Agency for Healthcare Research and Quality
Advancing Excellence in Health Care

NATIONAL QUALITY MEASURES CLEARINGHOUSE

General

Title

Acute respiratory failure: percentage of patients undergoing mechanical ventilation (MV) with daily spontaneous breathing trials.

Source(s)

Quality indicators in critically ill patients. Madrid (Spain): Spanish Society of Intensive and Critical Care and Units Coronary (SEMICYUC); 2011. 185 p.

Measure Domain

Primary Measure Domain

Clinical Quality Measures: Process

Secondary Measure Domain

Does not apply to this measure

Brief Abstract

Description

This measure is used to assess the percentage of patients undergoing mechanical ventilation (MV) with daily spontaneous breathing trials.

Rationale

The aim of intensive care medicine is to provide critical patients with the healthcare that they need, ensuring the quality and safety of care. Intensive care medicine is one of the principal components of modern healthcare systems. There is an increasing demand for this resource, which involves high costs.

The quality of care has gradually come to be the central focus of healthcare, and in recent years patient safety has come to represent one of the key aspects of quality. In the case of intensive care medicine, this interest in quality is even more evident, not only because of its social and economic impact, but also because some of the dimensions involved in the quality of care of critical patients take on greater importance: critical patients are more vulnerable, access to critical care is more limited so efforts to

distribute resources equitably are more important, scant scientific evidence is available, and the efficiency is limited.

The availability of a protocol for weaning from mechanical ventilation (MV) and conducting daily spontaneous breathing trials in patients undergoing MV significantly shortens the total time under MV and reduces the risks associated with MV.

The authors consider it more practical to measure the indicator using "patients with MV" as the unit of analysis rather than "days of MV" because weaning trials are not usually registered in information technology (IT) systems, and this approach facilitates the application of the exclusion criteria. They recommend evaluating whether the trial has been performed daily in patients meeting the inclusion criteria (conducting trials on greater than 80% of days is considered acceptable).

Evidence for Rationale

Esteban A, Frutos F, Tobin MJ, AlÃa I, Solsona JF, ValverdÃº I, FernÃindez R, de la Cal MA, Benito S, TomÃis R, et al. A comparison of four methods of weaning patients from mechanical ventilation. Spanish Lung Failure Collaborative Group. N Engl J Med. 1995 Feb 9;332(6):345-50.

Girard TD, Kress JP, Fuchs BD, Thomason JW, Schweickert WD, Pun BT, Taichman DB, Dunn JG, Pohlman AS, Kinniry PA, Jackson JC, Canonico AE, Light RW, Shintani AK, Thompson JL, Gordon SM, Hall JB, Dittus RS, Bernard GR, Ely EW. Efficacy and safety of a paired sedation and ventilator weaning protocol for mechanically ventilated patients in intensive care (Awakening and Breathing Controlled trial): a randomised controlled trial. Lancet. 2008 Jan 12;371(9607):126-34. PubMed

Quality indicators in critically ill patients. Madrid (Spain): Spanish Society of Intensive and Critical Care and Units Coronary (SEMICYUC); 2011. 185 p.

Robertson TE, Sona C, Schallom L, Buckles M, Cracchiolo L, Schuerer D, Coopersmith CM, Song F, Buchman TG. Improved extubation rates and earlier liberation from mechanical ventilation with implementation of a daily spontaneous-breathing trial protocol. J Am Coll Surg. 2008 Mar;206(3):489-95. PubMed

Primary Health Components

Acute respiratory failure; mechanical ventilation (MV); spontaneous breathing trials

Denominator Description

Total number of patients undergoing mechanical ventilation (MV) (see the related "Denominator Inclusions/Exclusions" field)

Numerator Description

Number of patients undergoing mechanical ventilation (MV) with daily spontaneous breathing trials (see the related "Numerator Inclusions/Exclusions" field)

Evidence Supporting the Measure

Type of Evidence Supporting the Criterion of Quality for the Measure

A formal consensus procedure, involving experts in relevant clinical, methodological, public health and organizational sciences

One or more research studies published in a National Library of Medicine (NLM) indexed, peer-reviewed journal

Additional Information Supporting Need for the Measure

Unspecified

Extent of Measure Testing

Unspecified

State of Use of the Measure

State of Use

Current routine use

Current Use

not defined yet

Application of the Measure in its Current Use

Measurement Setting

Hospital Inpatient

Intensive Care Units

Professionals Involved in Delivery of Health Services

not defined yet

Least Aggregated Level of Services Delivery Addressed

Single Health Care Delivery or Public Health Organizations

Statement of Acceptable Minimum Sample Size

Unspecified

Target Population Age

Age greater than or equal to 18 years

Target Population Gender

Either male or female

National Strategy for Quality Improvement in Health Care

National Quality Strategy Aim

Better Care

National Quality Strategy Priority

Prevention and Treatment of Leading Causes of Mortality

Institute of Medicine (IOM) National Health Care Quality Report Categories

IOM Care Need

Getting Better

IOM Domain

Effectiveness

Data Collection for the Measure

Case Finding Period

Unspecified

Denominator Sampling Frame

Patients associated with provider

Denominator (Index) Event or Characteristic

Institutionalization

Therapeutic Intervention

Denominator Time Window

not defined yet

Denominator Inclusions/Exclusions

Inclusions

Total number of patients undergoing mechanical ventilation (MV)

Population: All patients intubated during the period reviewed who meet the following criteria:

- Resolution of the underlying condition
- Adequate oxygenation and pH
- Temperature less than 38º C
- Hemodynamic stability without the need for high doses of vasoactive amines
- Adequate functioning of the respiratory musculature
- Absence of metabolic and electrolyte disturbances
- Absence of delirium and anxiety

Exclusions

Unspecified

Exclusions/Exceptions

not defined yet

Numerator Inclusions/Exclusions

Inclusions

Number of patients undergoing mechanical ventilation (MV) with daily spontaneous breathing trials

Spontaneous breathing trial: Scheduled attempt to disconnect the ventilator to test tolerance to spontaneous breathing using any of the following techniques:

- T-tube test
- 7 cm H_2O pressure support ventilation (PSV)
- Continuous positive airway pressure (CPAP) with 5 cm H_2O

Exclusions

Synchronized intermittent mandatory ventilation (SIMV)

Numerator Search Strategy

Institutionalization

Data Source

Electronic health/medical record

Paper medical record

Type of Health State

Does not apply to this measure

Instruments Used and/or Associated with the Measure

Unspecified

Computation of the Measure

Measure Specifies Disaggregation

Does not apply to this measure

Scoring

Rate/Proportion

Interpretation of Score

Desired value is a higher score

Allowance for Patient or Population Factors

not defined yet

Standard of Comparison

not defined yet

Prescriptive Standard

Standard: greater than 75%

Evidence for Prescriptive Standard

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Identifying Information

Original Title

Spontaneous breathing trials.

Measure Collection Name

Quality Indicators in Critically Ill Patients

Measure Set Name

Acute Respiratory Failure

Submitter

Spanish Society of Intensive and Critical Care and Units Coronary - Clinical Specialty Collaboration

Developer

Spanish Society of Intensive and Critical Care and Units Coronary - Clinical Specialty Collaboration

Funding Source(s)

Boehringer Laboratories

Composition of the Group that Developed the Measure

Work Group for Acute Respiratory Failure

Guillermo Muñiz Albaiceta
José Manuel Añón Elizalde
Federico Gordo Vidal

Scientific Coordination:

Maria Cruz Martín Delgado
Jesús Blanco Varela
Lluís Cabré Pericas
Pedro Galdos Anuncibay
Federico Gordo Vidal

Financial Disclosures/Other Potential Conflicts of Interest

Unspecified

Adaptation

This measure was not adapted from another source.

Date of Most Current Version in NQMC

2011 Mar

Measure Maintenance

Unspecified

Date of Next Anticipated Revision

2016 Jul

Measure Status

This is the current release of the measure.

The measure developer reaffirmed the currency of this measure in May 2016.

Measure Availability

Source available in English and Spanish from the Spanish Society of Intensive and Critical Care and Units Coronary (SEMICYUC) Web site.

For more information, contact SEMICYUC at Paseo de la Reina Cristina, 36, 4º D, Madrid, Spain; Phone: +34-91-502-12-13; Fax: +34-91-502-12-14; Web site: www.semicyuc.org; E-mail: secretaria@semicyuc.org.

NQMC Status

This NQMC summary was completed by ECRI Institute on December 10, 2013. The information was verified by the measure developer on February 6, 2014.

The information was reaffirmed by the measure developer on May 10, 2016.

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Production

Source(s)

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