

Performance Measures

Oregon Prehospital EMS Data System
March 14, 2019

This document defines twelve performance measures for Oregon’s prehospital EMS data system.

Timeliness	2
T1. NEMSIS 3 PCR Submission Timeliness.....	3
Accuracy	4
Completeness	5
C1. NEMSIS 3 PCRs Submitted	6
C2. Agencies Submitting NEMSIS 3 PCRs—Transport.....	7
C3. Agencies Submitting NEMSIS 3 PCRs—Non-transport	8
C4. GCS Recorded—Trauma	9
C5. Scene and Injury Details Recorded—Transport Incidents	10
C6. Suspected Stroke Receiving Prehospital Stroke Assessment	11
Uniformity.....	12
U1. Agencies Submitting NEMSIS 2 PCRs—Transport	13
U2. Agencies Submitting NEMSIS 2 PCRs—Non-transport.....	14
Integration	15
I1. Licensing System Integration—Transport Agencies	16
I2. Licensing System Integration—Non-transport Agencies.....	17
I3. Hospital Outcomes Recorded—Trauma	18
I4. Hospital Outcomes Recorded—Non-trauma.....	19
Accessibility.....	20
A1. System Feedback Received.....	21

A note about record selection filters: All performance measures use the following filters, unless specified otherwise:

- *Records are marked complete ([Record Status] != 'In Progress')*
- *Date/Time filter is based on record creation date/time ([Incident Record Created] = ?)*

Timeliness

T1. NEMSIS 3 PCR Submission Timeliness

T1. NEMSIS 3 PCR Submission Timeliness

<i>Measure ID</i>	T1
<i>Topic</i>	Timeliness
<i>Measure Title</i>	NEMSIS 3 PCR Submission Timeliness
<i>Description</i>	The median number of hours that it takes for a NEMSIS version 3 patient care report to be received by the state data system (from the time the EMS unit was notified to respond to the call).
<i>Rationale</i>	Timely submission of patient care reports increases their usefulness, particularly for continuity of care (by making PCRs available to hospitals more quickly) and public health surveillance.
<i>Numerator</i>	Median number of hours from Unit Notified Date/Time to date/time that PCR is accepted by the state system
<i>Denominator</i>	N/A
<i>Filter</i>	N/A
<i>Pseudocode Numerator</i>	MEDIAN (HOURS ([Incident Record Created] – eTimes.03))
<i>Pseudocode Denominator</i>	N/A
<i>Pseudocode Filter</i>	N/A

Accuracy

No Accuracy measures have been selected.

For DOT reporting, it may be reasonable to report on performance measures where the state is already achieving 100% due to Schematron rules that prevent the state system from accepting inaccurate data. For example, the state system rejects records with date/time values that are out of order.

A potential future performance measure would look at records with the same incident date, patient name, and patient birthdate, and compare the Primary Impression. With the low number of agencies currently reporting, there are very few cases where the system has PCRs from different agencies for the same patient at the same incident.

Completeness

- C1. NEMSIS 3 PCRs Submitted
- C2. Agencies Submitting NEMSIS 3 PCRs—Transport
- C3. Agencies Submitting NEMSIS 3 PCRs—Non-transport
- C4. GCS Recorded—Trauma
- C5. Scene and Injury Details Recorded—Transport Incidents
- C6. Suspected Stroke Receiving Prehospital Stroke Assessment

C1. NEMSIS 3 PCRs Submitted

<i>Measure ID</i>	C1
<i>Topic</i>	Completeness
<i>Measure Title</i>	NEMSIS 3 PCRs Submitted
<i>Description</i>	The number of NEMSIS version 3 patient care reports received by the state data system.
<i>Rationale</i>	The number of PCRs submitted is a key measure of data system completeness. As more PCRs are submitted, the state data system more completely represents statewide EMS responses.
<i>Numerator</i>	Number of PCRs
<i>Denominator</i>	N/A
<i>Filter</i>	N/A
<i>Pseudocode Numerator</i>	COUNT (PatientCareReport)
<i>Pseudocode Denominator</i>	N/A
<i>Pseudocode Filter</i>	N/A

C2. Agencies Submitting NEMSIS 3 PCRs—Transport

<i>Measure ID</i>	C2
<i>Topic</i>	Completeness
<i>Measure Title</i>	Agencies Submitting NEMSIS 3 PCRs—Transport
<i>Description</i>	The percentage of licensed transporting agencies submitting NEMSIS version 3 data.
<i>Rationale</i>	As more transporting agencies submit data, the state data system more completely represents statewide patient transports.
<i>Numerator</i>	Number of agencies submitting PCRs
<i>Denominator</i>	Number of agencies
<i>Filter</i>	Agency Active Status is “Active” and Agency Unique State ID is four digits and dAgency.09 Primary Type of Service is “911 Response (Scene) with Transport Capability,” “Air Medical,” “Medical Transport (Convalescent, Interfacility Transfer Hospital and Nursing Home),” or “Critical Care (Ground)”
<i>Pseudocode Numerator</i>	COUNT (DISTINCT CONCAT (dAgency.01 , dAgency.02 , dAgency,04)) WHERE EXISTS (PatientCareReport)
<i>Pseudocode Denominator</i>	COUNT (DISTINCT CONCAT (dAgency.01 , dAgency.02 , dAgency,04))
<i>Pseudocode Filter</i>	[Agency Active Status] = 'Active' AND dAgency.01 LIKE ' ____ ' AND dAgency.09 in (9920001 , 9920005 , 9920013 , 9920019)

C3. Agencies Submitting NEMSIS 3 PCRs—Non-transport

<i>Measure ID</i>	C3
<i>Topic</i>	Completeness
<i>Measure Title</i>	Agencies Submitting NEMSIS 3 PCRs—Non-transport
<i>Description</i>	The percentage of registered non-transporting 911 scene response agencies submitting NEMSIS version 3 data
<i>Rationale</i>	As more non-transporting agencies submit data, the state data system more completely represents the statewide activity of all EMS responses.
<i>Numerator</i>	Number of agencies submitting PCRs
<i>Denominator</i>	Number of agencies
<i>Filter</i>	dAgency.09 Primary Type of Service is “911 Response (Scene) without Transport Capability,” “ALS Intercept,” “Hazmat,” “Rescue,” or “Community Paramedicine”
<i>Pseudocode Numerator</i>	COUNT (DISTINCT CONCAT (dAgency.01 , dAgency.02 , dAgency,04) WHERE EXISTS (PatientCareReport)
<i>Pseudocode Denominator</i>	COUNT (DISTINCT CONCAT (dAgency.01 , dAgency.02 , dAgency,04))
<i>Pseudocode Filter</i>	[Agency Active Status] = 'Active' AND dAgency.01 LIKE '____' AND dAgency.09 in (9920003 , 9920007 , 9920011 , 9920015 , 9920017)

C4. GCS Recorded—Trauma

<i>Measure ID</i>	C4
<i>Topic</i>	Completeness
<i>Measure Title</i>	GCS Recorded—Trauma
<i>Description</i>	Where CDC trauma triage criteria is not blank and a patient is treated, the percentage of NEMSIS 3 patient care reports with at least one full non-blank Glasgow Coma Score recorded, including components (eye, verbal, motor) and qualifier
<i>Rationale</i>	GCS is a reliable and objective measure of the condition of a trauma patient.
<i>Numerator</i>	The number of patient care reports with at least one set of vital signs where all Glasgow Coma Score components (eVitals.19–23) are non-blank
<i>Denominator</i>	Number of PCRs
<i>Filter</i>	eInjury.03 Trauma Center Criteria or eInjury.04 Vehicular, Pedestrian, or Other Injury Risk Factor is not blank and eDisposition.12 Incident/Patient Disposition includes “Patient Treated”
<i>Pseudocode Numerator</i>	COUNT (PatientCareReport) WHERE EXISTS (eVitals.19 IS NOT NULL and eVitals.20 IS NOT NULL AND eVitals.21 IS NOT NULL AND eVitals.22 IS NOT NULL AND eVitals.23 IS NOT NULL)
<i>Pseudocode Denominator</i>	COUNT (PatientCareReport)
<i>Pseudocode Filter</i>	(eInjury.03 IS NOT NULL OR eInjury.04 IS NOT NULL) AND eDisposition.12 IN (4212027 , 4212029 , 4212031 , 4212033 , 4212035 , 4212037)

C5. Scene and Injury Details Recorded—Transport Incidents

<i>Measure ID</i>	C5
<i>Topic</i>	Completeness
<i>Measure Title</i>	Scene and Injury Details Recorded—Transport Incidents
<i>Description</i>	Where the cause of injury is a transport incident, the average percentage of selected scene-, situation-, injury-, and disposition-related elements with a non-blank value per NEMSIS 3 patient care report
<i>Rationale</i>	Scene and injury information are important for traffic safety analysis.
<i>Numerator</i>	<p>Number of the following elements with a non-blank value, divided by the number of elements (17):</p> <ul style="list-style-type: none"> • eScene.09 Incident Location Type • eScene.11 Scene GPS Location • eScene.15 Incident Street Address • eScene.17 Incident City • eScene.18 Incident State • eScene.19 Incident ZIP Code • eScene.20 Scene Cross Street or Directions • eScene.21 Incident County • eSituation.14 Work-Related Illness/Injury • eInjury.02 Mechanism of Injury • eInjury.03 Trauma Center Criteria • eInjury.04 Vehicular, Pedestrian, or Other Injury Risk Factor • eInjury.05 Main Area of the Vehicle Impacted by the Collision • eInjury.06 Location of Patient in Vehicle • eInjury.07 Use of Occupant Safety Equipment • eInjury.08 Airbag Deployment • eDisposition.21 Type of Destination
<i>Denominator</i>	Number of NEMSIS 3 PCRs
<i>Filter</i>	eInjury.01 Cause of Injury is a transport incident (ICD-10 code starts with “V”)
<i>Pseudocode Numerator</i>	SUM (eScene.09 IS NOT NULL + eScene.11 IS NOT NULL + eScene.15 IS NOT NULL + eScene.17 IS NOT NULL + eScene.18 IS NOT NULL + eScene.19 IS NOT NULL + eScene.20 IS NOT NULL + eScene.21 IS NOT NULL + eSituation.14 IS NOT NULL + eInjury.02 IS NOT NULL + eInjury.03 IS NOT NULL + eInjury.04 IS NOT NULL + eInjury.05 IS NOT NULL + eInjury.06 IS NOT NULL + eInjury.07 IS NOT NULL + eInjury.08 IS NOT NULL + eDisposition.21 IS NOT NULL) / 17
<i>Pseudocode Denominator</i>	COUNT (PatientCareReport)
<i>Pseudocode Filter</i>	eInjury.01 LIKE 'V%'

C6. Suspected Stroke Receiving Prehospital Stroke Assessment

<i>Measure ID</i>	C6
<i>EMS Compass ID</i>	Stroke-01
<i>Topic</i>	Completeness
<i>Measure Title</i>	Suspected Stroke Receiving Prehospital Stroke Assessment
<i>Description</i>	Where Type of Service Requested is “911 Response (Scene)” and Primary or Secondary Impression is stroke-related, the percentage of NEMSIS 3 patient care reports with at least one Stroke Scale Score or Stroke Scale Type recorded
<i>Rationale</i>	Stroke assessments using prehospital stroke assessment tools can screen for stroke and affect patient destinations.
<i>Numerator</i>	The number of patient care reports with at least one set of vital signs where Stroke Scale Score or Stroke Scale Type is non-blank
<i>Denominator</i>	Number of PCRs
<i>Filter</i>	eResponse.05 Type of Service Requested is “911 Response (Scene)” and eSituation.11 Provider’s Primary Impression or eSituation.12 Provider’s Secondary Impressions is stroke-related
<i>Pseudocode Numerator</i>	COUNT (PatientCareReport) WHERE EXISTS (eVitals.29 IS NOT NULL or eVitals.30 IS NOT NULL)
<i>Pseudocode Denominator</i>	COUNT (PatientCareReport)
<i>Pseudocode Filter</i>	(eSituation.11 MATCHES /^(I63) (G45)/ OR eSituation.12 MATCHES /^(I63) (G45)/) AND eResponse.05 = 2205001

Uniformity

U1. Agencies Submitting NEMSIS 2 PCRs—Transport

U2. Agencies Submitting NEMSIS 2 PCRs—Non-transport

U1. Agencies Submitting NEMSIS 2 PCRs—Transport

<i>Measure ID</i>	U1
<i>Topic</i>	Uniformity
<i>Measure Title</i>	Agencies Submitting NEMSIS 2 PCRs
<i>Description</i>	The number of licensing transporting agencies submitting NEMSIS version 2 data
<i>Rationale</i>	All agencies should transition to NEMSIS 3 reporting to improve uniformity. The number of agencies reporting NEMSIS 2 data should reduce to zero.
<i>Numerator</i>	Number of agencies submitting PCRs
<i>Denominator</i>	N/A
<i>Filter</i>	NEMSIS 2 data system
<i>Pseudocode Numerator</i>	COUNT (DISTINCT CONCAT (D01_01 , D01_03))
<i>Pseudocode Denominator</i>	N/A
<i>Pseudocode Filter</i>	EXISTS (Record) AND D01_05 in (5610 , 5630 , 5650 , 5680)

U2. Agencies Submitting NEMSIS 2 PCRs—Non-transport

<i>Measure ID</i>	U2
<i>Topic</i>	Uniformity
<i>Measure Title</i>	Agencies Submitting NEMSIS 2 PCRs
<i>Description</i>	The number of registered non-transporting 911 scene response agencies submitting NEMSIS version 2 data
<i>Rationale</i>	All agencies should transition to NEMSIS 3 reporting to improve uniformity. The number of agencies reporting NEMSIS 2 data should reduce to zero.
<i>Numerator</i>	Number of agencies submitting PCRs
<i>Denominator</i>	N/A
<i>Filter</i>	NEMSIS 2 data system
<i>Pseudocode Numerator</i>	COUNT (DISTINCT CONCAT (D01_01 , D01_03))
<i>Pseudocode Denominator</i>	N/A
<i>Pseudocode Filter</i>	EXISTS (Record) AND D01_05 in (5620 , 5640 , 5660 , 5670)

Integration

- I1. Licensing System Integration—Transport Agencies
- I2. Licensing System Integration—Non-transport Agencies
- I3. Hospital Outcomes Recorded—Trauma
- I4. Hospital Outcomes Recorded—Non-trauma

I1. Licensing System Integration—Transport Agencies

<i>Measure ID</i>	I1
<i>Topic</i>	Integration
<i>Measure Title</i>	Licensing System Integration—Transport Agencies
<i>Description</i>	The percentage of licensed transporting agencies for which licensing data has been transmitted from the licensing system to the prehospital system
<i>Rationale</i>	Integration between the licensing system and the NEMSIS 3 data system ensures that information about licensed transporting agencies remains consistent with official licensing records.
<i>Numerator</i>	Number of agencies for which licensing data has been transmitted from the licensing system to the prehospital system
<i>Denominator</i>	Number of agencies
<i>Filter</i>	Licensing System: dAgency.09 Primary Type of Service is 911 “Response (Scene) with Transport Capability,” “Air Medical,” “Medical Transport (Convalescent, Interfacility Transfer Hospital and Nursing Home),” or “Critical Care (Ground)”
<i>Pseudocode Numerator</i>	COUNT (DISTINCT CONCAT (dAgency.01 , dAgency.02 , dAgency,04)) WHERE EXISTS [Sync Log]
<i>Pseudocode Denominator</i>	COUNT (DISTINCT CONCAT (dAgency.01 , dAgency.02 , dAgency,04))
<i>Pseudocode Filter</i>	dAgency.09 in (9920001 , 9920005 , 9920013 , 9920019)

I2. Licensing System Integration—Non-transport Agencies

<i>Measure ID</i>	I2
<i>Topic</i>	Integration
<i>Measure Title</i>	Licensing System Integration—Non-transport Agencies
<i>Description</i>	The percentage of registered non-transporting 911 scene response agencies for which licensing data has been transmitted from the licensing system to the prehospital system
<i>Rationale</i>	Integration between the licensing system and the NEMSIS 3 data system ensures that information about registered non-transporting agencies remains consistent with registration records.
<i>Numerator</i>	Number of agencies for which licensing data has been transmitted from the licensing system to the prehospital system
<i>Denominator</i>	Number of agencies
<i>Filter</i>	Licensing System: dAgency.09 Primary Type of Service is “911 Response (Scene) without Transport Capability,” “ALS Intercept,” “Hazmat,” “Rescue,” or “Community Paramedicine”
<i>Pseudocode Numerator</i>	COUNT (DISTINCT CONCAT (dAgency.01 , dAgency.02 , dAgency,04)) WHERE EXISTS [Sync Log]
<i>Pseudocode Denominator</i>	COUNT (DISTINCT CONCAT (dAgency.01 , dAgency.02 , dAgency,04))
<i>Pseudocode Filter</i>	dAgency.09 in (9920003 , 9920007 , 9920011 , 9920015 , 9920017)

13. Hospital Outcomes Recorded—Trauma

<i>Measure ID</i>	I3
<i>Topic</i>	Integration
<i>Measure Title</i>	Hospital Outcomes Recorded—Trauma
<i>Description</i>	Where CDC trauma triage criteria <u>is not blank</u> and a patient is transported by EMS, the percentage of NEMSIS 3 patient care reports last modified in a given month with Emergency Department Disposition or Hospital Disposition recorded
<i>Rationale</i>	It is important for EMS to receive hospital outcome information in order to evaluate performance and improve patient care.
<i>Numerator</i>	Number of PCRs with a non-blank value in eOutcome.01 Emergency Department Disposition or eOutcome.02 Hospital Disposition
<i>Denominator</i>	Number of NEMSIS 3 PCRs
<i>Filter</i>	eInjury.03 Trauma Center Criteria or eInjury.04 Vehicular, Pedestrian, or Other Injury Risk Factor <u>is not blank</u> and eDisposition.12 Incident/Patient Disposition is “Patient Treated, Transported by this EMS Unit” Date/Time filter is based on record modification date/time ([Incident Record Modified] = ?)
<i>Pseudocode Numerator</i>	COUNT (eOutcome.01 IS NOT NULL OR eOutcome.02 IS NOT NULL)
<i>Pseudocode Denominator</i>	COUNT (PatientCareReport)
<i>Pseudocode Filter</i>	(eInjury.03 IS NOT NULL OR eInjury.04 IS NOT NULL) AND eDisposition.12 = 4212033

I4. Hospital Outcomes Recorded—Non-trauma

<i>Measure ID</i>	I4
<i>Topic</i>	Integration
<i>Measure Title</i>	Hospital Outcomes Recorded—Non-trauma
<i>Description</i>	Where CDC trauma triage criteria <u>are blank</u> and a patient is transported by EMS, the percentage of NEMSIS 3 patient care reports last modified in a given month with Emergency Department Disposition or Hospital Disposition recorded
<i>Rationale</i>	It is important for EMS to receive hospital outcome information in order to evaluate performance and improve patient care.
<i>Numerator</i>	Number of PCRs with a non-blank value in eOutcome.01 Emergency Department Disposition or eOutcome.02 Hospital Disposition
<i>Denominator</i>	Number of NEMSIS 3 PCRs
<i>Filter</i>	eInjury.03 Trauma Center Criteria and eInjury.04 Vehicular, Pedestrian, or Other Injury Risk Factor <u>are blank</u> and eDisposition.12 Incident/Patient Disposition is “Patient Treated, Transported by this EMS Unit” Date/Time filter is based on record modification date/time ([Incident Record Modified] = ?)
<i>Pseudocode Numerator</i>	COUNT (eOutcome.01 IS NOT NULL OR eOutcome.02 IS NOT NULL)
<i>Pseudocode Denominator</i>	COUNT (PatientCareReport)
<i>Pseudocode Filter</i>	(eInjury.03 IS NULL AND eInjury.04 IS NULL) AND eDisposition.12 = 4212033

Accessibility

A1. System Feedback Received

A1. System Feedback Received

<i>Measure ID</i>	A1
<i>Topic</i>	Accessibility
<i>Measure Title</i>	System Feedback Received
<i>Description</i>	The number of data system feedback submissions received by the state data system via NEMSIS 3 patient care reports.
<i>Rationale</i>	It is important for the state to provide a formal feedback mechanism so users of the data system can report issues affecting the usability of the system.
<i>Numerator</i>	Number of data system feedback submissions
<i>Denominator</i>	N/A
<i>Filter</i>	System feedback is recorded Record status filter is not used
<i>Pseudocode Numerator</i>	COUNT ([System Feedback])
<i>Pseudocode Denominator</i>	N/A
<i>Pseudocode Filter</i>	[System Feedback] IS NOT NULL