Performance Measures

Oregon Prehospital EMS Data System
June 15, 2020

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

Definitions:

- *EMS: emergency medical services*
- *NEMSIS: National Emergency Medical Services Information System*
- *PCR: patient care report*

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. PCR Submission Timeliness

T1. PCR Submission Timeliness

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

Completeness

C1. PCRs Submitted

C2. Agencies Submitting PCRs—Transport

C3. Agencies Submitting PCRs—Non-transport

C4. GCS Recorded—Trauma

C5. Scene and Injury Details Recorded—Transport Incidents

C6. Suspected Stroke Receiving Prehospital Stroke Assessment

C1. PCRs Submitted

Measure ID	C1
Topic	Completeness
Measure Title	PCRs Submitted
Description	The number of PCRs received by the state data system.
Rationale	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.
Numerator	Number of PCRs
Denominator	N/A
Filter	N/A
Pseudocode Numerator	COUNT (PatientCareReport)
Pseudocode Denominator	N/A
Pseudocode Filter	N/A

C2. Agencies Submitting PCRs—Transport

Measure ID	C2
Topic	Completeness
Measure Title	Agencies Submitting PCRs—Transport
Description	The percentage of licensed transporting agencies submitting PCR data
Rationale	As more transporting agencies submit data, the state data system more completely represents statewide patient transports.
Numerator	Number of agencies submitting PCRs
Denominator	Number of agencies
Filter	Agency Active Status is "Active" and Agency Unique State ID is four digits and 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)"
Pseudocode Numerator	COUNT (DISTINCT CONCAT (dAgency.01 , dAgency.02 , dAgency,04)) WHERE EXISTS (PatientCareReport)
Pseudocode Denominator	COUNT (DISTINCT CONCAT (dAgency.01 , dAgency.02 , dAgency,04))
Pseudocode Filter	[Agency Active Status] = 'Active' AND dAgency.01 MATCHES /^\d{4}$/ AND dAgency.09 in (9920001 , 9920005 , 9920013 , 9920019)

C3. Agencies Submitting PCRs—Non-transport

Measure ID	C3
Topic	Completeness
Measure Title	Agencies Submitting PCRs—Non-transport
Description	The percentage of registered non-transporting 911 scene response agencies submitting PCR data
Rationale	As more non-transporting agencies submit data, the state data system more completely represents the statewide activity of all EMS responses.
Numerator	Number of agencies submitting PCRs
Denominator	Number of agencies
Filter	dAgency.09 Primary Type of Service is "911 Response (Scene) without Transport Capability," "ALS Intercept," "Hazmat," "Rescue," or "Community Paramedicine"
Pseudocode Numerator	COUNT (DISTINCT CONCAT (dAgency.01 , dAgency.02 , dAgency,04)) WHERE EXISTS (PatientCareReport)
Pseudocode Denominator	COUNT (DISTINCT CONCAT (dAgency.01 , dAgency.02 , dAgency,04))
Pseudocode Filter	[Agency Active Status] = 'Active' AND dAgency.01 MATCHES /^\d{4}$/ AND dAgency.09 in (9920003 , 9920007 , 9920011 , 9920015 , 9920017)

C4. GCS Recorded—Trauma

Measure ID	C4
Topic	Completeness
Measure Title	GCS Recorded—Trauma
Description	Where CDC trauma triage criteria is not blank and a patient is treated, the percentage of PCRs with at least one full non-blank Glasgow Coma Score recorded, including components (eye, verbal, motor) and qualifier
Rationale	GCS is a reliable and objective measure of the condition of a trauma patient.
Numerator	The number of PCRs with at least one set of vital signs where all Glasgow Coma Score components (eVitals.19–23) are non-blank
Denominator	Number of PCRs
Filter	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"
Pseudocode Numerator	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)
Pseudocode Denominator	COUNT (PatientCareReport)
Pseudocode Filter	(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

Measure ID	C5
Topic	Completeness
Measure Title	Scene and Injury Details Recorded—Transport Incidents
Description	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 PCR
Rationale	Scene and injury information are important for traffic safety analysis.

Numerator Number of the following elements with a non-blank value, divided by the number of elements (17):

- 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

Denominator	Number of PCRs
Filter	eInjury.01 Cause of Injury is a transport incident (ICD-10 code starts with "V")
Pseudocode Numerator	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
Pseudocode Denominator	COUNT (PatientCareReport)
Pseudocode Filter	eInjury.01 LIKE 'V%'

C6. Suspected Stroke Receiving Prehospital Stroke Assessment (moved)

This measure was moved to the Oregon EMS Performance Measures and re-specified to match the National EMS Quality Alliance performance measure Stroke-01 Suspected Stroke Receiving Prehospital Stroke Assessment.

C7. Patient Age Recorded

Measure ID	C7
Topic	Completeness
Measure Title	Patient Age Recorded
Description	Where a patient is treated, the percentage of PCRs with patient age (including age units) recorded
Rationale	Patient age impacts assessment and treatment decisions, especially with pediatric and elderly patients.
Numerator	Number of PCRs where ePatient.15 Age and ePatient.16 Age Units are non-blank
Denominator	Number of PCRs
Filter	eDisposition.12 Incident/Patient Disposition begins with "Patient"
Pseudocode Numerator	COUNT (PatientCareReport) WHERE ePatient.15 IS NOT NULL and ePatient.16 IS NOT NULL
Pseudocode Denominator	COUNT (PatientCareReport)
Pseudocode Filter	eDisposition.12 IN (4212013 , 4212015 , 4212017 , 4212019 , 4212021 , 4212023 , 4212025 , 4212027 , 4212029 , 4212031 , 4212033 , 4212035 , 4212037)

C8. Primary Impression Recorded

Measure ID	C8
Topic	Completeness
Measure Title	Primary Impression Recorded
Description	Where a patient is treated, the percentage of PCRs with provider's primary impression recorded
Rationale	Provider's primary impression is a key data element for understanding the reason for an EMS call.
Numerator	Number of PCRs where eSituation.11 Provider's Primary Impression is non-blank
Denominator	Number of PCRs
Filter	eDisposition.12 Incident/Patient Disposition begins with "Patient Treated" or includes "-Resuscitation Attempted"
Pseudocode Numerator	COUNT (PatientCareReport) WHERE eSituation.11 IS NOT NULL
Pseudocode Denominator	COUNT (PatientCareReport)
Pseudocode Filter	eDisposition.12 IN (4212017 , 4212019 , 4212027 , 4212029 , 4212031 , 4212033 , 4212035 , 4212037)

C9. Additional Response Mode Descriptors Recorded

Measure ID	C9
Topic	Completeness
Measure Title	Additional Response Mode Descriptors Recorded
Description	Where the type of service requested is a 911 response to scene, the percentage of PCRs with additional response mode descriptors recorded
Rationale	Response mode descriptors are important for evaluating the use of lights and sirens during the response to 911 calls, which is associated with increased safety risks.
Numerator	Number of PCRs where eResponse.24 Additional Response Mode Descriptors is non-blank
Denominator	Number of PCRs
Filter	eResponse.05 Type of Service Requested is "911 Response (Scene)"
Pseudocode Numerator	COUNT (PatientCareReport) WHERE eResponse.24 IS NOT NULL
Pseudocode Denominator	COUNT (PatientCareReport)
Pseudocode Filter	eResponse.05 = ' 2205001'

C10. Additional Transport Mode Descriptors Recorded

Measure ID	C10
Topic	Completeness
Measure Title	Additional Transport Mode Descriptors Recorded
Description	Where the type of service requested is a 911 transport to scene and the responding EMS unit transports a patient, the percentage of PCRs with additional transport mode descriptors recorded
Rationale	Transport mode descriptors are important for evaluating the use of lights and sirens during the transport of patients on 911 responses, which is associated with increased safety risks.
Numerator	Number of PCRs where eDisposition.18 Additional Transport Mode Descriptors is non-blank
Denominator	Number of PCRs
Filter	eResponse.05 Type of Service Requested is "911 Transport (Scene)" AND eDisposition.12 Incident/Patient Disposition is "Patient Treated, Transported by this EMS Unit"
Pseudocode Numerator	COUNT (PatientCareReport) WHERE eDisposition.18 IS NOT NULL
Pseudocode Denominator	COUNT (PatientCareReport)
Pseudocode Filter	eResponse.05 = ' 2205001' AND eDisposition.12 = '4212033'

C11. Personal Protective Equipment Usage Recorded

Measure ID	C11
Topic	Completeness
Measure Title	Personal Protective Equipment Usage Recorded
Description	In patient contacts with possible infectious disease, the percentage of PCRs with provider personal protective equipment usage recorded
Rationale	Information about personal protective equipment usage is important for evaluating the risk exposure of EMS personnel to infectious diseases.
Numerator	Number of PCRs where eOther.03 Personal Protective Equipment Used is non-blank
Denominator	Number of PCRs
Filter	eSituation.11 Provider's Primary Impression or eSituation.12 Provider's Secondary Impressions match codes indicating possible infectious disease AND eDisposition.12 Incident/Patient Disposition begins with "Patient"
Pseudocode Numerator	COUNT (PatientCareReport) WHERE eOther.03 IS NOT NULL
Pseudocode Denominator	COUNT (PatientCareReport)
Pseudocode Filter	(eSituation.11, eSituation.12) MATCHES /^B97.2|J00|J09|J10|J11|J12|J15|J17|J18|J20|J21|J22|J80|R50.9|Z20.828|Z20.9/ AND eDisposition.12 IN (4212013 , 4212015 , 4212017 , 4212019 , 4212021 , 4212023 , 4212025 , 4212027 , 4212029 , 4212031 , 4212033 , 4212035 , 4212037)

Uniformity

No Uniformity measures are currently selected. Measures U1 and U2 are retired since their goals have been achieved.

Future performance measures will look at the proportion of records (or agencies) using NEMSIS version 3.5, once version 3.5 is available.

U1. Agencies Submitting NEMSIS 2 PCRs—Transport (retired)

U2. Agencies Submitting NEMSIS 2 PCRs—Non-transport (retired)

U1. Agencies Submitting NEMSIS 2 PCRs—Transport (retired)

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

This measure is retired. The goal (0) was met in 2019.

U2. Agencies Submitting NEMSIS 2 PCRs—Non-transport (retired)

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

This measure is retired. The goal (0) was met in 2019.

Integration

Measures I1, I2, and I4 are suspended until projects are in place to work on them.

I1. Licensing System Integration—Transport Agencies (suspended)

I2. Licensing System Integration—Non-transport Agencies (suspended)

I3. Hospital Outcomes Recorded—Trauma

I4. Hospital Outcomes Recorded—Non-trauma (suspended)

I1. Licensing System Integration—Transport Agencies (suspended)

Measure ID	I1
Topic	Integration
Measure Title	Licensing System Integration—Transport Agencies
Description	The percentage of licensed transporting agencies for which licensing data has been transmitted from the licensing system to the prehospital system
Rationale	Integration between the licensing system and the prehospital EMS data system ensures that information about licensed transporting agencies remains consistent with official licensing records.
Numerator	Number of agencies for which licensing data has been transmitted from the licensing system to the prehospital system
Denominator	Number of agencies
Filter	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)"
Pseudocode Numerator	COUNT (DISTINCT CONCAT (dAgency.01 , dAgency.02 , dAgency,04)) WHERE EXISTS [Sync Log]
Pseudocode Denominator	COUNT (DISTINCT CONCAT (dAgency.01 , dAgency.02 , dAgency,04))
Pseudocode Filter	dAgency.09 in (9920001 , 9920005 , 9920013 , 9920019)

This measure is suspended until a project is in place to work on it.

I2. Licensing System Integration—Non-transport Agencies (suspended)

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

This measure is suspended until a project is in place to work on it.

I3. Hospital Outcomes Recorded—Trauma

Measure ID	I3
Topic	Integration
Measure Title	Hospital Outcomes Recorded—Trauma
Description	Where CDC trauma triage criteria <u>are not blank</u> and a patient is transported by EMS, the percentage of PCRs last modified in a given month with Emergency Department Disposition or Hospital Disposition recorded
Rationale	It is important for EMS to receive hospital outcome information in order to evaluate performance and improve patient care.
Numerator	Number of PCRs with a non-blank value in eOutcome.01 Emergency Department Disposition or eOutcome.02 Hospital Disposition
Denominator	Number of PCRs
Filter	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] = ?)
Pseudocode Numerator	COUNT (eOutcome.01 IS NOT NULL OR eOutcome.02 IS NOT NULL)
Pseudocode Denominator	COUNT (PatientCareReport)
Pseudocode Filter	(eInjury.03 IS NOT NULL OR eInjury.04 IS NOT NULL) AND eDisposition.12 = 4212033

I4. Hospital Outcomes Recorded—Non-trauma (suspended)

Measure ID   I4

Topic   Integration

Measure Title   Hospital Outcomes Recorded—Non-trauma

Description   Where CDC trauma triage criteria are blank and a patient is transported by EMS, the percentage of PCRs last modified in a given month with Emergency Department Disposition or Hospital Disposition recorded

Rationale   It is important for EMS to receive hospital outcome information in order to evaluate performance and improve patient care.

Numerator   Number of PCRs with a non-blank value in eOutcome.01 Emergency Department Disposition or eOutcome.02 Hospital Disposition

Denominator   Number of PCRs

Filter   eInjury.03 Trauma Center Criteria and eInjury.04 Vehicular, Pedestrian, or Other Injury Risk Factor are blank 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] = ?)

Pseudocode Numerator COUNT (eOutcome.01 IS NOT NULL OR eOutcome.02 IS NOT NULL)

Pseudocode Denominator COUNT (PatientCareReport)

Pseudocode Filter   (eInjury.03 IS NULL AND eInjury.04 IS NULL) AND eDisposition.12 = 4212033

This measure is suspended until a project is in place to work on it.

Accessibility

A1. System Feedback Received

A1. System Feedback Received

Measure ID   A1

Topic   Accessibility

Measure Title   System Feedback Received

Description   The number of data system feedback submissions received by the state data system via PCRs

Rationale   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.

Numerator   Number of data system feedback submissions

Denominator   N/A

Filter   System feedback is recorded
                         Record status filter is not used

Pseudocode Numerator   COUNT ([System Feedback])

Pseudocode Denominator N/A

Pseudocode Filter   [System Feedback] IS NOT NULL

A2. Agencies Receiving Quarterly Feedback Report

Measure ID   A2

Topic   Accessibility

Measure Title   Agencies Receiving Quarterly Feedback Report

Description   The percentage of reporting EMS agencies receiving a feedback report from
                          the state each quarter

Rationale   It is important for the state to provide feedback to agencies so that agencies
                         can improve data quality.

Numerator   Number of agencies to which a feedback report was sent by the state

Denominator   Number of agencies submitting data

Filter   Agency Active Status is "Active" and Agency Unique State ID is four digits

*Pseudocode   COUNT ([Feedback Report])
Numerator*

*Pseudocode   COUNT (DISTINCT CONCAT (dAgency.01 , dAgency.02 , dAgency,04))
Denominator*   WHERE EXISTS (PatientCareReport)

Pseudocode Filter   [Agency Active Status] = 'Active' AND dAgency.01 MATCHES /^\d{4}$/

This measure is tracked quarterly.