The sum of the count of all NHSN inpatients offered vaccination but who declined for reasons other than medical contraindication (Box 6) plus all patients offered vaccination but who declined because of medical contraindication (Box 7) plus all NHSN inpatients with documentation in the medical record of receiving influenza vaccination during the course of their hospital admission prior to being discharged (Box 8). The number in this box should be less than or equal to the number in Box 5.
Refer also to the Key Terms, Chapter 16, for other definitions.

Numerator and Denominator Data: The numerator and denominator data are reported on the High Risk Inpatient Influenza Vaccination Monthly Monitoring Form – Method A (CDC 57.130) in boxes 1-9 for the month(s) selected for surveillance (Tables of Instructions, Table 14).

Data Analysis: Data aggregated across the entire facility are stratified by time (e.g., month, influenza subtype, influenza season). Table 3 shows the formulas for metrics that can be calculated from Method A.

Table 3: Formulas for Metrics: Method A
All data come from Boxes 1-9 of the HRIIV Monthly Monitoring Form - Method A (CDC 57.130)

	Metric	**Method A Formula (x 100)**
1	Prevalence rate for all high risk inpatients among all inpatient admissions	$\dfrac{\text{Box 2}}{\text{Box 1}}$
2	Prevalence rate for high risk inpatients not previously vaccinated among all inpatients admissions	$\dfrac{\text{Box 5}}{\text{Box 1}}$
3	Prevalence rate of high risk inpatients previously vaccinated among total population of high risk inpatients	$\dfrac{\text{Box 4}}{\text{Box 2}}$
4	Adherence rate for offering influenza vaccination to high risk inpatients among all eligible high risk inpatients	$\dfrac{\text{Box 9}}{\text{Box 5}}$
5	Adherence rate for receiving influenza vaccination by high risk inpatients among all high risk inpatients	$\dfrac{\text{Box 8}}{\text{Box 5}}$
6	Adherence rate for receiving influenza vaccination by high risk inpatients among all medically eligible high risk inpatients	$\dfrac{\text{Box 8}}{\text{Box 5} - \text{Box 7}}$
7	Adherence rate for receiving influenza vaccination by high risk inpatients among all medically eligible, willing high risk inpatients	$\dfrac{\text{Box 8}}{\text{Box 5} - [\text{Box 6} + \text{Box 7}]}$
8	Declination rate for high risk inpatients eligible for vaccination among all high risk inpatients offered vaccine	$\dfrac{\text{Box 6} + \text{Box 7}}{\text{Box 9}}$
9	Declination rate due to personal (non-medical) reasons for high risk inpatients eligible for influenza vaccination among all high risk inpatients offered vaccine	$\dfrac{\text{Box 6}}{\text{Box 9}}$
10	Declination rate due to medical contraindications for high risk inpatients eligible for influenza vaccination among all high risk inpatients offered vaccine	$\dfrac{\text{Box 7}}{\text{Box 9}}$
11	Failure rate for offering vaccine to high risk inpatients medically eligible for influenza vaccination among all medically eligible high risk inpatients	$\dfrac{\text{Box 5} - \text{Box 9}}{\text{Box 5} - \text{Box 7}}$
12	Prevalence rate of all inpatients previously vaccinated during the current influenza season among all inpatient admissions	$\dfrac{\text{Box 3}}{\text{Box 1}}$

High Risk Inpatient Influenza Vaccination – Method B

Introduction: Method B requires the use of three forms, the *HRIIV Monthly Monitoring Form - Method B* (CDC 57.131), the *High Risk Inpatient Influenza Vaccination Method B Form- Part 1*(CDC 57.132), the *High Risk Inpatient Influenza Vaccination Method B Form – Part 2*(CDC 57.133) and Tables of Instructions, Table 14) to collect all data for the period of surveillance. The Method B forms must be completed for each influenza subtype (seasonal or non-seasonal) followed by the facility. There will be six Method A forms completed for each month the facility is following both seasonal and non-seasonal influenza vaccinations for the 2009-10 influenza season. The value of this method is that the information collected will assist facilities in identifying whether NHSN inpatients meeting high risk criteria for influenza vaccination(s) during an admission are actually receiving vaccination. Additionally, IPs will be able to identify specific gaps in adherence and recommend changes in practices to ensure that eligible patients are being vaccinated.

HRIIV Method B will enable participating facilities and CDC to calculate a variety of rates including:
   a. Prevalence of admissions meeting high risk criteria for influenza vaccination(s), both those who have previously received influenza vaccine during the current influenza season and those that have not been previously vaccinated.
   b. Percent adherence to recommended guidance for influenza vaccination(s) in high risk NHSN inpatients not previously vaccinated during the current influenza season.
   c. Patient level data for high risk inpatients not receiving influenza vaccination(s) in order to determine where failures in maintaining adherence to guidelines for vaccination are occurring.

Settings: This is a facility-wide surveillance in which all NHSN inpatients will be monitored during the selected month(s).

Requirements: Surveillance will consist of a review of all NHSN inpatients facility-wide to 1) determine whether they meet high risk criteria for influenza vaccination and 2) determine the number of NHSN inpatients meeting high risk criteria for influenza vaccination who are offered influenza vaccination during the course of their admission and all those who receive influenza vaccination during their admission. Surveillance must be conducted for at least one calendar month during the influenza season as indicated in the *Patient Safety Monthly Reporting Plan* (CDC 57.106). During seasons when seasonal and non-seasonal subtype vaccinations are recommended, such as 2009-10, monitoring is required for all influenza vaccinations. Two doses of non-seasonal H1N1 monovalent influenza vaccine are required for patients meeting high risk criteria for non-seasonal influenza (e.g., children 4-9). (See latest ACIP/ CDC recommendations for complete listing.) Two doses of seasonal influenza vaccine are required for certain patients (e.g., children 6 months -8 years) who have not received seasonal vaccine previously. (See latest ACIP/CDC recommendations for complete listing.) Patients requiring second vaccine in second month of hospitalization will be listed as not previously vaccinated in the *High Risk Inpatient*

Influenza Vaccination Monthly Monitoring Form – Method B. High Risk Inpatient Influenza Vaccination Forms – Part 1 and Part *2 will be completed for each vaccine administered by month.* Ideally the facility should conduct the surveillance during each month of the influenza season (September through March).

Method B requires determination of the number of NHSN inpatients in the following categories for the month selected for review. (All box numbers refer to the boxes found on the *HRIIV Monthly Monitoring Form - Method B*, CDC 57.131.)
- Total number of NHSN inpatient admissions (Box 1).
- Total number of NHSN inpatients previously vaccinated during the current influenza season (Box 2 - optional).
- Total number of NHSN inpatients meeting high risk criteria previously vaccinated during the current influenza season (Box 3).

In addition, all NHSN inpatient admissions found to meet the high risk criteria but not previously vaccinated during the current influenza season will need to have *HRIIV Method B Form - Part 1* (CDC 57.132) and *HRIIV Method B Form - Part 2* (CDC 57.133) completed as indicated. Review all NHSN inpatient admissions and determine whether they meet the high risk criteria for influenza vaccination. High risk categories differ slightly for seasonal and non-seasonal influenza vaccination (Table 1). Note that all NHSN inpatients who meet high risk criteria but have previously been vaccinated during the current influenza season do not require the *HRIIV Method B Form - Part 1* (CDC 57.132) or *HRIIV Method B Form - Part 2* (CDC 57.133) to be completed, but should be totaled and entered on the *HRIIV Monthly Monitoring Form - Method B* (CDC 57.131) in Box 3.

For all NHSN inpatients meeting high risk criteria for influenza vaccination(s) indicate all applicable high risk criteria on the *HRIIV Method B Form - Part 1* (CDC 57.132). Additionally, all NHSN inpatients meeting high risk criteria should have the *HRIIV Method B Form - Part 2* (CDC 57.133) completed if there was documented evidence in the medical record during that admission whether they were offered vaccine and the outcome of the vaccine offering: receipt of vaccine or declination due to medical contraindications or personal (non-medical) reasons. Table 2 provides examples of medical contraindications and patients' personal (non-medical) reasons for declination.

Definitions: (All box numbers refer to the boxes found on the *HRIIV Monthly Monitoring Form - Method B*, CDC 57.131.)
NHSN Inpatient: A patient whose date of admission to the healthcare facility and the date of discharge are <u>different</u> calendar days.

<u>Total number of patient admissions</u> (Box 1): During the month selected for surveillance, the count of all NHSN inpatients admitted to the facility.
<u>Total number of patients meeting high risk criteria for influenza vaccination</u> (Box 2): During the month selected for surveillance, the count of NHSN inpatients meeting one or more of the high

risk criteria listed in Table 1. Include in this count any patients who meet high risk criteria but who have been previously vaccinated during the current influenza season.

Total number of patients previously vaccinated during the current influenza season (Box 2 - optional): during the month selected for surveillance, the count of all NHSN inpatients who had previously received influenza vaccination during the current influenza season by either history or documentation.

Total number of patients meeting high risk criteria previously vaccinated during the current influenza season (Box 3): During the month selected for surveillance, the count of all NHSN inpatients meeting high risk criteria (Table 1) who had previously received influenza vaccination during the current influenza season by either history or documentation.

Refer to the NHSN Key Terms, Chapter 16, for other definitions.

Numerator and Denominator Data: Numerator data are reported on *HRIIV Method B Form – Part 1* (CDC 57.132) and *HRIIV Method B Form – Part 2* (CDC 57.133). In addition, some numerator and denominator data are reported on the *HRIIV Monthly Monitoring Form - Method B* (CDC 57.131).

Data Analysis: Data aggregated across the entire facility are stratified by time (e.g., month, influenza subtype, influenza season). Table 4 shows the formulas for metrics that can be calculated from Method B.

Table 4: Formulas for Metrics: Method B
Data come from three CDC forms:
    Boxes 1-3 of the *HRIIV Monthly Monitoring Form - Method B* (CDC 57.131)
    HRIIV Method B Form - Part 1 (CDC 57.132)
    HRIIV Method B Form - Part 2 (CDC 57.133)		

Metric		**Method B Formula (x 100)**
1	Prevalence rate for all high risk inpatients among all inpatient admissions	$\dfrac{\text{Total \# Part 1 Forms} + \text{Box 3}}{\text{Box 1}}$
2	Prevalence rate for high risk inpatients not previously vaccinated among all inpatients admissions	$\dfrac{\text{Total \# Part 1 Forms}}{\text{Box 1}}$

Table 4: Formulas for Metrics: Method B

Data come from three CDC forms:

> Boxes 1-3 of the *HRIIV Monthly Monitoring Form - Method B* (CDC 57.131)
> *HRIIV Method B Form - Part 1* (CDC 57.132)
> *HRIIV Method B Form - Part 2* (CDC 57.133)

	Metric	**Method B Formula (x 100)**
3	Prevalence rate of high risk inpatients previously vaccinated among total population of high risk inpatients	$$\frac{\text{Box 3}}{\text{Total \# Part 1 Forms} + \text{Box 3}}$$
4	Adherence rate for offering influenza vaccination to high risk inpatients among all eligible high risk inpatients	$$\frac{\text{Total \# Part 1 Forms "Vaccine offered" = "Yes"}}{\text{Total \# Part 1 Forms}}$$
5	Adherence rate for receiving influenza vaccination by high risk inpatients among all high risk inpatients	$$\frac{\text{Total \# Part 2 Forms "Vaccine administered" = "Yes"}}{\text{Total \# Part 1 Forms}}$$
6	Adherence rate for receiving influenza vaccination by high risk inpatients among all medically eligible high risk inpatients	$$\frac{\text{Total \# Part 2 Forms "Vaccine administered" = "Yes"}}{\text{Total \# Part 1 Forms} - \text{Total \# Part 2 Forms "Vaccine declined" = "Yes" (medical contraindications)}}$$
7	Adherence rate for receiving influenza vaccination by high risk inpatients among all medically eligible, willing high risk inpatients	$$\frac{\text{Total \# Part 2 Forms) "Vaccine administered" = "Yes"}}{\text{Total \# Part 1 Forms} - \text{Total \# Part 2 Forms "Vaccine declined" = "Yes"}}$$
8	Declination rate for high risk inpatients eligible for vaccination among all high risk inpatients offered vaccine	$$\frac{\text{Total \# Part 2 Forms) "Vaccine declined" = "Yes"}}{\text{Total \# Part 2 Forms}}$$
9	Declination rate due to personal (non-medical) reasons for high risk inpatients eligible for influenza vaccination among all high risk inpatients offered vaccine	$$\frac{\text{Total \# Part 2 Forms "Vaccine declined" = "Yes" (personal reasons)}}{\text{Total \# Part 2 Forms}}$$

Table 4: Formulas for Metrics: Method B	
Data come from three CDC forms:	
Boxes 1-3 of the *HRIIV Monthly Monitoring Form - Method B* (CDC 57.131)	
HRIIV Method B Form - Part 1 (CDC 57.132)	
HRIIV Method B Form - Part 2 (CDC 57.133)	

Metric	**Method B Formula (x 100)**
10 Declination rate due to medical contraindications for high risk inpatients eligible for influenza vaccination among all high risk inpatients offered vaccine	$$\frac{\text{Total \# Part 2 Forms "Vaccine declined" = "Yes" (medical contraindications)}}{\text{Total \# Part 2 Forms}}$$
11 Failure rate for offering vaccine to high risk inpatients medically eligible for influenza vaccination among all medically eligible high risk inpatients	$$\frac{\text{Total \# Part 1 Forms– Total Part 1 SS "Vaccine offered"= "Yes"}}{\text{Total \# Part 1 Forms – Total \# Part 2 Forms "Vaccine declined" = "Yes" (medical contraindications)}}$$
12 Prevalence rate of all inpatients previously vaccinated during the current influenza season among all inpatient admissions	$$\frac{\text{Box 2}}{\text{Box 1}}$$

Optional Standard Orders Form for HRIIV Data Collection

An optional Standing Orders Form (CDC 57.134) to provide for a single document that can be used as part of all inpatient medical records during the month(s) being reviewed is available as part of this module to assist with data collection. See Tables of Instructions, Table 18, for completion instructions.

References

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