The Neonatal Cardiopulmonary Resuscitation (NCPR)2015

Skill Training Course

Self-Check Sheet



Committee on Neonatal Resuscitation Japan Society of Perinatal and Neonatal Medicine

Assessment immediately after birth

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Skill

Check respiration or crying.

Check muscle tone.

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	 ★ Check if you understand/will perform well before training ▼ Check if you understand/performed well after training.
	Critical knowledge and performance check Before After training training
Knowledge	Check three evaluation points immediately after birth.
Knowleage	Understand why resuscitation is required.
	Check gestational age. (preterm or term)

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2 Initial steps of resuscitation



★ Check if you understand/will perform well before training.
 ✓ Check if you understand/performed well after training.

	Cri	tical knowledge and performance check	Before training	After training
		Select appropriate size of suction catheter.		
Dreparation	Opon airway	For term infants with clear amniotic fluid :10Fr or 8Fr.		
Preparation	Open all way.	For low birth weight infants with clear amniotic fluid : 8Fr or 6Fr.		
		For term infants with meconium-stained amniotic fluid : 12Fr or 14	Fr.	
		Bring to radiant warmer.		
	Warmth and dry.	Wipe away amniotic fluid with a warmed dry towel.		
		Remove wet towel.		
	Positioning.	Keep sniffing position with shoulder roll.		
Skill		Avoid deep insertion of catheter.		
OKI	Open airway	Suction approximately within 5 seconds.		
	management.	Suction the oral cavity first and then the nasal cavity.		
		Use the negative pressure within 100 mmHg. (13 kPa)	
	Taatila atimulation	Rub the neonate's back, trunk, or limbs with warmed towel gent	ly.	
		Tap or flick the soles of the neonate's feet briefly.		

3-1 Ventilation (self-inflating bags)



★ Check if you understand/will perform well before training.
 ✓ Check if you understand/performed well after training.

	Critical knowledge and performance check	Before training	After training
	Understand indications for ventilation.		
Knowledge	Initiate effective ventilation within 60 seconds after birth.		
	Initiate ventilation with room air in term and near-term infants.		
	Select the bag for neonate.		
Preparation	Check the bag before the use. (pressure release valve, break of bag etc.)		
	Select appropriate mask size. (cover the neonate's nose and mouth but not the eyes.)		
	Keep sniffing position with shoulder roll. (assess the open airway.)		
	Hold the neonate's jaw and mask with the IC clamp technique.		
Skill	Put the mask on the neonate's face and keep airtight seal.		
	Provide ventilation at a rate of 40 to 60 breaths per minutes.		
	Check chest movements.		

3-2 Ventilation (flow-inflating bags)



	Critical knowledge and performance check	Before training	After training
	Understand indications for ventilation.		
Knowledge	Initiate effective ventilation within 60 seconds after birth.		
	Initiate ventilation with room air in term and near-term infants.		
	Attach a manometer. (pressure gauge.)		
Preparation	Set flow rate to approximately 5 to 10 mL/min.		
	Select appropriate mask size. (cover the neonate's nose and mouth but not the eyes.)		
	Keep sniffing position with shoulder roll. (assess the open airway.)		
	Hold the neonate's jaw and mask with the IC clamp technique.		
Okill	Put the mask on the neonate's face and keep airtight seal.		
SKIII	Initiate ventilation with a PIP of 20 to 30 cm/H ₂ O.		
	Provide ventilation at a rate of 40 to 60 breaths per minutes.		
	Check chest movements.		

3-3 Ventilation (T-piece resuscitators)



	Critical knowledge and performance check	Before training	After training
Knowledge	Understand indications for ventilation. Initiate effective ventilation within 60 seconds after birth. Initiate ventilation with room air in term and near-term infants.		
Preparation	 Check gas supplies at delivery room. (oxygen or air or mixed gas.) Connect the gas supply and T-piece resuscitator. (tube of gas supply or piping tub Set the dedicated circuit. Set flow rate to approximately 5 to 10 mL/min. Set the peak inspiratory pressure (PIP) to 20 to 30 cmH₂O by using test bag Set the PEEP to 5 cmH₂O by using test bag, if required. Select appropriate mask size. (cover the neonate's nose and mouth but not the eyes.) 	e.)	
Skill	Keep sniffing position with shoulder roll. (assess the open airway.) Hold the neonate's jaw and mask with the IC clamp technique. Put the mask on the neonate's face and keep airtight seal. Provide ventilation at a rate of 40 to 60 breaths per minutes. Check chest movements.		

3-4 Corrective ventilation steps



★ Check if you understand/will perform well before training.
 ✓ Check if you understand/performed well after training.

	Critical knowledge and performance check	Before training	After training
	Re-check chest movements.		
Knowledge	Check heart rate.		
	Check end-tidal CO ₂ . (particularly while the neonate is intubated.)		
	Check airtight seal between the mask and the neonate's face. (Check the IC clamp technique.)		
	Check "sniffing position" for airway management.		
Skill	Perform oral/nasal suctioning.		
	Increase ventilation pressure.		
	Consider alternative airway.		

4-1 Chest compressions (two-thumb technique)



	Critical knowledge and performance check	Before training	After training
	Understand indications for chest compressions.		
Kasudadara	Understand to increase oxygen when beginning chest compressions.		
Knowledge	Understand indications for stopping chest compressions.		
	Understand to decrease oxygen concentration promptly in accordance with improvements in skin color, heart rate, and/or SpO2.		
	Encircle the chest with the two hands leaving the thumbs on the chest.		
	Administer compressions on the middle third of the sternum.		
	Administer compressions to a depth of one-third of the anterior-posterior diameter of the chest.		
Skill	Do not remove the fingers from the chest even when releasing pressure.		
	Administer three rapid compressions followed by one ventilation. (each cycle is performed over a period of 2 seconds.)		
	Administer 90 chest compressions and 30 rescue breaths in a minute.		
	Act the care provider performing chest compressions as pacemaker.		

4-2 Chest compressions (two-finger technique)



	Critical knowledge and performance check	Before training	After training
	Understand indications for chest compressions.		
	Understand to increase oxygen when beginning chest compressions.		
KIIUWIEUge	Understand indications for stopping chest compressions.		
	Understand to decrease oxygen concentration promptly in accordance with improvements in skin color, heart rate, and/or SpO2.		
	Administer chest compressions with two fingers, either the index finger and middle finger or the middle finger and ring fing	er.	
	Place the other hand or a massage board on the neonate's back.		
	Administer compressions on the middle third of the sternum.		
Skill	Administer compressions to a depth of one-third of the anterior-posterior diameter of the che	est.	
OKIII	Do not remove the fingers from the chest even when releasing pressure.		
	Administer three rapid compressions followed by one ventilation. (each cycle is performed over a period of 2 seconds.)		
	Administer 90 chest compressions and 30 rescue breaths in a minute.		
	Act the care provider performing chest compressions as pacemaker.		

5-1 Intravenous adrenaline administration



	Critical knowledge and performance check	Before training	After training
	Understand indications for adrenaline administration.		
Knowledge	Understand the route for intravenous adrenaline administration. (umbilical vein, intraosseous needle, peripheral vein.)		
	Understand the dose of adrenaline. (ten-fold diluted adrenaline (0.01%) \cdot : 0.1 \sim 0.3ml/kg)		
Preparation	Dilute one ampule (1 mL) of adrenaline by a factor of 10 using 9 mL of normal saline. (10 mL total)		
	Administer a dose of 10-fold diluted adrenaline rapidly.		
Skill	Flush with normal saline to ensure that the entire dose has been administered after administering the adrenaline.		
	Assess the heart rate approximately every 30 seconds after administrat if the heart rate is less than 60/min, administer a dose of 10-fold diluted adrenaline within the abovementioned range every 3 to 5 minutes	ion	

5-2 Endotracheal adrenaline administration



	Critical knowledge and performance check	Before training	After training
	Understand indications for adrenaline administration.		
Knowledge	Understand that endotracheal administration is the second best approach	ו.	
	Understand the dose of adrenaline. (ten-fold diluted adrenaline (0.01%) \cdot :0.5 \sim 1.0ml/kg)		
Preparation	Dilute one ampule (1 mL) of adrenaline by a factor of 10 using 9 mL of normal saline. (10 mL total)		
	Ensure that no drug solution remains in the endotracheal tube or any of the connecting tubes after administering adrenaline.		
Skill	Start ventilation promptly after administration to promote the absorption of the drug via trache	ea.	
	Assess the heart rate approximately every 30 seconds after administration if the heart rate is less than 60/min, administer a dose of 10-fold diluted	on 🗌	

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adrenaline within the abovementioned range every 3 to 5 minutes.

5-3 Intravenous volume expanders administration



	Critical knowledge and performance check	Before training	After training
	Understand indications for volume expanders administration.		
	Understand that normal saline is the recommended volume expander to use		
Knowledge	Understand the other recommended volume expanders are lactated Ringer's solution and type O Rh-negative.		
	Understand that type O Rh-negative packed red blood cells can be used if the neonate might have had anemia during the fetal period.		
	Understand the dose of volume expanders. (10ml/kg)		
Skill	Administer volume expanders intravenously over a period of 5 to 10 minutes	6.	
	Administer the same dose if the response is inadequate.		

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5-4 Intravenous sodium bicarbonate administration



Check if you understand/performed well after training.

	Critical knowledge and performance check	Before training	After training
Knowledge	Understand indication for sodium bicarbonate administration. Understand the dose of sodium bicarbonate. (the dose of sodium bicarbonate is 2 to 4 mL/kg and sodium bicarbonate is diluted with distilled water by a factor of two) Understand that the route of sodium bicarbonate administration is intravenou	US.	
Preparation	Dilute sodium bicarbonate with distilled water by a factor of two.		
Skill	Administer sodium bicarbonate solution intravenously at a rate of at least 1 mL/kg/min. (over a period of 2 to 4 minutes)		

6-1 Mask CPAP



	Critical knowledge and performance check	Before training	After training
Knowledge	Understand indications for CPAP. Start CPAP with room air in term and near-term infants.		
Preparation	Prepare a flow-inflating bag or a T-piece resuscitator. Select appropriate mask size. (cover the neonate's nose and mouth but not eyes.)		
Skill	Keep sniffing position with shoulder roll.(assess the airway.) Hold the neonate's jaw and mask with the IC clamp technique. Put the mask on the neonate's face and keep airtight seal. Adjust PEEP to 5 to 6 cmH ₂ O and ensure that it does not exceed 8 cmH ₂ O.		

6-2 Free-flow oxygen



Adjust the oxygen concentration while assessing SpO2.

or a T-piece resuscitator.

Skill

7-1 Endotracheal intubation



★ Check if you understand/will perform well before training.
 ✓ Check if you understand/performed well after training.

	Critical knowledge and performance check	Before training	After training
Knowledge	Understand indications for endotracheal intubation.		
Preparation	Prepare appropriate supplies for endotracheal intubation.		
Skill	Keep sniffing position without the shoulder roll or with the thin towel under the back of head Hold laryngoscope in the left hand. Advance the blade to where the tip pushes directly on the epiglottis right in the middle of the base of the tong Lift the blade slightly and with it lift the tongue to expose the pharyngeal area. * Do not lift the tip of the blade alone. Look for anatomical landmarks. Hold the tube in the right hand. Insert from the right corner of the neonate's mouth while keeping the curve of the tube horizontal. Insert the tube to the point where the vocal cord guide reaches the vocal cords Carefully withdraw the laryngoscope while keeping the tube securely in place with the right hand Perform the intubation attempt within 20 seconds. Check the length of tube is 6cm+BW(kg) at the corner of the mouth. Check the tip of the tube should be almost between the vocal cords and the carina by chest X- Secure the tube with tape or another securing device.	ad	

7-2 Laryngeal mask airway (LMA)



	Critical knowledge and performance check	Before training	After training
Knowledge	Understand indications for LMA.		
Preparation	Prepare appropriate supplies. Prepare the size 1 I MA can be used for peopates weighing 2 to 5 kg		
	If using an LMA with a cuff, inflate the cuff before inserting for pre-use inspection of the state of the sta	un	
Skill	Keep sniffing position with shoulder roll. (assess the open airway.) Place the index finger on the tip of the mask aperture and hold the LMA with two finger Use the other hand to open the neonate's mouth and advance the LMA along the hard palate with the index finger until it meets resistance. Remove the index finger while supporting the tube with one hand. If using an LMA with a cuff, inflate the cuff with the designated amount of a	rs.	
	Confirm appropriate placement of the LMA tip by five-point auscultation or observing t chest movements, expired CO ₂ detected with an end-tidal CO ₂ monitor or capnometer Secure the LMA with tape.	he	

8 Resuscitation of preterm infants



	Critical knowledge and performance check	Before training	After training
Knowledge	Delayed cord clamping for longer than 30 seconds is suggested for preterm infants not requiring immediate resuscitation.		
	Cord milking is determined to be a reasonable alternative that does not impede resuscitation in preterm infants born at 28 weeks of gestation or less who require resuscitation.		
	Perform resuscitation procedures under a radiant warmer in preterm infants born between 28 and 32 weeks of gestation, a combination of other methods such as warm blankets, plastic wrap, and a thermal mattress should be used while keeping room temperature at 23 to 25°C to avoid hypothermia. (body temperature <36°C)		
	Provide CPAP before intubation and ventilation in preterm infants who exhibit labored breathing.		
	Initiate ventilation with low oxygen (21 to 30%) in preterm infants born at less than 35 weeks of gestation.		
	Use a PEEP of 5 cmH_2O if ventilation is indicated for a preterm infant in the delivery room.		

NCPR S course scenario(Ventilation)



Did you communicate well with other team members during resuscitation?

Did you help each other to solve issues in resuscitation?

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NCPR S course scenario (Chest compression)



NCPR S course scenario (CPAP)

TEAM NAME **≫** ✓ Check the items that your team appropriately assessed and performed. Preterm weeks At Weak respiration Ves No **Birth** Weak tone Yes No Within Initial steps of resuscitation 60 sec. Provide warmth 🗌 Ensure open airway Dry Stimulation 2 Assessment Breathin… Yes No HR /min 2 Assessment Labored breathing....Yes No Cyanosis _____Yes __No SpO2 monitor Consider CPAP or free-flow oxygen З Assessment Labored breathing... Yes No Cyanosis Yes No Post-resuscitation care Consider consistent thermal management The goals for the next time Check-points for better resuscitation Did you have a constructive decision making with all team member? Did you make another suggestion when the leader's instructions and opinions are conflict with yours?

Did you communicate well with other team members during resuscitation?

Did you help each other to solve issues in resuscitation?

NCPR S course scenario (medications)



NCPR S course scenario(

