

# MECHANICAL VENTILATION GUIDELINES

## ***Mechanical Ventilation***

Mechanical ventilation is a process by which gases are moved into the lungs by means of a mechanical device that assists respiration by augmenting or replacing the patient's own ventilatory effort. With continuous mechanical ventilation a patient is intubated or receives a tracheostomy and receives variable degrees of assistance to meet respiratory requirements in an uninterrupted fashion.

**96.70** Continuous mechanical ventilation of unspecified duration  
Mechanical ventilation NOS

**96.71** Continuous mechanical ventilation for less than 96 consecutive hours

**96.72** Continuous mechanical ventilation for 96 consecutive hours or more

The codes would not be used to capture mechanical ventilation that is used during a surgical procedure. The ventilatory support that is provided to a patient during surgery is usually anesthesia induced and is considered an integral part of the surgical procedure. This is not coded separately.

## ***Purpose of the Codes***

Health Authority (HAAD) requested to capture the duration that a patient was on mechanical ventilation. It was suggested that this information could be used to explain significant health care resources utilized by hospitals. It impacts on Diagnosis Related Group (DRG) for patients admitted in respiratory failure; for patients admitted for a respiratory condition and on ventilatory support; and for those patients receiving tracheostomies.

There are a group of patients who are admitted with diagnoses other than pulmonary conditions, who do not receive tracheostomies, but who may still be utilizing significant hospital resources while on mechanical ventilation.

The accurate use and reporting of these codes will provide Health Care settings with the data necessary to evaluate the need for future modifications to the DRG system.

## ***Endotracheal Tube***

An endotracheal tube can be placed orally or nasally. Nasal placement is preferred when one is avoiding cervical spine hyperextension such as with neck injuries or when oral surgery is planned. Nasal tubes are also reportedly more comfortable for long term ventilation. However, nasal tubes make suctioning of the trachea more difficult because they are usually narrower and longer than oral tubes.

## **Endotracheal Intubation**

To calculate the number of hours (duration) of continuous mechanical ventilation during a hospitalization, begin the count from the start of the (endotracheal) intubation. The duration ends with (endotracheal) extubation.

If a patient is intubated prior to admission, begin counting the duration from the time of the admission. If a patient is transferred (discharged) while intubated, the duration would end at the time of transfer (discharge).

For patients who begin on (endotracheal) intubation and subsequently have a tracheostomy performed for mechanical ventilation, the duration begins with the (endotracheal) intubation and ends when the mechanical ventilation is turned off (after the weaning period).

## **Tracheostomy**

To calculate the number of hours of continuous mechanical ventilation during a hospitalization, begin counting the duration when mechanical ventilation is started. The duration ends when the mechanical ventilator is turned off (after the weaning period).

If a patient has received a tracheostomy prior to admission and is on mechanical ventilation at the time of admission, begin counting the duration from the time of admission. If a patient is transferred (discharged) while still on mechanical ventilation via tracheostomy, the duration would end at the time of the transfer (discharge).

## **Counting the duration**

The duration would begin with one of the following:

- a. endotracheal intubation (and subsequent initiation of mechanical ventilation),
- b. initiation of mechanical ventilation through a tracheostomy, or
- c. admission of a previously intubated patient or a patient with a tracheostomy who is on mechanical ventilation.

## **Consecutive hours**

The coder will be reviewing the medical record to determine if the patient was on mechanical ventilation for less than 96 consecutive hours (code 96.71), 96 or more consecutive hours (code 96.72), or for an unspecified duration (96.70). Code 96.70 should be used only for those instances where medical records are incomplete or missing and where the data is not available.

## Replacement of endotracheal tube

On occasion the physician will have to replace the endotracheal tube because of mechanical problems such as a leak in the cuff. Removal and immediate replacement of endotracheal tubes should be considered part of the initial duration. Continue counting the duration.

## Change from endotracheal to tracheal intubation

For those patients who begin receiving mechanical ventilation through endotracheal intubation and then later receive a tracheostomy through which mechanical ventilation continues, begin counting the duration at intubation. The duration would continue through the time in which the tracheostomy is used.

The endotracheal tube requires nonsurgical placement. It is usually employed prior to a surgically placed tracheostomy tube. However, with prolonged

ventilation, or when prolonged ventilation is expected, a tracheostomy tube is placed surgically in the anterior cervical trachea to prevent damage to the larynx and to provide improved pulmonary toiletry. A tracheostomy may also be used initially to provide a patent airway and for possible ventilatory assistance when there is compromise of the upper airways such as in facial trauma, burn's, pharyngeal tumors, or epiglottitis.

## Weaning of a patient is included in counting duration

The weaning of an intubated patient is included in counting the length of time that a patient is on mechanical ventilation. There may be several attempts to wean the patient off of the ventilator prior to extubation.

After the patient is stabilized and is no longer in need of continuous ventilatory assistance, various weaning methods can be employed to allow for complete discontinuation of the ventilator. The purpose of weaning is to allow the patient to gradually assume the work of breathing, while being carefully monitored for any evidence of cardiopulmonary instability. Not all patients require a period of weaning.

### Major types of weaning include the following:

#### A. T-tubes

The T-tube is a tube connected to an endotracheal or tracheal tube that provides various amounts of aerosolized oxygen to the patient without the use of mechanical ventilation. In this setting while the T-tube is employed, the machine does not breathe for the patient. This is used for varying periods of time (T-tube trials) such as one hour, after which the patient is placed back on the ventilator. The patient is then allowed to go back on the T-tube for longer periods of time.

## *B. Intermittent Mandatory Ventilation (IMV)*

IMV involves gradually reducing the number of ventilator assisted breaths, while allowing the patient to breathe spontaneously between the ventilator assisted breaths. IMV is subsequently reduced as the patient's own ability to sustain adequate respiration increases.

When the patient is ready to be removed from the ventilator, the IMV will usually be reduced to zero (0) or no ventilator assisted breaths.

## *C. Pressure Support Ventilation (PSV)*

PSV is used to aid the spontaneous breathing of the patient and may be used in conjunction with other forms of weaning. In this method various amounts of positive pressure are applied at the initiation of the spontaneous breath to augment the inspired volume of air. The amount of pressure is usually slowly withdrawn to allow for the patient to gradually assume the total work of the inspiratory effort.

Weaning methods such as the T-tube trial or Intermittent Mandatory Ventilation (IMV) with or without Pressure Support Ventilation (PSV) are used in conjunction with the patient's own spontaneous breaths until various clinical and physiological criteria indicate that the patient can support 100% of respiratory needs. With these weaning methods there may be periods when the mechanical ventilator is not in use.

### **Duration end**

As indicated above and discussed under the section "96 consecutive hours," the duration ends with:

1. Endotracheal extubation,
2. Cessation of mechanical ventilation for patients with a tracheostomy (after any period of weaning),
3. Discharge or transfer of a patient on mechanical ventilation.

The tracheal tube used with tracheostomy patients may not be withdrawn for days after discontinuation of mechanical ventilation to assure respiratory competence or to provide pulmonary toiletry. In some circumstances (e.g., neuromuscular diseases), the tracheal tube may be left in place indefinitely after mechanical ventilation is discontinued. Therefore, the duration would end with the cessation of mechanical ventilation.

### *Subsequent Periods of Continuous Mechanical Ventilation*

After mechanical ventilation has ended, the patient's condition may deteriorate and require a subsequent period of ventilation during the same hospitalization.

Capture this subsequent episode of continuous mechanical ventilation using the same guidelines provided above. Two separate codes from category 96.7 would be reported, one for each episode of continuous mechanical ventilation.

### **Medical Record Documentation**

Respiratory modalities involved with mechanical ventilation such as intubation, extubation, weaning, and tracheostomies are all documented in the medical record. Most frequently, documentation will be found on the respiratory therapy ventilator forms. Other sections in the record where documentation will be found include physician orders, physician progress notes, and nursing notes.

Although a tracheostomy may be performed either at the bedside or in the operating room, there is usually an operative report or an operative note in the physician's progress notes.

### **Frequently Asked Questions:**

#### **Question 1:**

When would the codes for Other continuous mechanical ventilation (96.70--96.72) be used for surgical patients? We understand that the new codes would not be used to capture mechanical ventilation that is used during a surgical procedure. However, we occasionally have patients who remain on mechanical ventilation for an extended period (several days) after surgery. Since this does not represent mechanical ventilation as a routine part of surgery, should the codes be used? If so, when would the duration begin?

#### **Answer:**

The codes should be used in cases where the patient is documented to be on mechanical ventilation for an extended period of time following surgery. When the physician clearly documents an unexpected, extended period of mechanical ventilation, such as several days, capture this information using the new codes. Begin counting the duration when the patient is intubated for ventilation at the time of surgery.

## Question 2:

The new BiPAP S/T-D Ventilatory Support System is now recognized by the FDA as a continuous ventilator used for spontaneously breathing patients in critical care or life-supporting applications in the hospital setting. The new BiPAP system may be used for noninvasive treatment (patients are not intubated) of respiratory failure, respiratory insufficiency, and obstructive sleep apnea in patients with spontaneous breathing. The BiPAP system was previously classified as a noncontinuous ventilator. In view of this new information, would it be appropriate to assign a code from category 96.7X, Other continuous mechanical ventilation, when BiPAP is applied in a critical care setting for the treatment of acute respiratory failure?

### Answer:

Assign code 93.90, Continuous positive airway pressure [CPAP], for BiPAP continuous ventilation.

The BiPAP S/T-D system is a noninvasive ventilation support system designed to augment a patient's ability to breathe on a spontaneous basis. A code from category 96.7, Other continuous mechanical ventilation, would not be assigned because patients on BIPAP do not have either the insertion of an endotracheal tube or a tracheostomy as required for the use of category 96.7 (see instructional note under category 96.7). The care setting has no bearing on code selection in this case.

## Question 3:

A 51-year-old man with a history of advanced pulmonary fibrosis was admitted with worsening shortness of breath and tachycardia. The patient was started on steroids and placed on noninvasive positive pressure ventilation (NIPPV). The pulmonary department stated that this is a form of mechanical ventilation. Is it appropriate to assign a code from category 96.7, Other continuous mechanical ventilation, for noninvasive positive pressure ventilation?

### Answer:

Assign code 93.90, Continuous positive airway pressure [CPAP], for noninvasive positive pressure ventilation (NIPPV). Do not assign a code from category 96.7, Other continuous mechanical ventilation. NIPPV is not classified as mechanical ventilation, because the patient was not mechanically ventilated via tracheostomy or endotracheal (ET) intubation.

Noninvasive positive pressure ventilation is another form of positive pressure ventilation delivered via nasal or full-face mask. With NIPPV, there is no need for ET tube and/or sedation.

NIPPV can involve the use of a ventilator and can go beyond CPAP. One type of NIPPV may be termed "pressure support," although the term may also be used to describe a mode via ET. Because some of the terms may

be ambiguous, a careful review of the documentation is required to determine the appropriate code. All noninvasive (not requiring endotracheal intubation) forms of ventilation are assigned to 93.9x. Category 96.7, Other continuous mechanical ventilation, is intended for invasive modes of ventilation.

#### Question 4:

The patient, who was experiencing respiratory arrest, was endotracheally intubated and manually bagged. However, the patient expired before being placed on mechanical ventilation. Since the inclusion note under category 96.7 states "endotracheal respiratory assistance," would the correct code assignments be code 96.04, Insertion of endotracheal tube, and code 96.71, Continuous mechanical ventilation for less than 96 consecutive hours?

#### Answer:

No, it would not be appropriate to assign code 96.71 for manual ventilation. Assign code 93.93, Nonmechanical methods of resuscitation. An ambu bag is a self-reinflating bag that produces positive-pressure respiration during resuscitation, manually supporting the patient's breathing.

Mechanical ventilation is a process by which gases are moved into the lungs by means of a mechanical device that assists respiration by augmenting or replacing the patient's own ventilatory effort. With continuous mechanical ventilation a patient is intubated or receives a tracheostomy and receives variable degrees of assistance to meet respiratory requirements in an uninterrupted fashion.

#### Sources:

- [3M Coding References – Coding Clinic](#)
  - [Faye Brown's ICD 9 CM Coding Handbook](#)
  - [ICD 9 CM – PMIC \(Practice Management Information Corporation\)](#)
  - [Mastering Coding – by Marsha S. Diamond, CPC](#)
  - [3M Integrated Codebook](#)
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