GWTG-R 2017 Measures Webinar: Review of Pediatric, Neonatal and Newly Born

Monday May 22, 2017
11am – 12pm Central

Presenters: Elizabeth Foglia, MD
Vinay Nadkarni, MD, MS
Christina Sterzing, RHIA
Tanya Lane Truitt, RN, MS

For more in-depth discussion of the Adult measure changes, please visit our webinars page at heart.org/quality to view the recorded webinar.

GWTG-R 2017 Measures Webinar: Measure Changes Overview

Tuesday May 16, 2017

Presenters: Steven Bradley, MD
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Our Presenters

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Get With The Guidelines®

Core Principles of Get With The Guidelines

- Focus is on quality improvement
- Success is in translating guidelines into clinical practice in the hospital setting
- Capitalizing on the ‘teachable moment’ for both patient and family
- Data drives change- moving from simply collecting data to driving process and system improvements by measuring trends in compliance in real time
- Celebrating success of improved compliance within one hospital, in a region, and across the country!
- Best Practice sharing within the network of hospitals
- Evaluation through analytics to highlight key insights as well as consider future efforts

Recognition Awards

The American Heart Association/American Stroke Association recognize this hospital for achieving 85% or higher compliance with all Get With The Guidelines®-Resuscitation Achievement Measures for one calendar quarter to improve quality of patient care and outcomes.

The American Heart Association/American Stroke Association recognize this hospital for achieving 85% or higher compliance with all Get With The Guidelines®-Resuscitation Achievement Measures for one calendar year to improve quality of patient care and outcomes.

The American Heart Association/American Stroke Association recognize this hospital for achieving 85% or higher compliance with all Get With The Guidelines®-Resuscitation Achievement Measures for two or more consecutive years to improve quality of patient care and outcomes.

Moving Hospitals Toward A Performance Improvement Approach For In-Hospital Cardiac Arrest

Key Metrics Based On Data Of What Matters Varies with Patient Population

Adult
Pediatric
Neonate/Infant
Newly Born

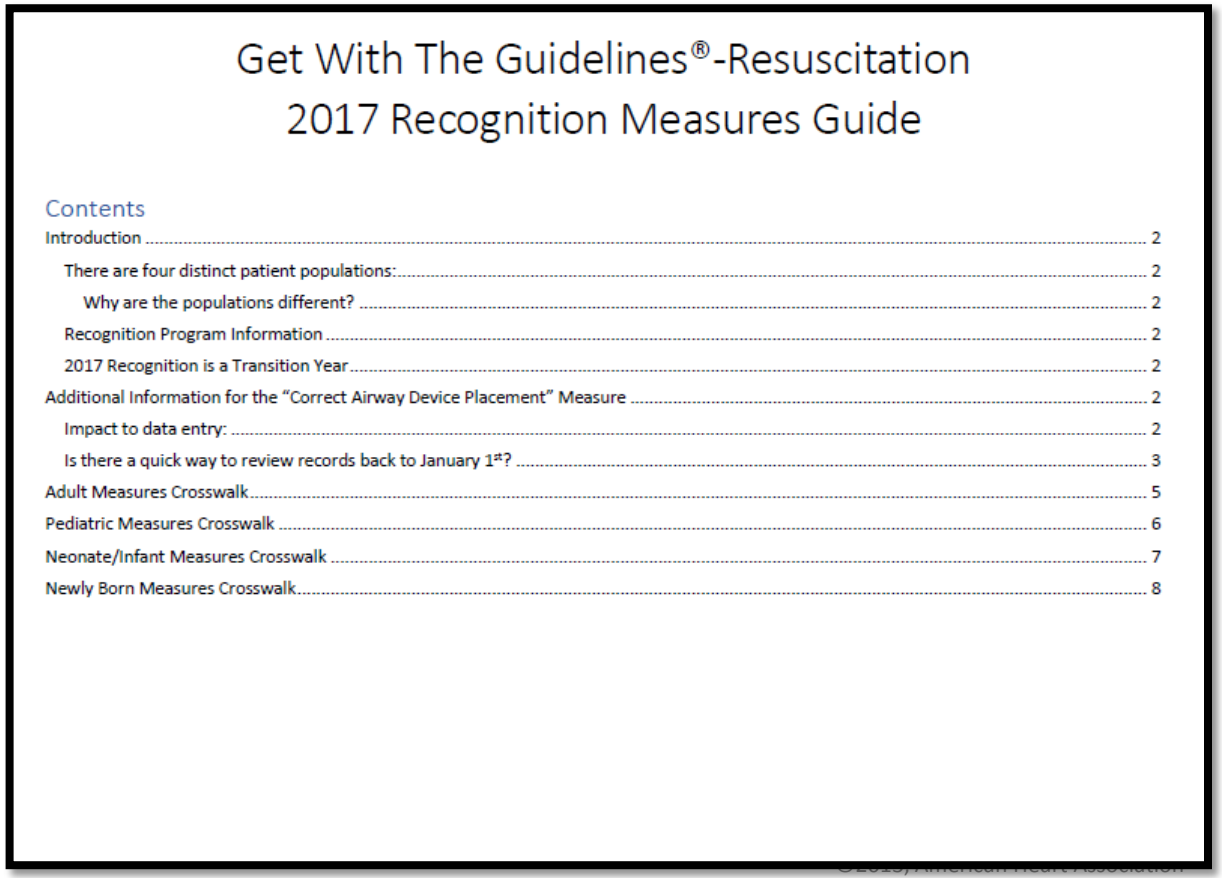
Scope of Measures Updates

Populations groupings were updated to add a category of Newly Born, which is now distinct from Neonate

- **Adult** population is age >=18 years at the time of the CPA event.
- **Pediatric** population is age <18 years and >=1 years at the time of the CPA event
- **Neonate/Infant** population is age <1 year old and >=24 hours at the time of the CPA event *(previously <2 years)*
- ***Newly added:*** **Newly born** population is age <24 hours at the time of the CPA event

Located in the Files section of today's webinar

Access online at [2017 GWTG- R Recognition Measures Guide]



Get With The Guidelines®-Resuscitation
2017 Recognition Measures Guide

Contents

Crosswalk of Measure Changes

Pediatric Measures Crosswalk

Pediatric population is age >=1 year and <18 years

Current Measure	New Measure	Change Notes
*Device confirmation of correct endotracheal tube placement: Percent of CPA events in pediatric patients with which an endotracheal tube placement which was confirmed to be correct.	*Confirmation of airway device placement in trachea: Percent of CPA events in pediatric patients who had confirmation of airway device placement in trachea.	The name and data element to support this measure were updated to more accurately reflect current terminology. The measure was also updated to include patients who had a device placed prior to the arrest event, as measuring airway device confirmation is important in this group as well. - Updates were made to the data element: "Section 2.3 Interventions in place PRIOR" to capture ET and TT airway devices. If selected, "method of confirmation" question in Section 4.3 is required.
Time to first chest compressions ≤1 min in pediatric patients: Percent of events where time to first chest compressions ≤ 1 minute	Time to first chest compressions ≤1 min in pediatric patients: Percent of events where time to first chest compressions ≤ 1 minute	No significant change
Time to IV/IO epinephrine ≤ 5 minutes for asystole or Pulseless Electrical Activity (PEA) *Quality*: Percent of events in pediatric patients where time to epinephrine ≤ 5 minute of asystole or pulseless electrical activity.	Time to IV/IO epinephrine ≤ 5 minutes for asystole or Pulseless Electrical Activity (PEA): Percent of events in pediatric patients where time to epinephrine ≤ 5 minute of asystole or pulseless electrical activity.	This measure was promoted from Quality to Achievement and replaced the "Time to first shock <=2 mins in VF/pulseless VT first documented rhythm."
Percent pulseless cardiac events occurring in an ICU setting: Percent of pulseless cardiac events occurring in an ICU setting (Adult ICU, PICU, Pediatric Cardiac ICU) versus a general inpatient area (General inpatient area, Step down/telemetry)	Percent pulseless cardiac events occurring in an ICU setting: Percent of pulseless cardiac events occurring in an ICU setting (Adult ICU, PICU, Pediatric Cardiac ICU) versus a general inpatient area (General inpatient area, Step down/telemetry)	This measure was promoted from Reporting to Achievement. This measure also replaces the "Percent Pulseless Cardiac events monitored or witnessed" measure. Data shows pediatric patients who arrest in ICU settings have better survival rates and outcomes.

Neonate/Infant Measures Crosswalk

Neonate population is age >=24 hours old and <1 year

Current Measure	New Measure	Change Notes
*Device confirmation of correct endotracheal tube placement: Percent of CPA events in neonatal patients with which an endotracheal tube placement was confirmed to be correct.	*Confirmation of airway device placement in trachea: Percent of CPA events in neonatal patients who had confirmation of airway device placement in trachea.	The name and data element to support this measure were updated to more accurately reflect current terminology. The measure was also updated to include patients who had a device placed prior to the arrest event, as measuring airway device confirmation is important in this group as well. - Updates were made to the data element: "Section 2.3 Interventions in place PRIOR" to capture ET and TT airway devices. If selected, "method of confirmation" question in Section 4.3 is required.
Time to first chest compressions ≤1 min in pediatric patients: Percent of events where time to first chest compressions ≤ 1 minute	Time to first chest compressions ≤1 min in pediatric patients: Percent of events where time to first chest compressions ≤ 1 minute	No significant change
Time to IV/IO epinephrine ≤ 5 minutes for asystole or Pulseless Electrical Activity (PEA) *Quality*: Percent of events in neonatal patients where time to epinephrine ≤ 5 minute of asystole or pulseless electrical activity.	Time to IV/IO epinephrine ≤ 5 minutes for asystole or Pulseless Electrical Activity (PEA): Percent of events in neonatal patients where time to epinephrine ≤ 5 minute of asystole or pulseless electrical activity.	This measure was promoted from Quality to Achievement and replaced the "Time to first shock <=2 mins in VF/pulseless VT first documented rhythm."
Percent pulseless cardiac events occurring in an ICU setting: Percent of pulseless cardiac events occurring in an ICU setting (Adult ICU, PICU, Pediatric Cardiac ICU) versus a general inpatient area (General inpatient area, Step down/telemetry)	Percent pulseless cardiac events occurring in an ICU setting: Percent of pulseless cardiac events occurring in an ICU setting (Adult ICU, PICU, Pediatric Cardiac ICU) versus a general inpatient area (General inpatient area, Step down/telemetry)	This measure was promoted from Reporting to Achievement. This measure also replaces the "Percent Pulseless Cardiac events monitored or witnessed" measure. Data shows patients who arrest in ICU settings have better survival rates and outcomes.

Newly Born Measures Crosswalk

Newly Born population is event occurred at delivery (and less than 24 hours old)

Current Measure	New Measure	Change Notes
Not applicable (similar to the "Time to first assisted ventilation <=1 min" Quality measure).	Time to positive pressure ventilation <1 minute from CPA recognition: Percent of CPA events in newly born patients where the positive pressure ventilation was within 1 minute of event recognition.	Similar to time to the "Time to first assisted ventilation <=1 min" quality measure. However, has been updated to include LMA, ET, and TT. Measure also gives credit for positive pressure ventilation in place prior to the start of the event.
Time to invasive airway ≤ 2 min in newborn/neonates: Percent of newborn/neonatal events with an invasive airway inserted within 2 minutes of event recognition	Advanced airway placed prior to the initiation of chest compressions: Percent of CPA events in newly born patients who had an advanced airway (either laryngeal mask airway (LMA), endotracheal tube (ET) or tracheostomy tube) placed prior to initiation of chest compressions.	The "Time to invasive airway <=2 min in newborn/neonate" is being replaced with "Advanced airway placed prior to the initiation of chest compressions" to reflect the appropriate sequence of action in a newly born event.
Not applicable	Pulse oximetry in place prior to the initiation of chest compressions: Percent of CPA events in newly born patients where pulse oximetry was in place prior to the initiation of chest compressions	This is a new measure to evaluate the sequence of events during a newly born resuscitation event. The 2010 NRP guidelines included the use of pulse oximetry for oxygen monitoring; this monitor also provides a continuous and objective heart rate assessment during newborn resuscitation.
*Device confirmation of correct endotracheal tube placement: Percent of CPA events in newly born patients with which an endotracheal tube placement was confirmed to be correct.	*Confirmation of airway device placement in trachea: Percent of CPA events in newly born patients who had confirmation of airway device placement in trachea.	The name and data element to support this measure were updated to more accurately reflect current terminology. The measure was also updated to include patients who had a device placed prior to the arrest event, as measuring airway device confirmation is important in this group as well. Updates were made to the data element: "Section 2.3 Interventions in place PRIOR" to capture ET and TT airway devices. If selected, "method of confirmation" question in Section 4.3 is required.

Adult Measures Crosswalk

Adult population is age >=18 years

Current Measure	New Measure	Change Notes
Time to first shock <= 2 min for VF/pulseless VT first documented rhythm: Percent of events in adult patients with VF/pulseless VT first documented rhythm in whom time to first shock <=2 minutes of event recognition.	Time to first shock <= 2 min for VF/pulseless VT first documented rhythm: Percent of events in adult patients with VF/pulseless VT first documented rhythm in whom time to first shock <=2 minutes of event recognition.	No significant changes
Time to IV/IO epinephrine ≤ 5 minutes for asystole or Pulseless Electrical Activity (PEA) *Quality*: Percent of events in adult patients where time to epinephrine ≤ 5 minute of asystole or pulseless electrical activity.	Time to IV/IO epinephrine ≤ 5 minutes for asystole or Pulseless Electrical Activity (PEA): Percent of events in adult patients where time to epinephrine ≤ 5 minute of asystole or pulseless electrical activity.	This measure was promoted from Quality to Achievement and replaced the "Time to Chest Compressions <=1 min" Achievement measure.
Percent Pulseless Cardiac events monitored or witnessed: Percent of pulseless cardiac patient events were monitored or witnessed	Percent Pulseless Cardiac events monitored or witnessed: Percent of pulseless cardiac patient events were monitored or witnessed	No significant changes
*Device confirmation of correct endotrachealtube placement: Percent of CPA events in adult patients with which an endotracheal tube placement which was confirmed to be correct. *This new measure and the old measure will be offered in tandem for 2017. With automated awards, AHA will use whichever value is higher. However, sites must be fully transitioned to the new measure by 2018.	*Confirmation of airway device placement in trachea: Percent of CPA events in adult patients who had confirmation of airway device placement in trachea.	The name and data element to support this measure were updated to more accurately reflect current terminology. The measure was also updated to include patients who had a device placed prior to the arrest event, as measuring airway device confirmation is important in this group as well. - Updates were made to the data element: "Section 2.3 Interventions in place PRIOR" to capture ET and TT airway devices. If selected, "method of confirmation" question in Section 4.3 is required.

POPULATIONS:
PEDIATRIC, NEONATE/INFANT

POPULATIONS: PEDIATRIC AND NEONATE/INFANT

Measure: Time to first chest compressions ≤1 min in pediatric patients: *Percent of events where time to first chest compressions ≤ 1 minute*

NO CHANGE FOR 2017

POPULATIONS: PEDIATRIC AND NEONATE/INFANT

Measure: Time to first chest compressions ≤1 min in pediatric patients:
Percent of events where time to first chest compressions ≤ 1 minute

Guideline Recommendation
The Basic Life Support (BLS) healthcare provider pediatric cardiac arrest algorithm for single and for 2 or more rescuers recommendation is to begin cycles of compressions and breaths if no pulse is felt within 10 seconds in an unresponsive child.[1]

POPULATIONS: PEDIATRIC AND NEONATE/INFANT

Rationale

Short duration between onset of cardiac arrest and the start of chest compressions has been shown to be predictive of survival and neurologic outcomes in a variety of settings. It is well documented that early cardiopulmonary resuscitation (CPR), including by-stander CPR, is associated with improved survival and neurologic outcomes in patients who suffer out-of-hospital cardiac arrest.[15,16] For every minute without adequate chest compressions, chances of survival after out-of-hospital cardiac arrest decrease by 5% to 10%.[15, 17]

LITERATURE CITED

14. Atkins DL, Berger S, Duff JP, Gonzales JC, Hunt EA, Joyner BL, Meaney PA, Niles DE, Samson RA, Schexnayder SM. Part 11: Pediatric Basic Life Support and Cardiopulmonary Resuscitation Quality: 2015 American Heart Association Guidelines Update for Cardiopulmonary Resuscitation and Emergency Cardiovascular Care. *Circulation*. 2015 Nov 3;132(18 Suppl 2):S519-25
15. Valenzuela TD, Roe DJ, et al. Estimating effectiveness of cardiac arrest interventions: a logistic regression survival model. *Circulation*. 1997;96:3308–13.
16. Holmberg M, Holmberg S, Herlitz J. Factors modifying the effect of bystander-CPR on survival in out-of-hospital cardiac arrest patients in Sweden. *Eur Heart J*. 2001;22:511–9.
17. Larsen MP, Eisenberg MS, Cummins RO, Hallstrom AP. Predicting survival from out-of-hospital cardiac arrest: a graphic model. *Ann Emerg Med*. 1993;22:1652–8
18. Herlitz J, Bang A, Alsen B, Aune S. Characteristics and outcome among patients suffering from in hospital cardiac arrest in relation to the interval between collapse and start of CPR. *Resuscitation.* 2002;53 :21– 27
19. de Caen AR, Berg MD, Chameides L, Gooden CK, Hickey RW, Scott HF, Sutton RM, Tijssen JA, Topjian A, van der Jagt ÉW, Schexnayder SM, Samson RA. Part 12: Pediatric Advanced Life Support: 2015 American Heart Association Guidelines Update for Cardiopulmonary Resuscitation and Emergency Cardiovascular Care. *Circulation*. 2015 Nov 3;132(18 Suppl 2):S526-42. Review. PubMed PMID: 26473000.

POPULATIONS: PEDIATRIC AND NEONATE/INFANT

Measure: <u>Time to IV/IO epinephrine ≤ 5 minutes for asystole or Pulseless Electrical Activity (PEA):</u> *Percent of events in pediatric patients where time to epinephrine* ***≤*** *5 minute of asystole or pulseless electrical activity.*

CHANGES for 2017

- Measure was promoted from Quality to Achievement and replaced the “Time to first shock <=2 mins in **VF/pulseless VT first documented rhythm.”**

POPULATIONS: PEDIATRIC AND NEONATE/INFANT

Measure: Time to IV/IO epinephrine ≤ 5 minutes for asystole or Pulseless Electrical Activity (PEA): *Percent of events in pediatric patients where time to epinephrine ≤ 5 minute of asystole or pulseless electrical activity.*

Guideline Recommendation:

The 2010 American Heart Association Cardiopulmonary Resuscitation guidelines recommend administering epinephrine 0.01mg/kg IV/IO (1:10,000) or 0.1mg/kg ETT (1:1000) every 3-5 minutes during pediatric cardiac arrest as initial pharmacological treatment in patients with asystole or pulseless electrical activity (PEA)[1].

<<Class I B >>

POPULATIONS: PEDIATRIC AND NEONATE/INFANT

Rationale:

Epinephrine is a potent vasoconstrictor, inotrope and coronary vasodilator, and therefore may improve coronary and cerebral perfusion pressure during cardiopulmonary resuscitation.[22-23] It does, however, have potential to increase myocardial oxygen demand and worsen myocardial function.[24] Studies examining high-dose versus low-dose epinephrine in pediatrics show a lack of benefit for the higher dosage range in both in-hospital and out of hospital cardiac arrests.[25-28] One prospective study of 68 children randomized to receive either standard or high-dose epinephrine demonstrated no statistically significant difference in Return of Spontaneous Circulation (ROSC), 24-hr survival, and overall survival to discharge. However, no child who received high-dose epinephrine survived to discharge, and subgroup analysis of those arrests precipitated by anoxia showed a statistically significant decrease in survival to discharge among the high-dose (0/12 vs 7/18, p=0.02)[5] These findings lend a degree of support to standard dosing guidelines

LITERATURE CITED

20. Kleinman ME, Chameides L, Schexnayder SM et al. Part 14: Pediatric Advanced Life Support, 2010 American Heart Association Guidelines for Cardiopulmonary Resuscitation and Emergency Cardiovascular Care. Circulation 2010; 122[suppl 3]:S876-S908
21. Niemann JT, Criley JM, Rosborough JP, Niskanen RA, Alferness C. Predictive indices of successful cardiac resuscitation after prolonged arrest and experimental cardiopulmonary resuscitation. Annals of Emergency Medicine. 1985;14:521–528.
22. Sanders A, Ewy G, Taft T. Prognostic and therapeutic importance of the aortic diastolic pressure in resuscitation from cardiac arrest. Critical Care Medicine. 1984;12:871– 873.
23. Ditchey RV, Lindenfeld J. Failure of epinephrine to improve the balance between myocardial oxygen supply and demand during closed-chest resuscitation in dogs. Circulation 1988;78:382-9.
24. Perondi M, Reis A, Paiva E, Nadkarni V, Berg R. A Comparison of High-dose and Standard-dose Epinephrine in Children with Cardiac Arrest. New England Journal of Medicine 2004;350:1722-30
25. Patterson MD, Boenning DA, Klein BL, Fuchs S, Smith KM, Hegenbarth MA, Carlson DW, Krug SE, Harris EM. The use of high-dose epinephrine for patients with out-of-hospital cardiopulmonary arrest refractory to prehospital interventions. Pediatric Emergency Care. 2005; 21:227–237.
26. Dieckmann RA, Vardis R. High-dose epinephrine in pediatric out-of-hospital cardiopulmonary arrest. Pediatrics. 1995;95:901–913.
27. Carpenter TC, Stenmark KR. High-dose epinephrine is not superior to standard-dose epinephrine in pediatric in-hospital cardiopulmonary arrest. Pediatrics. 1997;99:403– 408
28. Andersen L, Berg K, Saindon B, Massaro J, Raymond T, Berg R, Nadkarni V, Donnino M; for the American Heart Association Get With the Guidelines–Resuscitation Investigators. Time to Epinephrine and Survival After Pediatric In-Hospital Cardiac Arrest. *JAMA.* 2015;314(8):802-810.
29. Jacobs AK, Kushner FG, Ettinger SM, et al. ACCF/AHA clinical practice guideline methodology summit report: a report of the American College of Cardiology Foundation/American Heart Association Task Force on Practice Guidelines. *Circulation*. 2013;127(2):268-310.
30. Tasker RC, Randolph AG. Pediatric Pulseless Arrest With “Nonshockable” Rhythm: Does Faster Time to Epinephrine Improve Outcome? JAMA 2015;314(8)”776-777

POPULATIONS: PEDIATRIC AND NEONATE/INFANT

Measure: <u>Percent pulseless cardiac events occurring in an ICU setting</u>: *Percent of pulseless cardiac events occurring in an ICU setting (Adult ICU, PICU Pediatric Cardiac ICU) versus a general inpatient area (General inpatient area, Step down/telemetry)*

CHANGES for 2017

- Measure was promoted from Reporting to Achievement.
- Measure replaces the **"Percent Pulseless Cardiac events monitored or witnessed"** measure.

POPULATIONS: PEDIATRIC AND NEONATE/INFANT

Measure: <u>Percent pulseless cardiac events occurring in an ICU setting</u>:
Percent of pulseless cardiac events occurring in an ICU setting (Adult ICU, PICU Pediatric Cardiac ICU) versus a general inpatient area (General inpatient area, Step down/telemetry)

Guideline Recommendation

Cardiac arrest should occur in an ICU setting versus ward setting as rates of ROSC are increased in these patients (Class IIa, LOE b).

POPULATIONS: PEDIATRIC AND NEONATE/INFANT

Rationale

Implementation of MET teams for deteriorating patients has been shown to decrease incidence of cardiac and respiratory arrests as well as hospital mortality.[31-34] Guidelines recommend that implementation of a pediatric MET/RRT may be beneficial in facilities where children with high risk illnesses are on the general ward with the goal of transferring children to an ICU setting prior to decompensation and cardiac arrest (Class IIa, LOE b). Furthermore, cardiac arrests that are witnessed and/or monitored are associated with improved outcomes due to rapid recognition, implementation of resuscitative efforts and care.[35]

LITERATURE CITED

31. Sharek, PJ, Parast LM, Leong K et al. Effect of a rapid response team on hospital-wide mortality and code rates outside the ICU in a Children's Hospital. *JAMA* 2007; 19:2267-74
32. Tibballs J, Kinney S. Reduction of hospital mortality and of preventable cardiac arrest and death on introduction of a pediatric medical emergency team. *Pediatr Crit Care Med.* 2009; 10(3):306-12
33. Brilli RJ, Gibson R, Luria JW et al. Implementation of a medical emergency team in a large pediatric teaching hospital prevents respiratory and cardiopulmonary arrests outside the intensive care unit. *Pediatr Crit Care Med.* 2007 8(3):236-46;
34. Hunt EA, Zimmer KP, Rinke ML et al. Transition from a traditional code team to a medical emergency team and categorization of cardiopulmonary arrests in a children's center. *Arch Pediatr Adolesc Med.* 2008 Feb;162(2):117-22.
35. Brady WJ, Gurka KK, Mehring B, et al. In-hospital cardiac arrest: impact of monitoring and witnessed event on patient survival and neurologic status at hospital discharge. *Resuscitation.* 2011 82(7):845-52
36. Berg RA, Sutton RM, Holubkov et al. Ratio of PICU versus ward cardiopulmonary resuscitation events is increasing. *Crit Care Med.* 2013 41(10):2292-7.

POPULATION:
NEWLY BORN

Measure: Confirmation of airway device placement in trachea: *Percent of CPA events in pediatric patients who had confirmation of airway device placement in trachea.*

CHANGES for 2017

- Name and data element to support this measure were updated to more accurately reflect current terminology.
- Measure was updated to include patients who had a device placed **prior to the arrest event**
- Updates were made to the data element: “Section 2.3 Interventions in place PRIOR” to capture ET and TT airway devices.

Measure: Confirmation of airway device placement in trachea: *Percent of CPA events in pediatric patients who had confirmation of airway device placement in trachea.*

Guideline Recommendation

Continuous waveform capnography is recommended in addition to clinical assessment as the most reliable method of confirming and monitoring correct placement of an endotracheal tube (Class I, LOE A). Given the simplicity of colorimetric and nonwaveform exhaled CO2 detectors and esophageal detector devices (EDD), these methods can be used in addition to clinical assessment as the initial method for confirming correct tube placement in a patient in cardiac arrest when waveform capnography is not available (Class IIa, LOE B).

Rationale

Guidelines recommend that providers always use both clinical assessment and devices to confirm endotracheal tube location immediately after placement and throughout the resuscitation. Two prior studies demonstrated waveform capnography achieved 100% sensitivity and specificity for the identification of correct endotracheal tube placement in victims of cardiac arrest.[1-2] However, 3 studies demonstrated a 64% sensitivity and 100% specificity when waveform capnography was used for victims with prolonged resuscitation and transport times.[3-5]

LITERATURE CITED

1. Silvestri S, Ralls GA, Krauss B, Thundiyil J, Rothrock SG, Senn A, Carter E, Falk J. The effectiveness of out-of-hospital use of continuous end-tidal carbon dioxide monitoring on the rate of unrecognized misplaced intubation within a regional emergency medical services system. Ann Emerg Med. 2005;45:497–503.
2. Grmec S. Comparison of three different methods to confirm tracheal tube placement in emergency intubation. Intensive Care Med. 2002;28:701–704.
3. Takeda T, Tanigawa K, Tanaka H, Hayashi Y, Goto E, Tanaka K. The assessment of three methods to verify tracheal tube placement in the emergency setting. Resuscitation. 2003;56:153–157.
4. Tanigawa K, Takeda T, Goto E, Tanaka K. The efficacy of esophageal detector devices in verifying tracheal tube placement: a randomized cross-over study of out-of-hospital cardiac arrest patients. Anesth Analg. 2001;92:375–378.
5. Tanigawa K, Takeda T, Goto E, Tanaka K. Accuracy and reliability of the self-inflating bulb to verify tracheal intubation in out-of-hospital cardiac arrest patients. Anesthesiology. 2000;93:1432–1436.
6. Li J. Capnography alone is imperfect for endotracheal tube placement confirmation during emergency intubation. J Emerg Med. 2001;20:223–229.
7. Anton WR, Gordon RW, Jordan TM, Posner KL, Cheney FW. A disposable end-tidal CO2 detector to verify endotracheal intubation. Ann Emerg Med. 1991;20:271–275.
8. Bhende MS, Thompson AE. Evaluation of an end-tidal CO2 detector during pediatric cardiopulmonary resuscitation. Pediatrics. 1995;95:395–399.
9. MacLeod BA, Heller MB, Gerard J, Yealy DM, Menegazzi JJ. Verification of endotracheal tube placement with colorimetric end-tidal CO2 detection. Ann Emerg Med. 1991;20:267–270.
10. Ornato JP, Shipley JB, Racht EM, Slovis CM, Wrenn KD, Pepe PE, Almeida SL, Ginger VF, Fotre TV. Multicenter study of a portable, hand-size, colorimetric end-tidal carbon dioxide detection device. Ann Emerg Med. 1992;21:518–523.
11. Varon AJ, Morrina J, Civetta JM. Clinical utility of a colorimetric end-tidal CO2 detector in cardiopulmonary resuscitation and emergency intubation. J Clin Monit. 1991;7:289–293.
12. Bozeman WP, Hexter D, Liang HK, Kelen GD. Esophageal detector device versus detection of end-tidal carbon dioxide level in emergency intubation. Ann Emerg Med. 1996;27:595–599.
13. Pelucio M, Halligan L, Dhindsa H. Out-of-hospital experience with the syringe esophageal detector device. Acad Emerg Med. 1997;4:563–568.

POPULATION: NEWLY BORN

Measure: Time to positive pressure ventilation <1 minute from CPA recognition: *Percent of newly born CPA events in newly born patients <24 hours old where the positive pressure ventilation was within 1 minute of event recognition.*

CHANGES for 2017

- Similar to time to the “Time to first assisted ventilation <=1 min” quality measure
- Updated to include LMA, ET, and TT
- Measure gives credit for positive pressure ventilation in place prior to the start of the event

POPULATION: NEWLY BORN

Measure: Time to positive pressure ventilation <1 minute from CPA recognition: *Percent of newly born CPA events in newly born patients <24 hours old where the positive pressure ventilation was within 1 minute of event recognition.*

Guideline Recommendation:

The AHA/AAP Neonatal Resuscitation Program (NRP) recommends positive pressure ventilation for infants who remain apneic/gasping or have heart rate <100 beats per minute after 30 seconds of providing warmth, drying, and stimulating. (1). Assisted ventilation should be initiated at a rate of 40 to 60 breaths per minute to promptly achieve or maintain a heart rate of 100 per minute (Class IIb, LOE C).

POPULATION: NEWLY BORN

Rationale:
Most infants successfully transition to the extrauterine environment independently. When resuscitative interventions are indicated, the following sequence of action is recommended (1):

A. Initial steps in stabilization (provide warmth, clear airway if necessary, dry, stimulate)
B. Positive pressure ventilation
C. Chest compressions
D. Administration of epinephrine and/ or volume expansion

LITERATURE CITED

1. Kattwinkel J, Perlman JM, Aziz K, Colby C, Fairchild K, Gallagher J, et al. Neonatal resuscitation: 2010 american heart association guidelines for cardiopulmonary resuscitation and emergency cardiovascular care. Pediatrics 2010, Nov;126(5):e1400-13.
2. Perlman JM, Risser R. Cardiopulmonary resuscitation in the delivery room. Associated clinical events. Arch Pediatr Adolesc Med 1995, Jan;149(1):20-5.
3. Perlman JM, Wyllie J, Kattwinkel J, Atkins DL, Chameides L, Goldsmith JP, et al. Part 11: Neonatal resuscitation: 2010 international consensus on cardiopulmonary resuscitation and emergency cardiovascular care science with treatment recommendations. Circulation 2010, Oct 19;122(16 Suppl 2):S516-38.
4. Ersdal HL, Mduma E, Svensen E, Perlman JM. Early initiation of basic resuscitation interventions including face mask ventilation may reduce birth asphyxia related mortality in low-income countries: a prospective descriptive observational study. Resuscitation. 2012 Jul;83(7):869-73.
5. Lindner W, Högel J, Pohlandt F. Sustained pressure—controlled inflation or intermittent mandatory ventilation in preterm infants in the delivery room? A randomized, controlled trial on initial respiratory support via nasopharyngeal tube. Acta Paediatrica 2005, Mar 1;94(3):303-9.
6. te Pas AB, Walther FJ. A randomized, controlled trial of delivery-room respiratory management in very preterm infants. Pediatrics 2007, Aug;120(2):322-9
7. Lista G, Boni L, Scopesi F, Mosca F, Trevisanuto D, Messner H, et al. Sustained lung inflation at birth for preterm infants: A randomized clinical trial. Pediatrics 2015, Jan 26.

POPULATION: NEWLY BORN

Measure: <u>Advanced airway placed prior to the initiation of chest compressions</u>: *Percent of CPA events in newly born patients <24 hours old who had an advanced airway (either laryngeal mask airway (LMA), endotracheal tube (ET) or tracheostomy tube) placed prior to initiation of chest compressions.*

CHANGES for 2017

- The “Time to invasive airway <=2 min in newborn/neonate” is being replaced with “Advanced airway placed prior to the initiation of chest compressions” to reflect the appropriate sequence of action in a newly born event.

POPULATION: NEWLY BORN

Measure: Advanced airway placed prior to the initiation of chest compressions: *Percent of CPA events in newly born patients <24 hours old who had an advanced airway (either laryngeal mask airway (LMA), endotracheal tube (ET) or tracheostomy tube) placed prior to initiation of chest compressions.*

Guideline Recommendation:

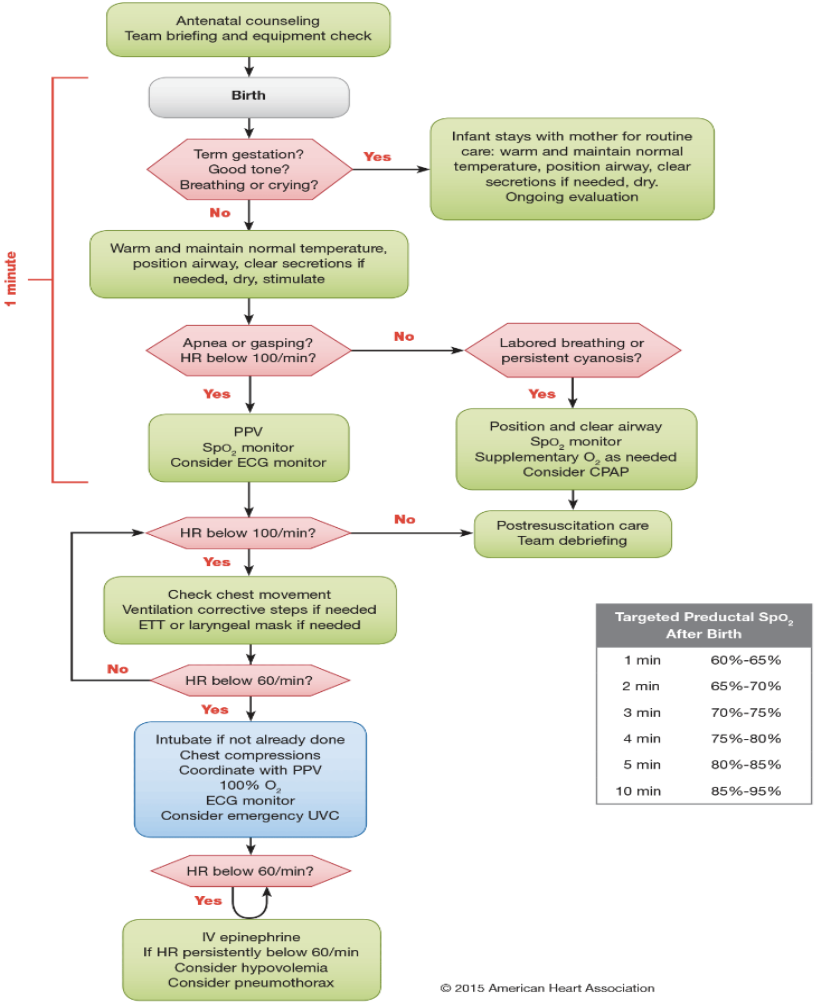
The 2015 AHA/AAP Neonatal Resuscitation Algorithm (Figure1) recommends placement of an advanced airway, either laryngeal mask airway (LMA) or endotracheal tube, prior to the start of chest compression.[1]

POPULATION: NEWLY BORN

Rationale:
Approximately 10% of all newborns require some resuscitative interventions after birth, but less than 0.2% require chest compressions or vasoactive medications.[9] Asphyxia is the predominant cause of cardiovascular collapse in the newborn, and effective resuscitation requires significant focus on ventilation. When resuscitative interventions are indicated, the following sequence of action is recommended:

A. Initial steps in stabilization (provide warmth, clear airway if necessary, dry, stimulate)
B. Positive pressure ventilation
C. Chest compressions
D. Administration of epinephrine and/ or volume expansion

Neonatal Resuscitation Algorithm—2015 Update



Targeted Preductal SpO_2 After Birth	
1 min	60%-65%
2 min	65%-70%
3 min	70%-75%
4 min	75%-80%
5 min	80%-85%
10 min	85%-95%

Kattwinkel J, Perlman JM, Aziz K, Colby C, Fairchild K, Gallagher J, et al. Neonatal resuscitation: 2010 American Heart Association guidelines for cardiopulmonary resuscitation and emergency cardiovascular care. *Pediatrics*. 2010;126(5):e1400-13.

LITERATURE CITED

8. Kattwinkel J, Perlman JM, Aziz K, Colby C, Fairchild K, Gallagher J, et al. Neonatal resuscitation: 2010 American Heart Association guidelines for cardiopulmonary resuscitation and emergency cardiovascular care. *Pediatrics*. 2010;126(5):e1400-13.

9. Perlman JM, Risser R. Cardiopulmonary resuscitation in the delivery room. Associated clinical events. *Arch Pediatr Adolesc Med.* 1995;149(1):20-5

10. Perlman JM, Wyllie J, Kattwinkel J, Atkins DL, Chameides L, Goldsmith JP,et al. Neonatal Resuscitation Chapter Collaborators. Part 11: neonatal resuscitation: 2010 International Consensus on Cardiopulmonary Resuscitation and Emergency Cardiovascular Care Science with Treatment Recommendations. *Circulation*. 2010;122(suppl 2): S516–S538

POPULATION: NEWLY BORN

Measure: Pulse oximetry in place prior to the initiation of chest compressions: *Percent of CPA events in newly born patients where pulse oximetry was in place prior to the initiation of chest compressions*

CHANGES for 2017

- This is a new measure to evaluate the sequence of events during a newly born resuscitation event.
- The 2010 NRP guidelines included the use of pulse oximetry for oxygen monitoring;
- This monitor also provides a continuous and objective heart rate assessment during newborn resuscitation.

POPULATION: NEWLY BORN

Measure: Pulse oximetry in place prior to the initiation of chest compressions: *Percent of CPA events in newly born patients where pulse oximetry was in place prior to the initiation of chest compressions*

Guideline Recommendation:
Objective monitoring of heart rate, via either pulse oximetry or ECG should be in place prior to initiation of chest compressions.

POPULATION: NEWLY BORN

Rationale:

Approximately 10% of all newborns require some resuscitative interventions after birth, but less than 0.2% require chest compressions or vasoactive medications. Asphyxia is the predominant cause of cardiovascular collapse in the newborn, and effective resuscitation requires significant focus on ventilation. When resuscitative interventions are indicated, the following sequence of action is recommended[11]:

A. Initial steps in stabilization (provide warmth, clear airway if necessary, dry, stimulate)
B. Positive pressure ventilation
C. Chest compressions
D. Administration of epinephrine and/ or volume expansion

LITERATURE CITED

11. Wyckoff MH, Aziz K, Escobedo MB, Kapadia VS, Kattwinkel J, Perlman JM, Simon WM, Weiner GM, Zaichkin JG. Neonatal Resuscitation: 2015 American Heart Association Guidelines Update for Cardiopulmonary Resuscitation and Emergency Cardiovascular Care.
12. Kamlin CO, O'Donnell CP, Everest NJ, Davis PG, Morley CJ. Accuracy of clinical assessment of infant heart rate in the delivery room. Resuscitation 2006; 71: 319-321.
13. Kattwinkel J, Perlman JM, Aziz K, Colby C, Fairchild K, Gallagher J, et al. Neonatal resuscitation: 2010 american heart association guidelines for cardiopulmonary resuscitation and emergency cardiovascular care. Pediatrics 2010, Nov;126(5):e1400-13.
14. Katheria A, Rich W, Finer N. Electrocardiogram provides a continuous heart rate faster than oximetry during neonatal resuscitation. Pediatrics. 2012;130:e1177-e1181.
15. Mizumoto H, Tomotaki S, Shibata H, Ueda K, Akashi R, Uchio H, Hata D. Electrocardiogram shows reliable heart rates much earlier than pulse oximetry during neonatal resuscitation. Pediatr Int. 2012;54:205-207
16. van Vonderen JJ, Hooper SB, Kroese JK, Roest AA, Narayen IC, van Zwet EW, te Pas AB. Pulse oximetry measures a lower heart rate at birth compared with electrocardiography. J Pediatr 2015; 166:49-53.
17. Dawson JA, Saraswat A, Simionato L, Thio M, Kamlin CO, Owen LS, Schmölzer GM, Davis PG. Comparison of heart rate and oxygen satura-tion measurements from Masimo and Nellcor pulse oximeters in newly born term infants. Acta Paediatr. 2013;102:955-960.

Patient Management Tool (PMT) and Recognition Program Updates

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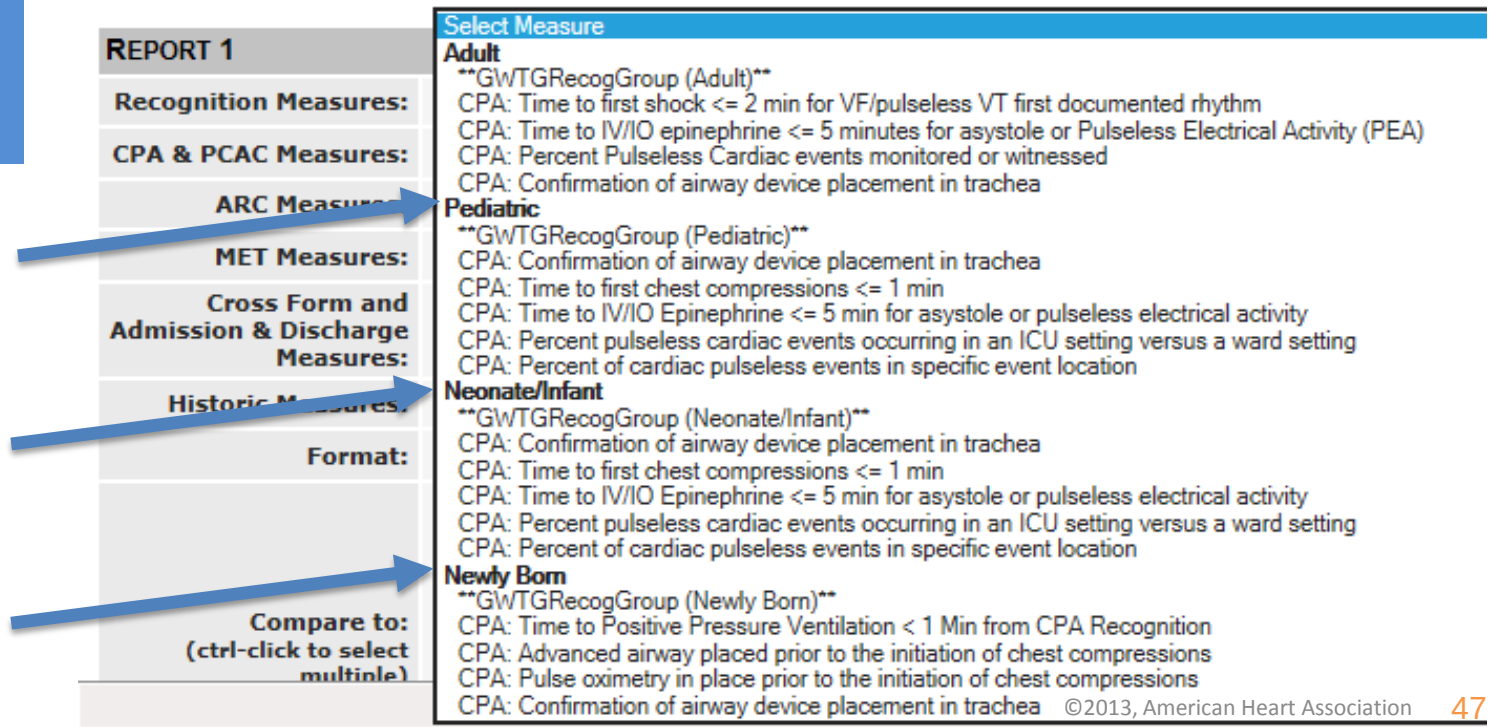
Recognition Program and PMT Updates

- Locate where to find the recognition measures and new logic and rationale statements for 2017
- Understand the CRF changes to support the measure changes.
- Understand recognition program options for the “Confirmation of Airway Device…” measure
- Demonstrate the impact to data entry to support the “Confirmation of Airway Device…” measure
- Communicate non-recognition measure changes

Recognition Measures Location

Measures are grouped by population.



Recognition Measures Location (cont.)

New Logic and Rationale for each recognition measure

Resuscitation Measure Descriptions
Resuscitation Measure Descriptions - Historic
Get With The Guidelines®-RESUSCITATION Benchmarking Group Assignment Guide

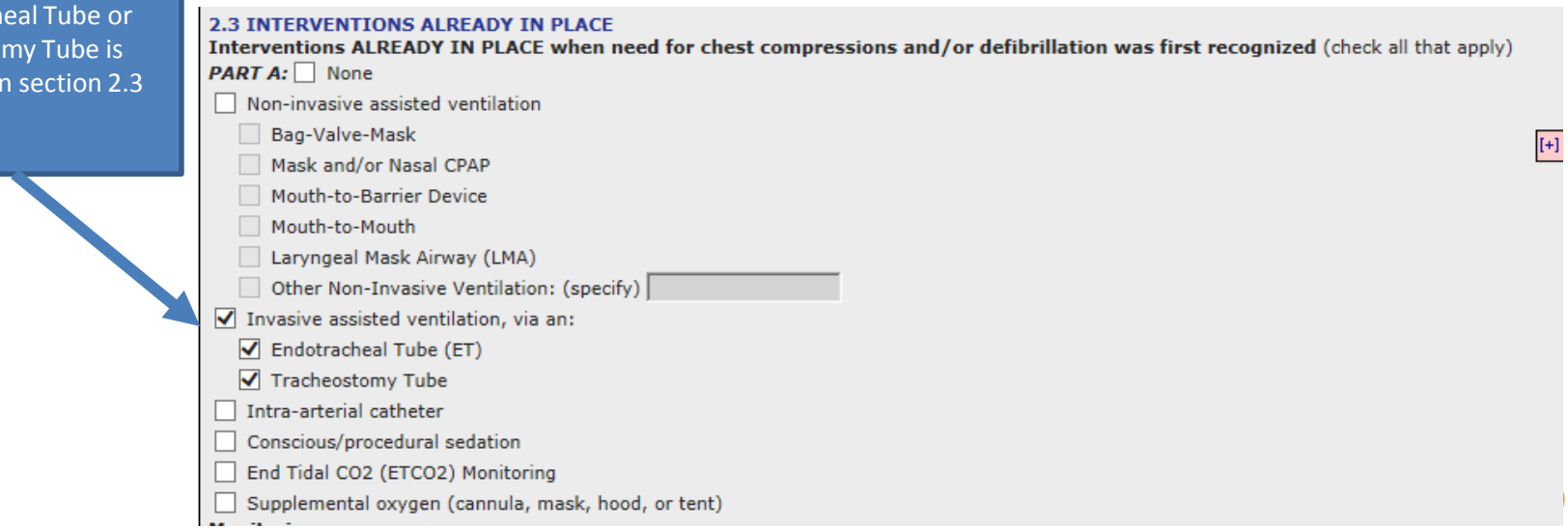
CPA and CPA Newly Born CRF Updates

CRF updates to support the “Confirmation of Airway Device Placement in Trachea” Recognition Measure:

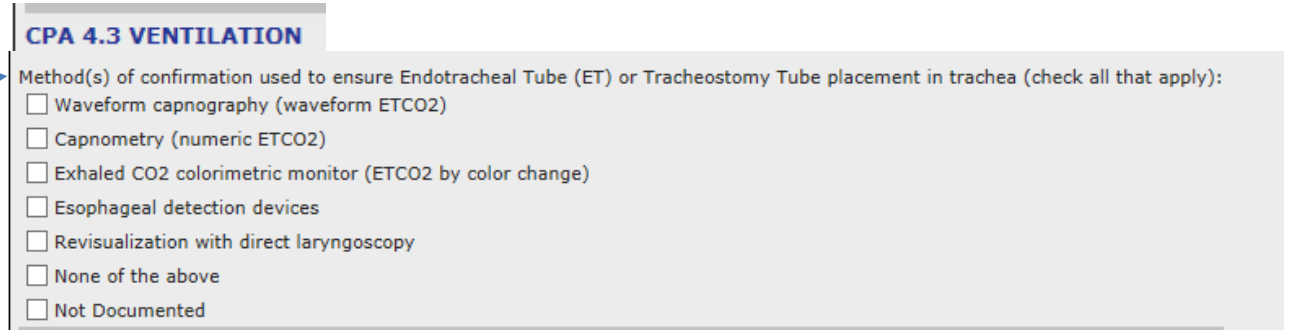
- The measure was also updated to include patients who had a device placed prior to the arrest event, as measuring airway device confirmation is important in this group as well.
- Updates were made to the data element: “Section 2.3 Interventions in place PRIOR” to capture Endotracheal Tube and Tracheostomy Tube airway devices. If selected, “method of confirmation” question in Section 4.3 is required.

Section 2.3 Invasive Assisted Ventilation Requires a Confirmation of Device

If Endotracheal Tube or Tracheostomy Tube is checked off in section 2.3



Go to section 4.3 and select the method of confirmation used



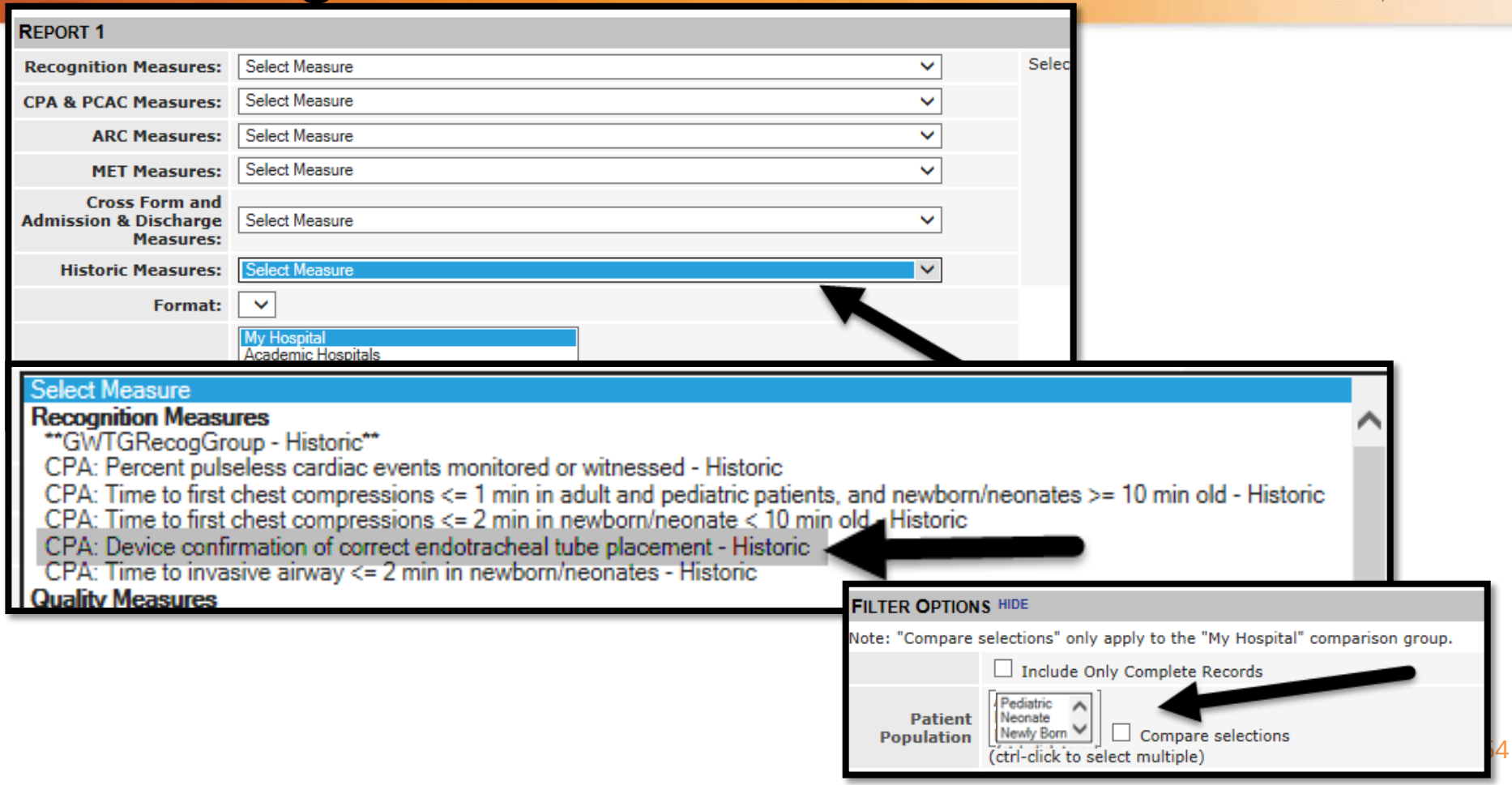
Additional Information for the “Correct Airway Device Placement” Measure

- Each population has a “Confirmation of airway device placement in trachea” that replaced the “Device confirmation of correct endotracheal placement” measure.
- The change to this measure includes adding mechanical method of confirmation for all airway devices in place, placed or replaced during the event.
- The 2016 and prior the measure only required the confirmation of placement for airway devices placed or replaced during the event.
- To assist in the transition, please check nurse, respiratory therapist and physician notes for documentation of a method of confirmation.

Confirmation of airway device placement in trachea Measure: Recognition Impact

- 2017 Recognition is a transition year.
  - With automated awards, AHA will use whichever value is higher.
  - By 2018, sites will need to be fully transitioned to the new measure. The transition period is for the airway device confirmation measures only.
- Hospitals will be able to qualify for recognition in all patient populations by using the old or new airway device confirmation measure in 2017.
- Reminder to review the Recognition Guide which is provided as a handout on this webinar.

Checking the 2016 Measure in Historic



Confirmation of Airway Placement: Impact to data entry

- This change impacts to the CRF impacts all records with a core date on or after January 1, 2017.
    - Note: You will still need to enter a method of confirmation if an Endotracheal Tube or Tracheostomy Tube was placed or replaced during the event (this was in place prior to 2017).
- Next slides reviews how to ensure proper data entry

Review patient records for accurate data entry

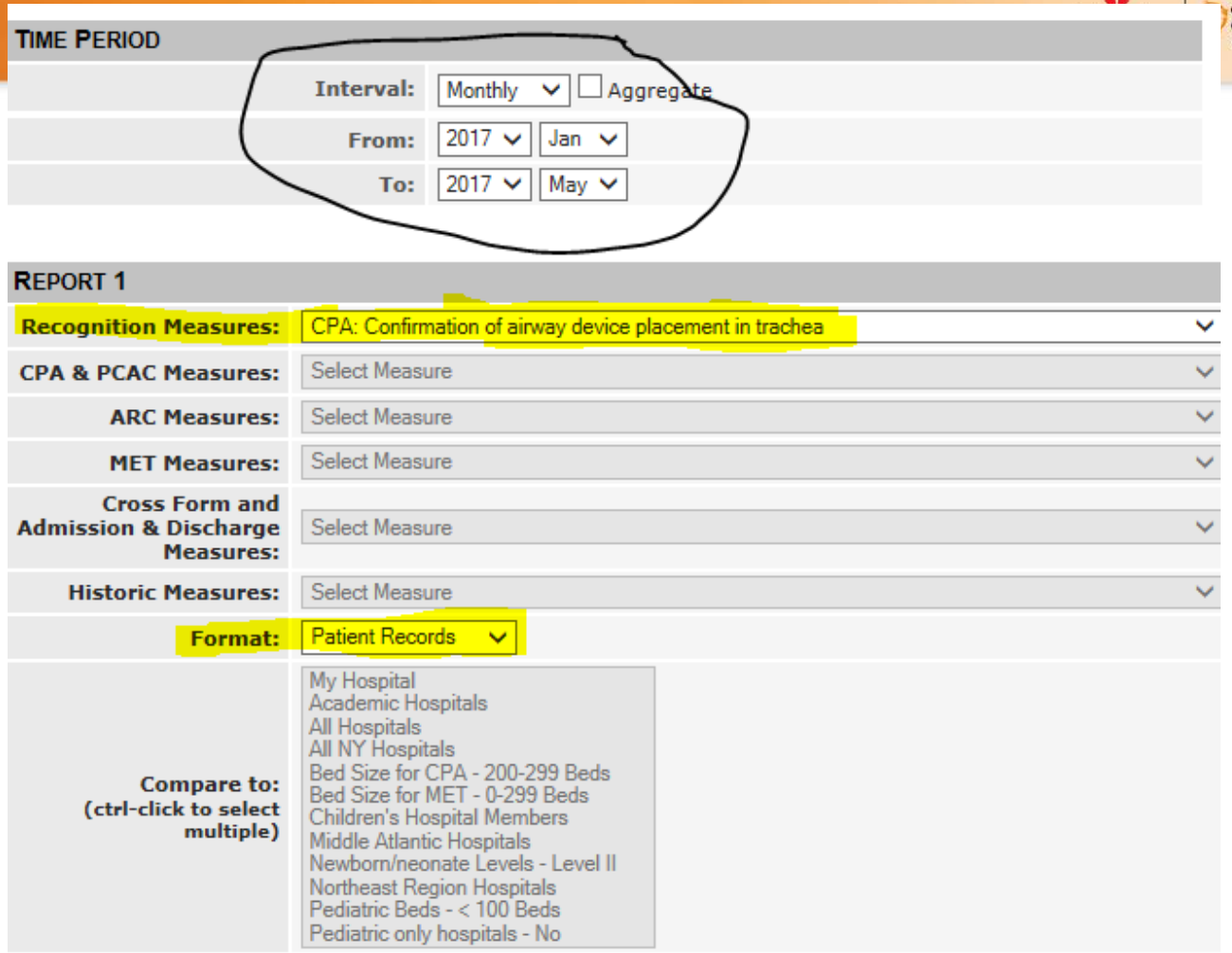
The easiest way to review your patient records from Jan. 1, 2017 to present is to run the "Confirmation of airway device…" Recognition Measure report in Configurable Measures reports.

- Go to Configurable Measures Reports
- Dates: January 1, 2017 to present
- Report Format: Select Patient Records then use "Patient Records"

Date range begins with Jan. 1, 2017

Select “CPA: Confirmation of airway device…

Format: Patient Records



Review patient records for accurate data entry (cont.)

- Once the report generates in a new window, click on “Show Filters”.
- Under “CPA Endotracheal Tube”, select the “Checked” filter.
- Under “method of confirmation…”, select the blank filter. Don’t leave the filter blank, so you will need to select the filter that is blank.

Click on show filters

CPA Endotracheal Tube = checked

Method of confirmation = blank

Show filters This report shows all records. 8 of 8

Patient ID	Included in Results?	In Numerator?	Date/Time need for chest compressions FIRST recognized	Age at Event	Age units	Date of Birth	CPA Endotracheal Tube (ET)	CPA Tracheostomy Tube	ET/Tracheostomy Tube inserted/re-inserted	Method(s) of Confirmation, ET or Tracheostomy
	no filter	no filter			no filter		Checked	no filter	no filter	

Review patient records for accurate data entry (cont.)

- This is the list of patients that will require you to go back and enter a method of confirmation. You can export this list so you have the patient IDs to look up. Or you can click on the patient IDs in the list to edit the records.
- Go through steps 1-7 again for tracheostomy tube. For step 5, use “CPA Tracheostomy Tube” instead.

List of patients that need a method of confirmation entered

Click on patient ID to enter method of confirmation

Optional: export to excel

Print | Export to Excel | Export to .csv

Patient ID	Included in Results?	In Numerator?	Date/Time need for chest compressions FIRST recognized	Age at Event	Age units	Date of Birth	CPA Endotracheal Tube (ET)	CPA Tracheostomy Tube	ET/Tracheostomy Tube inserted/re-inserted	Method(s) of Confirmation, ET or Tracheostomy
	no filter	no filter			no filter		Checked	no filter	no filter	
stafftrainingmay9	Included	No	05/08/2017	67	Years	01/01/1950	Checked			

Non-Recognition Measures Changes

- Due to population changes, the Quality, Reporting, and Descriptive Measures will need to be updated.
- Changes are coming later this year.

Contact Us to Learn More

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