

NEWBORN

Estimated Time: 40 minutes • Debriefing Time: 30 minutes



Scan to Begin



Mom's Name: Olivia Brooks

SCENARIO OVERVIEW

Olivia Brooks is a pregnant, self-identifying alcoholic who had very limited prenatal care. She presented to the ED in labor at about 35 weeks gestation. After a few hours, the baby was in distress and an emergent C-Section is required. This is the beginning of the scenario and students are called for a STAT Cesarean Section. Students should perform a neonatal assessment/resuscitation per NRP guidelines including an evaluation of 1 and 5 minute APGAR scores. Baby Girl Brooks will require positive pressure ventilation for a few minutes and then require a nasal CPAP set-up.

This scenario is written for use in both high- and low-fidelity environments. In high-fidelity environments, the QR codes can be used to augment the reality of the simulations. In low-fidelity environments, the QR codes can be used to stimulate discussion about patient care.

QR Code: Facilitator is used often throughout the programming to allow for discussion time. Thus, it may have been beneficial for the Facilitator to control the iPad and scanning of QR Codes.

LEARNING OBJECTIVES

1. Demonstrate proper infection control
2. Perform a neonatal assessment/resuscitation per NRP guidelines
3. Recognize and respond to abnormal findings
4. Apply nasal CPAP to a neonate
5. Effectively communicate with the interprofessional team
6. Document accurately

CURRICULUM MAPPING

WTCS RESPIRATORY THERAPY PROGRAM OUTCOMES

- Apply respiratory therapy concepts to patient care situations
- Demonstrate technical proficiency required to fulfill the role of a respiratory therapist
- Practice respiratory therapy according to established professional and ethical standards

RESPIRATORY SURVEY

- Perform pulse oximetry
- Review the medical record utilizing medical record keeping and charting methods consistent with hospital policy and procedures
- Utilize infection control principles
- Evaluate patient data
- Perform a basic cardiovascular assessment
- Perform a respiratory assessment

- Obtain vital signs

RESPIRATORY THERAPEUTICS I

- Perform procedures to assess oxygenation
- Evaluate oxygenation
- Demonstrate the use of medical gas equipment
- Assess the need for medical gas therapy

RESPIRATORY NEO/PEDS CARE

- Differentiate cardiopulmonary diseases/disorders of the neonatal/pediatric patient
- Apply principles of mechanical ventilation and airway management for the neonatal/pediatric patient
- Evaluate cardiopulmonary status of the neonatal/pediatric patient
- Evaluate radiologic images of neck and chest

CLINICAL PRACTICE

- Apply standard precautions
- Assess vital signs
- Perform pulse oximetry
- Perform chart review
- Perform a pulmonary exam
- Administer oxygen therapy
- Apply non-invasive positive pressure ventilation

SIMULATION LEARNING ENVIRONMENT & SET-UP

ENVIRONMENT

Inside room: Baby in open-incubator

Inside or outside room: Hand sanitizer and/or sink

Outside room: Computer or form(s) for documentation

PATIENT PROFILE

There is no patient profile as the baby was just born. Her name is Baby Girl Brooks.

EQUIPMENT/SUPPLIES/SETTINGS

Patient

- Moulaged to appear newly born via C-Section
- No ID band

Monitor Settings

- No monitor until directed by the Facilitator.
- Simulator vitals: HR 142 (remains above 100 for the entire scenario), RR vigorous crying, Temp 37.1, Preductal Saturation = 60-65% at 1 minute, 65-70% at 2 minutes, 70-75% at 3 minutes, 75-80% at 4 minutes, should not go above 80% even at 5 minutes, but will increase to 95% after interventions and by 10-15-minute mark – discuss with facilitator.

Supplies

- General
 - Towels for drying/stimulating, bulb (and other) suction equipment, thermometer, neonatal ECG stickers
 - Respiratory Equipment
 - Neonatal resuscitation bag
 - Neonatal nasal CPAP
 - Neonatal pulse oximeter probe

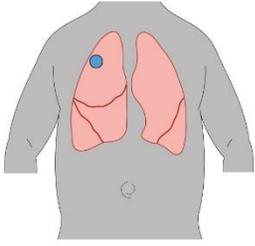
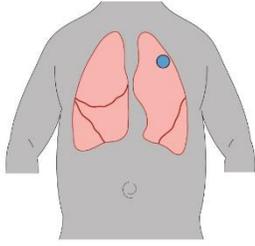
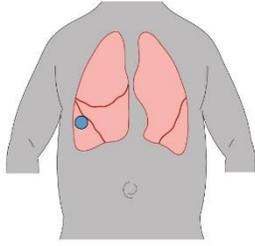
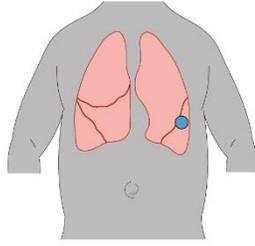
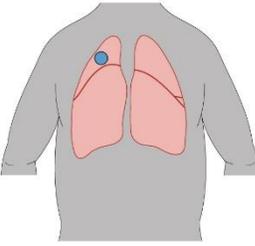
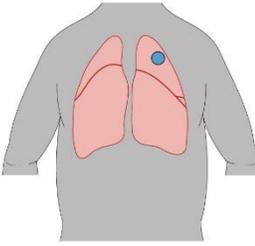
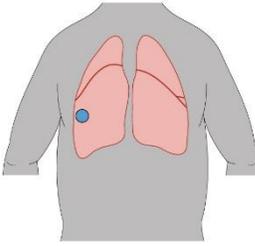
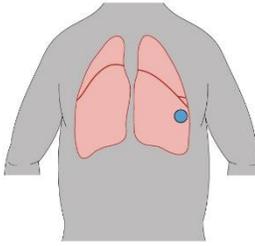
- Various other neonatal O2 supplies
- Medications
 - None needed

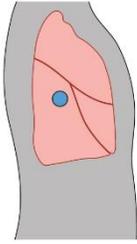
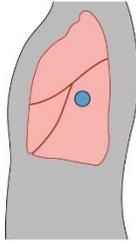
QR CODES

START 	MOM 	REPORT 	FACILITATOR 
C-SECTION 	NEWBORN ON CPAP 	NEWBORN SPO ₂ 	APGAR PROTOCOL 
1 MINUTE APGAR 	5 MINUTE APGAR 		

CHEST QR CODES

Cut along the dotted lines. Fold along the solid line to create a bi-fold of the diagram and QR code.

			
ANTERIOR 2	ANTERIOR 3	ANTERIOR 6	ANTERIOR 7
			
			
POSTERIOR 0	POSTERIOR 1	POSTERIOR 4	POSTERIOR 5
			

	
RIGHT AXILLARY 1	LEFT AXILLARY 1
	

TEACHING PLAN

PREBRIEF

The facilitator should lead this portion of the simulation. The following steps will guide you through Prebrief.

- Scan the **QR Code: “Scan to Begin”** while students are in Prebrief.
- “Meet the Mom” (on iPad) and explain how the iPad works in the simulated learning environment including:
 - Explain how to use the iPad scanner and QR codes. Remind students that there are multiple QR codes in the simulation, but they should only scan them if they think it will provide data necessary for their assessment and evaluation of the patient.
 - For some scenarios, it may be helpful to tell students where the QR code are located. For others, you may want students to “find” the QR codes during their assessments. This is your choice.
 - Describe how a QR code sound will work in the scenario. For the most authentic sound experience, student should use ear buds or the ARISE “stethoscope” for all QR codes with the following symbol: ◀. Example: **QR Code: Chest Anterior 1** 📄
 - As the facilitator, you should be aware that throughout the simulation some QR codes are necessary to the programming of the iPad content. Directions for which QR codes are required (to be scanned) in each state are listed under each state of the documentation below. The QR codes are also in **BOLD** type.
 - Level tab – This tab “tells” the content in the iPad to change to what is needed for the next state of a simulation. It is used a few times in this scenario after the provider is notified to display new orders (those just given over the phone) and lab results, etc.
 - Medication QR Codes – The student(s) must scan **QR Code: Patient ID** prior to scanning any medication. That scan is valid for 2 minutes and then it “times out.” The student(s) will need to scan **QR Code: Patient ID** again to give more medications.
 - MAR Hyperlinks – On the MAR all medications are underlined and hyperlinked to DailyMed, which is a medication reference housed by the

National Library of Medicine. Students can click on these links during the simulation for up-to-date medication content, labels, and package insert information.

- Discuss the simulation “Learning Objective(s)” (on iPad) as well as any other Prebrief materials
- Get “Report” on iPad
 - Possible Facilitator Questions
 - How might the situation differ if it were a planned procedure as opposed to this STAT procedure?
- View a plaque that reads, “Immediately report to the OR and prepare for a STAT Cesarean Section.”
 - Optional: A room could be set up like an OR and students could simulate interactions in the OR environment
 - Possible Facilitator Questions
 - Discuss the duties and priorities of the respiratory therapist during a STAT C-section.
 - Describe infection control and PPE requirements for the OR.
- Get “Circulating Nurse Report” on iPad
 - Possible Facilitator Questions
 - What are your concerns for the baby after hearing this report?
 - Discuss fetal alcohol syndrome and neonatal abstinence syndrome.
- View a plaque on the iPad entitled “OR Team” with text that reads, “Obtain approval from facilitator to proceed.”
 - Possible Facilitator Questions
 - Describe the OR environment and the roles of the OR Team members.
 - Describe the C-Section procedure.
- Tabbed iPad Prompts and Content
 - To advance to State 1, scan **QR Code: Facilitator**.

- The iPad will display a message that reads, “You have been approved to proceed.”

HOME

As there is no Patient Profile yet (baby was just born), this screen is intentionally blank and a resting spot for the iPad.

RETURN TO PRIOR SCREEN

This tab allows the user to return to the plaque the iPad was on prior to using the scanner or viewing the tabbed content.

LEVEL 1

The iPad reads, “The iPad is at Level 1.”

SCANNER

Use this to scan available QR Codes.

EXIT

The iPad reads, “Are you sure you want to exit? All data will be lost.”

- If “No” is selected, the iPad will return to the tabbed content.
- If “Yes” is selected, the iPad will let the student(s) exit and prompt them to complete an embedded 3-5 minute survey.

STATE 1

STAT CESAREAN SECTION

- Patient Overview
 - Baby is born via C-Section. Students should assess/resuscitate per NRP guidelines and obtain a 1 minute APGAR score.
- Expected Student Behaviors
 - View video of a baby being born via STAT C-Section.
 - Possible Facilitator Questions:
 - After viewing the video, describe your initial impression of the newborn.
 - What are some of the complications that can occur when an infant is born via C-Section?
 - View a plaque entitled, “Initial Assessment” with an image of the neonatal team and text that reads, “Initial assessment shows no meconium staining. Perform a neonatal assessment and resuscitate per NRP protocol. Obtain APGAR score at 1 minute.”
 - Facilitator Note: On this plaque, the iPad has the sound of a baby crying. This sound will play for 30 seconds and can be continued by tapping the play button. It is recommended that the sound continue for at least 1 minute or until the facilitator wants to discuss 1 minute APGAR scores.
 - Students should assist with drying, assessing, and resuscitating the baby per NRP protocol.
 - Optional: Scan **QR Code: Newborn SpO₂** for an image of a neonatal pulse oximetry probe applied to a foot.
 - Possible Facilitator Questions:
 - Describe what happens during the first minute of a neonatal resuscitation.
 - What is the RT’s role during that first minute? “Initial Assessment”
 - Describe pre-ductal SpO₂ readings within the first minute of birth.

- Students should obtain 1 minute APGAR score.
 - Optional: Tap on the APGAR Protocol button to view or a printable version is also available in Appendix A.
 - Students will be able to evaluate the cry for part of the scoring, but the technician/facilitator will need to give students the following APGAR data:
 - Baby is blue at extremities with a pink body (acrocyanosis).
 - Baby has some flexion of the extremities.
- When continue is tapped, a completed 1 minute APGAR score appears on the iPad.
 - This is also available by scanning **QR Code: 1 Minute APGAR**, or a printable version is available in Appendix B.
 - Students should evaluate the APGAR score.
 - Possible Facilitator Questions:
 - Based on the current APGAR score, do you have any concerns? Why or Why not?
 - What is the protocol when the Heart Rate is below 100?
- After the 1 minute APGAR score is evaluated, scan **QR Code: Facilitator** to proceed.
- View a plaque on the iPad entitled “Neonatal Assessment” that reads, “The team is preparing to draw blood, start an IV, and insert an umbilical line.”
 - The iPad has the sound of a baby crying. This sound will play for 30 seconds and can be continued by tapping the play button. It is recommended that the sound continues while the assessment is being performed and/or during the assessment of lung sounds – auscultation.
 - Students should perform a neonate assessment and continue to evaluate vital signs as well as interpret the findings.
 - Possible Facilitator Questions:

- At this time, what are the most important aspects of the neonatal assessment?
- Describe pre-ductal SpO₂ changes from 1 minute to 10 minutes after birth.
- What happens if the Heart Rate drops below 60?
- Optional: During this time, the team members could be obtaining blood, starting an IV line and inserting an umbilical line.
 - Possible Facilitator Questions:
 - What labs would be ordered for a neonate?
 - What are the indications, hazards, and/or contraindications for an umbilical line?
 - Auscultation – Scan **QR Code: Chest**
 - There are ten QR codes to apply to the chest – see above Chest QR Code chart for locations. You may need to reduce the size when copying.
 - Students will hear muffled crying in all lung fields.
 - Possible Facilitator Questions:
 - What is the value of auscultation during this neonatal assessment?
 - Demonstrate appropriate communication with the interprofessional team
- Technician Prompts
 - Nothing required for the patient.
 - Several people should be playing the roles of the other members of the NRP team including a nurse and provider. All team members should be in OR attire.
- Tabbed iPad Prompts and Content
 - Scan **QR Code: Facilitator** to advance to State 2

APGAR PROTOCOL

This tab displays the APGAR Protocol. A printable version is available in Appendix A.

1 MINUTE APGAR SCORE

A printable version is also available in Appendix B.

Patient Name	DOB	MR#
<i>Baby Brooks</i>	<i>Now</i>	<i>105115</i>
Allergies	Height (cm)	Admission Weight (kg)
<i>NKDA</i>		

APGAR Scores

1 Minute APGAR		Score = 8
Score of 0	Score of 1	Score of 2
blue or pale all over	blue at extremities; body pink (acrocyanosis)	no cyanosis; body and extremities pink
absent	< 100 beats per minute	> 100 beats per minute
no response to stimulation	grimace on suction or aggressive stimulation	cry on stimulation
none	some flexion	flexed arms and legs that resist extension
absent	weak, irregular, gasping	strong, robust cry

LEVEL 1/2

- When the Level 1 tab is tapped, the iPad reads, “The iPad is at Level 1.”
- The Level 1 tab will automatically change to a Level 2 tab after **QR Code: Facilitator** is scanned.
- When the Level 2 tab is tapped, the iPad reads, “The iPad is at Level 2.”

STATE 2

CHANGE IN CONDITION

- Patient Overview
 - The baby’s cry has changed and she is now in some distress. Students are to obtain a 5 minute APGAR while reassessing and continuing to resuscitate per NRP guidelines.
 - Facilitator Note: The iPad has the sound of a baby grunting. This sound will play for 30 seconds and can be continued by tapping the play button. It is recommended that the sound continue for at least 1 minute or until the facilitator wants to discuss 5 minute APGAR scores.
- Expected Student Behaviors
 - View plaque entitled “5 Minute APGAR Assessment” that reads, “Baby’s cry has changed and baby appears to be in some distress. Obtain 5 minute APGAR score at this time.”
 - Facilitator Note: The iPad has the sound of a baby grunting. This sound will play for 30 seconds and can be continued by tapping the play button. It is recommended that the sound continue for at least 1 minute or until the facilitator wants to discuss 5 minute APGAR scores.
 - Optional: Tap on the APGAR Protocol button to view or a printable version is also available in Appendix A.
 - Students will be able to evaluate the cry for part of the scoring, but the technician/facilitator will need to give students the following APGAR data:
 - Baby is blue at extremities with a pink body (acrocyanosis).
 - Baby will only grimace on suction or aggressive stimulation.
 - Baby has some flexion of the extremities.
 - When continue is tapped, a completed 5 minute APGAR score (with the 1 minute APGAR score for comparison) appears on the iPad.
 - This is also available by scanning **QR Code: 5 Minute APGAR**, or a printable version is available in Appendix C.

- Students should evaluate the new APGAR score.
 - Possible Facilitator Questions:
 - Based on the current APGAR score, do you have any concerns? Why or Why not?
 - What would you recommend to the Provider at this time? Why?
 - When is positive pressure ventilation indicated?
 - Technician Prompts
 - Nothing required for the patient.
 - Several people should be playing the roles of the other members of the NRP team including a nurse and provider. All team members should be in OR attire.
 - Tabbed iPad Prompts and Content
 - Scan **QR Code: Facilitator** to advance to State 3

5 MINUTE APGAR SCORE

A printable version is also available in Appendix C.

Patient Name	DOB	MR#
<i>Baby Brooks</i>	<i>Now</i>	<i>105115</i>
Allergies	Height (cm)	Admission Weight (kg)
<i>NKDA</i>		

APGAR Scores

5 Minute APGAR		Score = 6
Score of 0	Score of 1	Score of 2
blue or pale all over	blue at extremities; body pink (acrocyanosis)	no cyanosis; body and extremities pink
absent	< 100 beats per minute	> 100 beats per minute
no response to stimulation	grimace on suction or aggressive stimulation	cry on stimulation
none	some flexion	flexed arms and legs that resist extension

absent	weak, irregular, gasping	strong, robust cry
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1 Minute APGAR		Score = 8
Score of 0	Score of 1	Score of 2
blue or pale all over	blue at extremities; body pink (acrocyanosis)	no cyanosis; body and extremities pink
absent	< 100 beats per minute	> 100 beats per minute
no response to stimulation	grimace on suction or aggressive stimulation	cry on stimulation
none	some flexion	flexed arms and legs that resist extension
absent	weak, irregular, gasping	strong, robust cry

LEVEL 2/3

- When the Level 2 tab is tapped, the iPad reads, “The iPad is at Level 2.”
- The Level 2 tab will automatically change to a Level 3 tab after **QR Code: Facilitator** is scanned.
- When the Level 3 tab is tapped, the iPad reads, “The iPad is at Level 3.”

STATE 3

CPAP INITIATION

- Patient Overview
 - Students apply nasal CPAP per Verbal Provider order.
- Expected Student Behaviors
 - The iPad displays a plaque entitled “Verbal Order Received” with text that reads, “The Provider asks you to apply nasal CPAP. Begin at 5 cwp and titrate to 10 cwp as needed to reduce work of breathing.”
 - If someone is playing the role of the Provider, this statement is given as a verbal order.
 - Possible Facilitator Questions:
 - What is the proper protocol for taking a verbal order?
 - How is a verbal order recorded in the patient chart?
 - Student should apply CPAP per the Provider Order
 - Possible Facilitator Questions:
 - How does positive pressure affect a neonate?
 - Describe the different methods of delivering CPAP to a neonate.
 - When would intubation or mechanical ventilation be indicated?
 - Scan **QR Code: Facilitator** to view a video a neonate on nasal CPAP.
 - When continue is tapped, view a message that reads, “You have been approved to Proceed. You have completed the learning objectives for this scenario and may exit.
- Technician Prompts
 - Nothing required for the patient.
 - Several people should be playing the roles of the other members of the NRP team including a nurse and provider. All team members should be in OR attire.

- Tabbed iPad Prompts and Content

LEVEL 3/EXIT

- When the Level 4 tab is tapped, the iPad reads, “The iPad is at Level 4.”
- The Level 4 tab will automatically disappear after **QR Code: Facilitator** is scanned.
- When the Exit tab is tapped the iPad reads, “Scenario objectives have been met. Are you sure you want to exit the game?”
 - If “No” is selected, the iPad will return to the tabbed content.
 - If “Yes” is selected, the iPad will let the student(s) exit and prompt them to complete an embedded 3-5 minute survey.

DEBRIEF

Nothing needed from the iPad.

QUESTIONS

1. How did you feel this scenario went?
2. What were the main issues you had to deal with when caring for Baby Brooks?
3. Review understanding of learning objective: Demonstrate proper infection control.
 - a. What infection control issues did you encounter in the OR?
 - b. What is your role in assuring infection control procedures are followed in that unique environment?
 - c. What infectious concerns do you have for Baby Brooks?
4. Review understanding of learning objective: Perform a neonatal assessment/resuscitation per NRP guidelines.
 - a. What, if any, challenges did you encounter during your assessments of Baby Brooks?
 - b. How do vitals differ in the newborn population?
 - c. How does the infant's oxygenation status change after birth?
5. Review understanding of learning objective: Recognize and respond to abnormal findings.
 - a. Explain the interventions that occurred after the 1 minute APGAR score. Would you change anything? Why or Why not?
 - b. Explain the interventions that occurred after the 5 minute APGAR score. Would you change anything? Why or Why not?
 - c. Looking forward, how will the team evaluate for complications of fetal alcohol syndrome? What is the treatment plan for this?
6. Review understanding of learning objective: Apply nasal CPAP to a neonate.
 - a. In this scenario, what other methods could you have used to provide positive pressure and/or assist the infant with breathing difficulties?
 - b. If you could "do over," what would you change about the initiation and application of CPAP?

7. Review understanding of learning objective: Effectively communicate with interprofessional team.
 - a. Were the communication techniques you used with the OR Team effective? Why or Why not?
 - b. If you could “do over,” how would you change your communication with the OR Team?
8. Review understanding of learning objective: Document accurately.
 - a. What is important to document in your assessments and interventions?
9. Summary/Take Away Points
 - a. “Today you cared for a newborn patient who needed resuscitation following an emergency Cesarean Section. What is one thing you learned from participating in this scenario that you will take with you into your respiratory therapy practice?” (Each student must share something different from what the others’ share.)

Note: Debriefing technique is based on INASCL Standard for Debriefing and NLN Theory Based Debriefing by Dreifuerst.

SURVEY

Print this page and provide to students.

Students, please complete a brief (2-3 minute) survey regarding your experience with this ARISE simulation. There are two options:

1. Use QR Code: Survey
 - a. Note: You will need to download a QR Code reader/scanner onto your own device (smartphone or tablet). There are multiple free scanner apps available for both Android and Apple devices from the app store.
 - b. This QR Code will not work in the ARIS app.



2. Copy and paste the following survey link into your browser.
 - a. https://ircvtc.co1.qualtrics.com/SE/?SID=SV_6Mwfv98ShBfRnBX

APPENDIX A

APGAR

	Score of 0	Score of 1	Score of 2
Appearance (Skin Color)	blue or pale all over	blue at extremities; body pink (acrocyanosis)	no cyanosis; body and extremities pink
Pulse	absent	< 100 beats per minute	> 100 beats per minute
Grimace	no response to stimulation	grimace on suction or aggressive stimulation	cry on stimulation
Activity	none	some flexion	flexed arms and legs that resist extension
Respiratory Effort	absent	weak, irregular, gaspings	strong, robust cry

Scores 7 and above = generally normal

Scores 4 to 6 = fairly low

Scores 3 and below = critically low

Adapted from: Wikipedia, Apgar score

APPENDIX B

Patient Name	DOB	MR#
<i>Baby Brooks</i>	<i>Now</i>	<i>105115</i>
Allergies	Height (cm)	Admission Weight (kg)
<i>NKDA</i>		

APGAR Scores

1 Minute APGAR		Score = 8
Score of 0	Score of 1	Score of 2
blue or pale all over	blue at extremities; body pink (acrocyanosis)	no cyanosis; body and extremities pink
absent	< 100 beats per minute	> 100 beats per minute
no response to stimulation	grimace on suction or aggressive stimulation	cry on stimulation
none	some flexion	flexed arms and legs that resist extension
absent	weak, irregular, gasping	strong, robust cry

APPENDIX C

Patient Name	DOB	MR#
<i>Baby Brooks</i>	<i>Now</i>	<i>105115</i>
Allergies	Height (cm)	Admission Weight (kg)
<i>NKDA</i>		

APGAR Scores

5 Minute APGAR		Score = 6
Score of 0	Score of 1	Score of 2
blue or pale all over	blue at extremities; body pink (acrocyanosis)	no cyanosis; body and extremities pink
absent	< 100 beats per minute	> 100 beats per minute
no response to stimulation	grimace on suction or aggressive stimulation	cry on stimulation
none	some flexion	flexed arms and legs that resist extension
absent	weak, irregular, gasping	strong, robust cry

1 Minute APGAR		Score = 8
Score of 0	Score of 1	Score of 2
blue or pale all over	blue at extremities; body pink (acrocyanosis)	no cyanosis; body and extremities pink
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CREDITS

Neonatal Pneumonia Chest X-ray has been adapted from Case 2 by Dr Aneta Kecler-Pietrzyk at

<https://radiopaedia.org/articles/neonatal-pneumonia>

Lung sounds used with permission from Thinklabs Medical, LLC, Centennial, CO at

www.thinklabs.com

Medication information from National Library of Medicine: Daily Med at

<http://dailymed.nlm.nih.gov/dailymed/>

Retractions, IV and Pulse Oximetry images purchased from Shutterstock

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