

Coding and VAED reporting of ventilatory support

Updated July 2017

Introduction

The purpose of this article is to provide clarity for Victorian coders in regard to the current DHHS rules for reporting of continuous ventilatory support and noninvasive ventilation and code assignment according to standards and conventions. The article was originally published in 2012, was updated in 2015 and has been updated again now to align with the current reporting guide of VAED data element noninvasive ventilation.

Coding of continuous ventilatory support (CVS)

1. Intubation codes are only assigned when intubation occurs without ventilation – all patients
2. No codes are assigned for the tube or mask that is used to deliver the ventilatory support
3. There is no differentiation of coding rules based on age
4. Ventilation/intubation is not coded if it is for <1 hour prior to transfer to another hospital
5. **Surgical Patients:** The ventilatory support that is provided to a patient during surgery is associated with anaesthesia and is considered an integral part of the surgical procedure. Therefore, the following points apply for calculation of the duration of ventilatory support for these patients:
 - 5.1. Ventilatory support initiated in a ward (including Short Stay Unit (SSU)), continuing through surgery. These patients are assigned a code based on total hours since intubation, rounding down for incomplete hours.
 - 5.2. Ventilatory support initiated in the Emergency Department (ED), continuing through to surgery. These patients are assigned a code based on total hours from the time of admission, rounding down for incomplete hours.
 - 5.3. Ventilatory support initiated in theatre: These patients must have >24 hours of ventilatory support post surgery before a code can be assigned. Once >24 hours of ventilatory support have been provided post surgery, the duration is counted from the time of intubation in theatre.
 - 5.4. Ventilatory support initiated in theatre for multiple visits to theatre with extubation between visits:
 - 5.4.1. For each visit to theatre the patient must have >24 hours of ventilatory support post surgery before those hours can be counted for coding. If this criterion is met, the hours are calculated from the time of intubation, for each qualifying period of ventilatory support.
 - 5.4.2. CVS hours for all visits to theatre that meet this criterion are combined to calculate the cumulative hours for coding, rounding down for incomplete hours.
 - 5.5. Ventilatory support initiated in theatre, for multiple visits to theatre, without extubation between visits:

- 5.5.1. The CVS that is continuous since the original surgery is considered to be continuous ventilation for respiratory support rather than for anaesthesia as otherwise patients would be extubated between visits to theatre.
- 5.5.2. The patient must receive >24 hours ventilatory support post original surgery before the management of CVS code can be assigned. The calculation of duration of CVS starts with the intubation time for the original surgery and continues through all the subsequent visits to theatre, rounding down for incomplete hours.
6. NIV or tracheshielding should be counted in the CVS hours only when it is clearly documented that it has been used as part of weaning. The presence alone of devices such as tracheshields or tracheostomy collars should not be used to infer that weaning is taking place.
7. **Non-Surgical Patients:** Where ventilatory support is not initiated for anaesthesia but for respiratory support, all hours of CVS from the time of admission are used for code assignment, rounding down for incomplete hours.
8. **Neonates:** Neonates who receive both CVS and NIV in the same episode of care and together the total is ≥ 96 hours, assign 92211-00 Management of combined ventilatory support, ≥ 96 hours in addition to the CVS and NIV codes.

Reporting duration of Mechanical Ventilation (CVS) hours in ICU/NICU to VAED

Instructions relating to this data item can be found in the VAED Manual, Section 3 – Data Definitions. Please refer to the HDSS website <https://www2.health.vic.gov.au/hospitals-and-health-services/data-reporting/health-data-standards-systems> for detailed information about the calculation and reporting of this data item.

The reporting of duration of CVS provided in ICU or Neonatal Intensive Care Unit (NICU) is mandatory.

Note: The counting of duration of CVS in ICU or NICU for reporting is independent of the counting of hours of CVS for coding. Thus hours of CVS can be reported to the VAED where they do not qualify for coding.

Counting duration of Mechanical Ventilation (CVS) hours in ICU/NICU for VAED reporting

1. CVS hours for reporting are to commence once a ventilated patient has been admitted to an ICU/NICU
2. If the patient has more than one period of CVS in ICU/NICU during an episode, the total duration of the combined periods is reported, rounding up for incomplete hours.
3. Where a patient is intubated and CVS commences in theatre, the counting of the duration of CVS for reporting commences when the patient enters the ICU/NICU.
4. Where a ventilated patient is absent from ICU/NICU (for example, for a visit to theatre) and is still ventilated on return to ICU/NICU, the count of CVS hours is continuous. It is not necessary to stop the CVS count when a ventilated patient is transferred from ICU to theatre and back.
5. Where a patient receives CVS in a combined ICU/CCU, report the ICU/CCU hours in the ICU field and not the CCU field.

Coding of noninvasive ventilation (NIV)

Noninvasive ventilation refers to all modalities that assist ventilation without the use of an ETT or tracheostomy. Noninvasive devices may include: face mask, mouthpiece, nasal mask, nasal pillows, nasal prongs, nasal tubes, nasal high flow cannula (high flow therapy) and nasopharyngeal tubes, however clinical coders should ensure that NIV is being provided via the device, and not assign a code for NIV based on the device alone.

1. NIV initiated in a ward (including Short Stay Unit (SSU)). These patients are assigned a code based on total hours since commencement, rounding down for incomplete hours.
2. NIV initiated in the Emergency Department (ED). These patients are assigned a code based on total hours from the time of admission, rounding down for incomplete hours.
3. When both CVS and NIV are used for treatment (not weaning) code each type separately. Use the appropriate duration extension on each code to indicate how many hours the patient received each type of ventilatory support, rounding down for incomplete hours..
4. Neonates who receive both CVS and NIV in the same episode of care and together the total is ≥ 96 hours, assign 92211-00 Management of combined ventilatory support, ≥ 96 hours in addition to the CVS and NIV codes.
5. Subsequent periods of noninvasive ventilation, when used for treatment should be added together.
6. For the purpose of calculating the noninvasive ventilation:
 - 6.1. Hours of noninvasive ventilation should be interpreted as completed cumulative hours
 - 6.2. A period of ≤ 1 hour between cessation and then restarting noninvasive ventilation should be accounted for in the duration, i.e. continue counting the duration.
 - 6.3. Removal and immediate replacement of airway devices (tubes, masks) should be accounted for in the duration, i.e. continue counting the duration.
7. Do not code noninvasive ventilation when the patient brings their own ventilatory support devices (e.g. CPAP machine) into hospital and the patient operates the device.

Reporting duration of NIV (CPAP and BiPAP) hours in ICU/PICU to VAED

Instructions relating to this data item can be found in the VAED Manual, Section 3 – Data Definitions. Please refer to the HDSS website <https://www2.health.vic.gov.au/hospitals-and-health-services/data-reporting/health-data-standards-systems> for detailed information about the calculation and reporting of this data item.

The reporting of duration of NIV provided in public hospitals in an approved Intensive Care Unit (ICU) or combined Intensive Care Unit/Coronary Care Unit is mandatory. This includes NIV provided in a Paediatric Intensive Care Unit (PICU).

Only the number of hours of NIV given via Continuous Positive Airway Pressure (CPAP) or Bi-level Positive Airway Pressure (BiPAP) are reported in this data item.

Note: The counting of duration of NIV in ICU for reporting is independent of the counting of hours of NIV for coding. Thus hours of NIV can be reported to the VAED where they do not qualify for coding.

Counting duration of NIV (CPAP and BiPAP) hours in ICU/PICU for VAED reporting

Count all hours of NIV (CPAP and BiPAP) received in ICU:

1. Count NIV hours to the nearest whole hour, rounding up for incomplete hours.
2. Counting NIV starts when a patient first receives NIV in ICU
3. Counting NIV stops when a patient stops receiving NIV in ICU
4. Counting of NIV continues when a patient receiving NIV in ICU is transferred from ICU to theatre and back to ICU
5. If a patient is cycling on and off NIV whilst in ICU:
 - When the patient cycles off NIV for periods of more than 1 hour, then count the actual number of NIV hours received (i.e. Stop counting when the patient is taken off NIV and continue counting when they are recommenced on NIV).
 - When the patient cycles off NIV for periods of less than 1 hour, then count as though NIV was received continuously.

Excludes:

- NIV given for purpose of weaning from mechanical ventilation
- Where NIV starts outside ICU (such as in an operating theatre, ward or emergency department) the counting of the duration of NIV starts only when the patient enters ICU
- NIV provided via any modality other than CPAP or BiPAP.

CVS examples for surgical patients

The following examples are provided to help coders understand the calculation of CVS hours for surgical patients.

CVS initiated prior to patient going to theatre

1. Patient intubated in ED on 1/7/17 at 12:00. Admitted to a ward at 13:00. At 16:30 the patient was taken to theatre for 4 hours. Transferred to ICU at 20:30 and was extubated at 23:50 on 1/7/17.

VAED Reporting		Coding	
CVS hours reporting	VAED (round UP)	Total CVS count	Count for coding (round DOWN)
1/7/17 20:30 -1/7/17 23:50 3 hrs 20 mins	4	1/7/17 13:00 -1/7/17 23:50 10 hrs 50 mins	10

Assign code 13882-00 *Management of continuous ventilatory support, ≤24 hours* as the patient was initially intubated for respiratory support, not for anaesthesia.

Hours in ED are not counted as they are not part of the admitted episode.

2. Patient intubated in ED at 03:00 on 6/8/17. Transferred to ICU at 04:00 6/8/17 still intubated. At 13:00 went to theatre for 3 hours. Returned to ICU at 16:00 and was extubated at 12:00 8/8/17.

VAED Reporting		Coding	
CVS hours reporting	VAED (round UP)	Total CVS count	Count for coding (round DOWN)
6/8/17 04:00 - 8/8/17 12:00 56 hrs	56	6/8/17 04:00 - 8/8/17 12:00 56 hrs	56

Assign code 13882-01 *Management of continuous ventilatory support, > 24 and < 96 hours*.

Hours in ED are not counted as they are not part of the admitted episode.

CVS Initiated in theatre

3. Patient intubated in theatre at 11:00 on 1/7/17. Went to ICU intubated at 16:00 after 5 hours in OR. Patient was extubated at 09:00 on 2/7/17.

VAED Reporting		Coding	
CVS hours reporting	VAED (round UP)	Total CVS count	Count for coding (round DOWN)
1/7/17 16:00 - 2/7/17 09:00 17 hrs	17	1/7/17 16:00 - 2/7/17 09:00 17 hrs	Nil

No procedure code assigned as the patient was not intubated for >24 hours post surgery.

4. Patient intubated in theatre at 09:00 on 1/7/17. After 3 hours in theatre was transferred to ICU at 12:00 still intubated. Patient was extubated at 11:20 on 2/7/17.

VAED Reporting		Coding	
CVS hours reporting	VAED (round UP)	Total CVS count	Count for coding (round DOWN)
1/7/17 12:00-2/7/17 11:20 23 hrs 20 mins	24	1/7/17 12:00-2/7/17 11:20 23 hrs 20 mins	Nil

No procedure code assigned as patient was NOT ventilated for >24 hours post surgery.

5. Patient intubated in theatre at 12:00 on 6/8/17. In theatre for 3 hours. Went to ICU at 15:00 for 8 hours and remained ventilated. Patient then returned to theatre at 23:00 for 6 hours and went back to ICU at 05:00 hours. Patient was extubated at 17:00 on 7/8/17.

VAED Reporting		Coding	
CVS hours reporting	VAED (round UP)	Total CVS count	Count for coding (round DOWN)
6/8/17 15:00 - 7/8/17 17:00 26 hrs	26	6/8/17 12:00 - 7/8/17 17:00 29 hrs	29

Assign code 13882-01 *Management of continuous ventilatory support, > 24 and < 96 hours*. Even though the CVS was initiated for surgery, it continued for >24 hours post surgery (including subsequent surgical episodes). The initiation time is taken from the intraoperative intubation, therefore cumulative hours are 29.

26 hours are reported for VAED as the count starts from the first entry to ICU and continues through return visits to theatre (6 hours) from ICU, where CVS continues.

6. Patient intubated in theatre on 1/8/17 at 06:00. In theatre for 6 hours. Went to ICU at 12:00, ventilated for a further 20 hours. Patient extubated on 2/8/17 at 08:00. Patient returned to theatre on 2/8/17 at 13:00 and was re-intubated and in theatre for 5 hours and returned to ICU at 18:00. Patient was extubated at 14:00 on 3/8/17.

VAED Reporting		Coding	
CVS hours reporting	VAED (round UP)	Total CVS count	Count for coding (round DOWN)
1/8/17 12:00 - 2/8/17 08:00 20 hrs	40	1/8/17 12:00 - 2/8/17 08:00 20 hrs	Nil
2/8/17 18:00 - 3/8/17 14:00 20 hrs		2/8/17 18:00 - 3/8/17 14:00 20 hrs	Nil
Total 40 hrs		Total 40 hrs	

No procedure code is assigned as in both post-surgical periods, the patient was not ventilated for >24 hours post-surgery. Each post-surgical period must be greater than 24 hours to assign the procedure code.

7. Patient intubated in theatre on 1/8/17 at 06:00 for 6 hours. Went to ICU still intubated at 12:00 for 13 hours before returning to theatre on 2/8/17 at 01:00 for a further 2 hours. Patient transferred back to ICU still intubated on 2/8/17 at 03:00 for a further 16 hours before extubation on 2/8/17 at 19:00.

VAED Reporting		Coding	
CVS hours reporting	VAED (round UP)	Total CVS count	Count for coding (round DOWN)
1/8/17 12:00 - 2/8/17 19:00 31 hrs	31	1/8/17 06:00 - 2/8/17 19:00 37 hrs	37

Assign code 13882-01 *Management of continuous ventilatory support, > 24 and < 96 hours*. Even though the CVS was initiated for surgery, it continued for >24 hours post surgery (including subsequent surgical episodes).

Count for CVS hours in ICU continues when patient returns to theatre.

8. Patient intubated in theatre on 1/8/17 at 06:00. Was in theatre for 6 hours. Patient transferred to ICU while intubated at 12:00 on 1/8/17, stayed intubated for 20 hours, extubated on 2/8/17 at 08:00. Patient returned to theatre on 2/8/17 at 20:00 and was re-intubated for surgery. Was in theatre for 3 hours, returned to ICU and remained intubated for 30 hours before being extubated on 4/8/17 at 05:00. Patient returned to theatre for a third time on 4/8/17 at 12:00, and was re-intubated for a procedure that lasted for 4 hours and returned to ICU where patient remained intubated for another 23 hours and was extubated at 15:00 on 5/8/17.

VAED Reporting		Coding	
CVS hours reporting	VAED (round UP)	Total CVS count	Count for coding (round DOWN)
1/8/17 12:00 – 2/8/17 08:00 20 hrs 2/8/17 23:00 – 4/8/17 05:00 30 hrs 4/8/17 16:00 – 5/8/17 15:00 23 hrs Total 73 hrs	73	1/8/17 12:00 - 2/8/17 08:00 20 hrs 2/8/17 20:00 – 4/8/17 05:00 33 hrs 4/8/17 16:00 – 5/8/17 15:00 23 hrs Total 76 hrs	33

Assign code 13882-01 *Management of continuous ventilatory support, > 24 and < 96 hours*.

The second period of intubation meets the criterion for assignment of the CVS procedure code.

The other two periods were not ventilated for greater than 24 hours post surgery, and the ventilation was not continuous, therefore cannot be included in the total calculation of CVS hours for coding.

9. Patient intubated for a procedure in theatre on 25/9/17 at 13:30. Patient was extubated in theatre at 15:45. Re-intubated in recovery at 17:00 on 25/9/17. Patient was then transferred to ICU on the 26/9/17 at 07:08. The patient was extubated in ICU on 26/9/17 at 18:55.

VAED Reporting		Coding	
CVS hours reporting	VAED (round UP)	Total CVS count	Count for coding (round DOWN)
26/9/17 07:08-26/9/17 18:55	12	25/9/17 17:00 – 26/9/17 18:55	25
11 hrs 47 mins		25 hrs 55 mins	

Assign code 13882-01 *Management of continuous ventilatory support, > 24 and < 96 hours*. Do not include the hours where patient was intubated for the initial procedure as was extubated in theatre.

Patient was re-intubated in recovery more than one hour following extubation in theatre at 17:00; therefore start the count from the recovery intubation time to assign the appropriate procedure code.

Tracheostomy and weaning

10. Patient with a permanent tracheostomy in situ arrived ventilated via ambulance and admitted directly to ICU on 2/8/17 at 15:00. Patient remained ventilated for 92 hours until started Trache-Shielding (T/S) for weaning purposes on 6/8/17 at 11:00 for 23 hours. Patient returned to receiving CVS at 10:00 on 7/8/17 for another 21.5 hours before being placed back on T/S on 8/8/17 at 07:30 for the remainder of their admission.

VAED Reporting		Coding	
CVS hours reporting	VAED (round UP)	Total CVS count	Count for coding (round DOWN)
2/8/17 15:00 – 6/8/17 11:00 92 hrs	137	2/8/17 15:00 – 6/8/17 11:00 92 hrs	136
6/8/17 11:00 – 7/8/17 10:00 23 hrs of T/S (weaning)		6/8/17 11:00 – 7/8/17 10:00 23 hrs of T/S (weaning)	
7/8/17 10:00 – 8/8/17 07:30 21.5 hrs		7/8/17 10:00 – 8/8/17 07:30 21.5 hrs	
Total 136.5 hrs		Total 136.5 hrs	

Assign code 13882-02 *Management of continuous ventilatory support, 96 hours or more*.

The 23 hours of trache-shielding is included in the total hours of CVS, as this was documented as being for weaning purposes from CVS but resulted in the patient going back on CVS for a further period.

Placing the patient back on T/S on 08/08/17 at 07:30 was not documented as being for weaning purposes, so no further hours of CVS are counted.

Both CVS and NIV

11. 6 month old patient admitted from the ward to PICU and commenced on CPAP at 11:15 on 26/04/2017. Remains on CPAP until 16:45 when transferred to theatre and intubated. Returns to PICU still intubated at 21:30. Remains on CVS until extubated at 06:00 on 28/04/2017 and put straight onto CPAP. Reintubated at 16:00 on 28/04/2017 then extubated to CPAP at 06:00 on 29/04/2017. Transferred from PICU back to the ward still on CPAP at 11:30 on 30/04/2017. CPAP ceased on 03/05/2017 at 13:45.

VAED Reporting		Coding	
CVS	NIV	CVS	NIV
26/04 21:30 – 28/04 06:00 32.5 hrs	26/04 11:15 – 16:45 5.5 hrs	26/04 16:45 – 21:30 4.75 hours intubated in theatre	26/04 11:15 – 16:45 5.5 hrs
28/04 16:00 – 29/04 06:00 14 hrs	28/04 06:00 – 16:00 10 hrs	26/04 21:30 – 28/04 06:00 32.5 hours	28/04 06:00 – 16:00 10 hrs
Total 46.5 hours	29/04 06:00 – 30/04 11:30 29.5 hrs Total 45 hours	28/04 16:00 – 29/04 06:00 14 hours Total 51.25 hours	29/04 06:00 – 30/04 11:30 29.5 hours 30/04 11:30 - 03/05 13:45 74.25 hrs Total 119.25 hours
47 hrs (round up)	45 hrs (round up)	51 hrs (round down)	119 hrs (round down)

Assign codes:

13882-01 Management of continuous ventilatory support, > 24 and < 96 hours

92209-02 Management of noninvasive ventilatory support, ≥ 96 hours

92211-00 Management of combined ventilatory support, ≥ 96 hours

12. Patient admitted to ICU on 1/8/17 at 02:00 and placed on CPAP. Patient then intubated in theatre at 06:00. In theatre for 6 hours. Went to ICU at 12:00, ventilated for a further 20 hours. Patient extubated on 2/8/17 at 08:00 after 4 hours of CPAP. Patient returned to theatre on 2/8/17 at 13:00 and was re-intubated and in theatre for 5 hours and returned to ICU at 18:00. Patient was extubated at 14:00 on 3/8/17. Patient went back on CPAP at 18:00 until 22:00 then received mask oxygen until being transferred to the ward.

VAED Reporting		Coding	
CVS	NIV	CVS	NIV
01/08 12:00 – 02/08 08:00 20 hrs 02/08 18:00 – 03/08 14:00 20 hrs	01/08 02:00 – 06:00 4 hrs 03/08 18:00 – 22:00 4 hrs	01/08 06:00 – 12:00 6 hrs intubated in theatre 01/08 12:00 – 02/08 08:00 20 hrs 02/08 13:00-18:00 5 hrs intubated in theatre 02/08 18:00 – 03/08 14:00 20 hrs	01/08 02:00 – 06:00 4 hrs 03/08 18:00 – 22:00 4 hrs
40 hrs (round up)	8 hrs (round up)	No procedure code assigned as each periods of ventilation post surgery <24 hours.	8 hours

Assign code 92209-00 Management of noninvasive ventilatory support, <= 24 hours

Posthumous Organ Procurement

Posthumous Organ Procurement is the procurement of human tissue for the purpose of transplantation from a donor who has been declared brain dead (Care Type, Section 3 – Data definitions, VAED manual, 26th edition 2016-17). Episodes in which posthumous organ procurement is conducted are registered by the hospital, and reported to the VAED, although they are not admitted episodes.

Diagnosis and procedure codes for activity to facilitate posthumous organ procurement, including mechanical ventilation and tissue procurement, are recorded in accordance with the relevant ICD-10-AM Australian Coding Standards.

Apply the same rules for counting and reporting CVS hours as you would for admitted patients.