Hematology

Measure #1: MDS and Acute Leukemias – Baseline Cytogenetic Testing Performed on Bone Marrow

This measure may be used as an Accountability measure.

Clinical Performance Measure

Numerator: Patients who had baseline cytogenetic testing* performed on bone marrow

*Baseline cytogenetic testing refers to testing that is performed at time of diagnosis or prior to initiating treatment for that diagnosis

Denominator: All patients aged 18 years and older with a diagnosis of MDS or an acute leukemia

Denominator Exclusions:

Documentation of medical reason(s) for not performing baseline cytogenetic testing

Documentation of patient reason(s) for not performing baseline cytogenetic testing

Documentation of system reason(s) for not performing baseline cytogenetic testing

Measure: Percentage of patients aged 18 years and older with a diagnosis of MDS or an acute leukemia who had baseline cytogenetic testing performed on bone marrow.

The following clinical recommendation statements are quoted <u>verbatim</u> form the referenced clinical guidelines and represent the evidence base for the measure:

For MDS:

Bone marrow aspiration and biopsy are needed to calculate the degree of hematopoietic cell maturation abnormalities and relative proportions, percentage of marrow blasts, marrow cellularity, presence or absence of ringed sideroblasts (and presence of iron per se), and fibrosis. Marrow cytogenetics should be obtained because they are of major importance for prognosis (Category 2A Recommendation). (NCCN¹)

The decision to treat patients having marrow blasts in the range of 20% to 30% with intensive AML therapy is thus complex and should be individualized. The clinician should consider such factors as age, antecedent factors, cytogenetics, comorbidities, pace of disease, and performance status (Category 2A Recommendation) (NCCN1)

A chromosome abnormality confirms the presence of a clonal disorder aiding the distinction between MDS and reactive causes of dysplasia, and in addition has major prognostic value. Cytogenetic analysis should therefore be performed for all patients in whom a bone marrow examination is indicated. (BCSH²)

For acute leukemias:

The initial evaluation has two objectives. The first is to identify the pathology causing the disease including factors such as prior toxic exposure or myelodysplasia, cytogenetics and molecular markers that may have an impact on chemoresponsiveness and propensity for relapse which may guide choice of treatment. The second objective focuses on patient-specific factors including comorbid conditions that may affect an individual's ability to tolerate chemotherapy (Category 2A Recommendation) (NCCN³)

Although cytogenetic information is usually unknown when treatment is initiated in patients with de novo AML, karyotype represents the single most important prognostic factor for predicting remission rate, relapse, and overall survival. Therefore, the importance of obtaining sufficient samples of marrow or peripheral blood blasts at diagnosis for this analysis cannot be overemphasized (Category 2A Recommendation) (NCCN³)

Rationale for the measure:

For MDS:

Cytogenetic testing is an integral component in calculating the International Prognostic Scoring System (IPSS) score.

Cytogenetic testing should be performed on the bone marrow of patients with MDS in order to guide treatment options, determine prognosis, and predict the likelihood of disease evolution to leukemia.

For acute leukemias:

In addition to establishing the type of acute leukemia, cytogenetic testing is essential to detect chromosomal abnormalities that have diagnostic, prognostic, and therapeutic significance.

Data capture and calculations:

Calculation for Performance

For performance purposes, this measure is calculated by creating a fraction with the following components: Numerator, Denominator, and Denominator Exclusions.

Numerator (A) Includes:

Patients who had baseline cytogenetic testing performed on bone marrow

Denominator (PD) Includes:

• All patients aged 18 years and older with a diagnosis of MDS or an acute leukemia

Denominator Exclusions (C) Include:

- Documentation of medical reason(s) for not performing baseline cytogenetic testing
- Documentation of patient reason(s) for not performing baseline cytogenetic testing
- Documentation of system reason(s) for not performing baseline cytogenetic testing

Performance Calculation

A (# of patients meeting measure criteria)

PD (# of patients in denominator) – C (# of patients with valid denominator exclusions)

Components for this measure are defined as:

Α	# of patients who had baseline cytogenetic testing performed on bone marrow
	# of patients who had baseline cytogenetic testing performed on bothe marrow
PD	# of patients aged 18 years and older with a diagnosis of MDS or an acute leukemia
С	# of patients with documented medical reason(s) for not performing baseline cytogenetic testing; # of
	patients with documented patient reason(s) for not performing baseline cytogenetic testing; # of
	patients with documented system reason(s) for not performing baseline cytogenetic testing

Calculation for Reporting

For reporting purposes, this measure is calculated by creating a fraction with the following components: <u>Reporting</u> Numerator and Reporting Denominator

Reporting Numerator includes each of the following instances:

- A. Patients who had baseline cytogenetic testing performed on bone marrow
- **C.** Patients who did <u>not</u> have baseline cytogenetic testing performed but for whom there is a <u>documented medical</u>, patient, or system reason for not doing so
- **D.** Patients who did <u>not</u> have baseline cytogenetic testing performed and there is <u>no</u> documented medical, patient, or system reason for not doing so

Reporting Denominator (RD) Includes:

Patients aged 18 years and older with a diagnosis of MDS or an acute leukemia

Reporting Calculation

A(# of patients meeting numerator criteria) + C(# of patients with valid exclusions) + D(# of patients NOT meeting numerator criteria)

RD (# of patients in denominator)

Components for this measure are defined as:

Α	# of patients who had baseline cytogenetic testing performed on bone marrow
С	# of patients who did <u>not</u> have baseline cytogenetic testing performed but for whom there is a
	documented medical reason or patient reason for not doing so
D	# of patients who did <u>not</u> have baseline cytogenetic testing performed and there is <u>no</u> documented
	reason for not doing so
RD	# of patients aged 18 years and older with a diagnosis of MDS or an acute leukemia

<u>Measure Specifications</u> – Measure #1: MDS and Acute Leukemias – Baseline Cytogenetic Testing Performed on Bone Marrow

Measure specifications will be provided for multiple data sources.

A. Administrative claims data

Administrative claims data collection requires users to identify the eligible population (denominator) and numerator using codes recorded on claims or billing forms (electronic or paper). Users report a rated based on all patients in a given practice for whom data are available and who meet the eligible population/denominator criteria.

(Note: The specifications listed below are those need for performance calculation.)

<u>Denominator (Eligible Population)</u>: All patients aged 18 years and older with a diagnosis of MDS or an acute leukemia

ICD-9 diagnosis codes: 204.00, 204.02, 205.00, 205.02, 206.00, 206.02, 207.00, 207.02, 207.20, 207.22, 208.00, 208.02, 238.72, 238.73, 238.74, 238.75

AND

CPT service codes: 99201, 99202, 99203, 99204, 99205, 99212, 99213, 99214, 99215, 99241, 99242, 99243, 99244, 99245

Denominator Exclusion:

Documentation of medical reason(s) for not performing baseline cytogenetic testing

• Append modifier to CPT Category II code: 3155F-1P

Documentation of patient reason(s) for not performing baseline cytogenetic testing

Append modifier to CPT Category II code: 3155F-2P

Documentation of system reason(s) for not performing baseline cytogenetic testing

Append modifier to CPT Category II code: 3155F-3P

Numerator: Patients who had baseline cytogenetic testing performed on bone marrow

- Report the CPT Category II code: 3155F Cytogenetic testing performed on bone marrow at time of diagnosis or prior to initiating treatment
- B. Electronic Health Record System (in development)
- C. Paper Medical Record (in development)