

Sickle Cell Disease

Measure 2: Timeliness of Antibiotic Prophylaxis for Children with Sickle Cell Disease

Description

The percentage of children with a newborn screen positive for sickle cell disease (SCD) who received appropriate antibiotic prophylaxis by 90 days of age. A higher proportion indicates better performance as reflected by appropriate treatment.

Calculation

This measure requires state newborn screening program data and is calculated as follows:

The percentage of eligible children who received appropriate antibiotic prophylaxis by 90 days of age (numerator divided by denominator).

Definitions

Intake period	January 1 of the measurement year to April 1 of the year after the measurement year.
Antibiotic prophylaxis	Any type of penicillin or any type of erythromycin, two doses daily until confirmatory testing performed (see Table 2-A).

Table 2-A: Penicillins and Erythromycins for SCD Antibiotic Prophylaxis

Description	Prescription
Aminopenicillins	Amoxicillin Ampicillin
Beta-lactamase inhibitors	Amoxicillin-clavulanate
Macrolides	Azithromycin Erythromycin ethylsuccinate Erythromycin Erythromycin stearate Erythromycin estolate
Miscellaneous antibiotics	Erythromycin-sulfisoxazole Vancomycin
Natural penicillins	Penicillin V potassium

Eligible Population

Ages	Born during the measurement year.
Event/Diagnosis	Initial newborn screen positive for SCD (see Table 2-B).

Table 2-B: Codes to Identify Sickle Cell Disease

Condition Name	Hemoglobin Screening Result	ICD-9 Code(s)
Hb S beta-thalassemia	Hb F,S,A	282.41, 282.42
Hb SS-disease (sickle cell anemia)	Hb F,S	282.6, 282.61, 282.62
Hb SV-disease (unidentified variant)	Hb FSV	n/a

Specification

Denominator	The eligible population is drawn from all SCD cases reported in state newborn screening program records.
Numerator	Eligible children who received appropriate antibiotic prophylaxis at ≤ 90 days of age.

Exclusions

- Children who died within 90 days of birth.
- Children who were placed in the neonatal intensive care unit within 90 days of birth.
- Children with diagnosis in the state newborn screening program records indicating one of the sickle cell disease variants listed in Table 2-C are specifically excluded from the eligible population.

Table 2-C: Excluded Initial Hemoglobin Screening Results

Condition Name	Hemoglobin Screening Result	ICD-9 Code(s)
Hb beta zero-thalassemia	Hb F only	282.49
Hb C-disease	Hb F,C	282.7
Hb C beta-thalassemia	Hb F,C,A	282.49
Hb D beta-thalassemia	Hb F,D,A	282.49
Hb E beta-thalassemia	Hb F,E,A	282.49
Hb E-disease	Hb F,E	282.7
Hb H-disease	Hb F,H	282.49
Hb SC-disease	Hb F,S,C	282.63, 282.64
Hb SD-disease	Hb F,S,D	282.68, 282.69
Hb SE-disease	Hb F,S,E	282.68, 282.69

Hb C-carrier	Hb F,A,C	282.7
Hb D-carrier	Hb F,A,D	282.7
Hb E-carrier	Hb F,A,E	282.7
Hb S (sickle)-carrier	Hb F,A,S	282.5