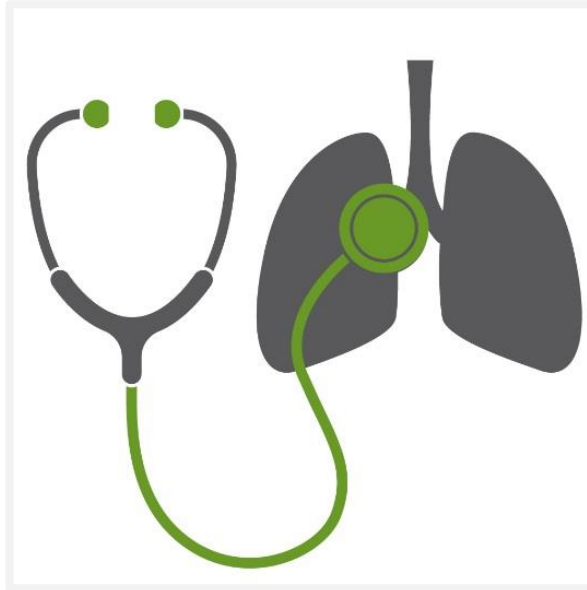# LUNG SOUND IDENTIFICATION

Estimated Time: 15 minutes

Scan to Begin

SERIOUS GAME OVERVIEW

In this serious game, several patients are experiencing various pulmonary conditions. Students are tasked with: 1) identifying both normal and adventitious lung sounds, 2) recognizing associated disease processes, and 3) choosing medications that may be used for treatment. The overall purpose of this serious game is for students to practice prior to class, simulation, or clinical practice.

INSTRUCTIONS

1. Present students with the printed **Lung Sound Identification Serious Game** student handout. For best results, headphones are recommended.

2. In the ARIS platform, students scan the provided QR code to begin the game.

3. There are seven patients for students to assess. For each patient, students view a video followed by "Hot Spot" images of both the anterior and posterior thorax. Then, students tap on the "Hot Spot" images in anatomically correct locations to hear lung sounds. This is followed by three multiple choice questions. At any point, students can "reassess" a patient by re-watching the patient video and/or re-tapping on the "Hot Spot" images.

4. A full rationale screen is displayed after the last question for each patient and includes: an explanation of the lung sound(s), a description of any associated disease process, and a description of how the associated medication may or may not be used for treatment.

LEARNING OBJECTIVES

1. Identify normal and adventitious lung sounds
2. Identify the implications of adventitious lung sounds

CURRICULUM MAPPING

This is a multidisciplinary game that can be mapped to any specific program competency that involves lung sound interpretation.

SCORING

1. Throughout each serious game, students earn "stars" for correct answers. Their goal is to collect all of the possible stars and become a "Star Lung Sound Interpreter."

2. At the end of each game, a "Star Score" screen is displayed on the iPad which shows both the number of stars earned and a statement stating how well they did. Scores and statements correspond to the following table:

Total Stars Awarded	Accompanied iPad Language
100%	Outstanding! You identified all of the lung sounds and appropriate interventions correctly. Keep up the great work!
99-93%	Great job! You answered most of the questions about identifying lung sounds and corresponding interventions correctly.
92-85%	You did well, but we think you can do even better. Try your lung sound identification and interventions again.
84-80%	Not bad, but your lung sound identification skills and interventions still need some work. Try your lung sound identification and interventions again.
79% or lower	Try again! We know you can do better next time at identifying lung sounds and appropriate interventions.

3. As an option, a timestamp is also provided on the final "Star Score" screen. Students can take a screen shot of this and email it to their instructor as "evidence" that they completed this serious game successfully.

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.

SURVEY

2. Copy and paste the following survey link into your browser.

    a. https://ircvtc.co1.qualtrics.com/SE/?SID=SV_6Mwfv98ShBfRnBX

CREDITS

Coughing sounds from Soundbible. Downloaded from http://soundbible.com/tags-cough.html

Croup coughing sounds from Amit Kumar Patel. Downloaded from
https://www.youtube.com/watch?v=f9RlrdJTsa8

Croup x-ray from Wikipedia. Downloaded from https://en.wikipedia.org/wiki/Croup

Lung sounds from Thinklabs Lung Sound library. Downloaded with permission from
https://www.thinklabs.com/lung-sounds

Some patient video purchased from Shutterstock.

REFERENCES

Colucci, W. and Sterns, R. (2017). Use of diuretics in patients with heart failure. In: UptoDate, Gottlieb, S. and Emmet, M. (Eds). UptoDate, Waltham, MA. Accessed on January 7, 2018

Doctors and Editors of UptoDate. (2018). Patient education: Pleuritic chest pain (The Basics). UptoDate, Waltham, MA. Accessed on January 22, 2018

File, T. (2017). Acute bronchitis in adults. In: UptoDate, Sexton, D. and Aronson, M. (Eds), UptoDate, Waltham, MA. Accessed on January 7, 2018

Inogen. (February 2014). Acute vs. Chronic Bronchitis: Understanding the differences. Accessed https://www.inogen.com/blog/acute-vs-chronic-bronchitis-understanding-differences/ on January 23, 2018

Kass, S., Williams, P., and Reamy, B. (May 2007). Pleurisy. American Family Physician, 75 (9), 1357-1364.

Lexicomp Online. (1978-2018). Epinephrine (adrenaline) (oral inhalation): Drug information. In: UptoDate, Waltham, MA. Accessed on January 21, 2018

National Heart, Lung and Blood Institute. U.S. Department of Health and Human Services (2018). Heart Failure. Accessed https://www.nhlbi.nih.gov/health-topics/heart-failure#Signs,-Symptoms,-and-Complications on January 8, 2018.

National Heart, Lung and Blood Institute. U.S. Department of Health and Human Services (2018). National Asthma Education and Prevention Program. Accessed https://www.nhlbi.nih.gov/files/docs/guidelines/asthgdln.pdf on January 8, 2018.

Woods, C. (2018). Croup: Approach to management. In: UptoDate, Kaplan, S. and Messner, A. (Eds). UptoDate, Waltham, MA. Accessed on January 22, 2018

Wrigley, D. (2017). Easy Auscultation. Accessed https://www.easyauscultation.com/course-contents?courseid=201 on January 23, 2018