

Reader Study Information (English)

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Thank you for participating in this important reader study. Your expertise is invaluable to our research on improving the diagnosis of neonatal pneumoperitoneum with AI assistance. Below you will find all the necessary information to complete the study.

Instructions for Readers

1. Study Access Link

You can access the reader study using the link below:

https://wowpc.net/nec_lat/

2. Sign-Up and Sign-in Instructions

Before your first sign-in, you must complete the sign-up process.

On the first page of the UI, click the **"Sign Up"** button and enter the following information:

- **Name:** This will serve as your unique ID for login. Please enter the ID in **lowercase** letters using the English name provided in the reference table, separated by an underscore.

(Example: patrick_lenehan)

! Please make sure to remember this ID and use the **same ID for both sessions**, as it is necessary to track your results accurately.

- **Specialty:** Enter either **"radiology"** or **"pediatrics"**, depending on your specialty.
- **Title:** Enter **"specialist"** if you are a board-certified physician, or **"resident"** if you are a trainee.
- **Years of Experience:** Enter the number of years of clinical experience. (e.g., 1st year resident → "1")
- **Organization:** Enter the name of your current institution.

Sign up

all lower case, in English

Name
[e.g. jun_lee]

Specialty

Title

Years of experience

Organization

(Sign up interface)

3. Two Reading Sessions

This study is designed as a **crossover study**, and participants will complete **two separate interpretation sessions**.

There will be a **minimum 4-week wash-out period** between the sessions. We will notify you when the second session is ready to begin.

1) First Session

To begin your first reading session, please go to the instruction page within the UI and click the **"Version 1"** button at the bottom of the page.

2) Second Session

When the time comes for your second session, please access the instruction page again and click the **"Version 2"** button to proceed.

Instructions for Reader Study Participants

Thank you for participating in our study. Before you begin, please review the following instructions carefully.

Setup Requirements:

- Internet and Display:** Please ensure you have a stable internet connection. For the best experience, we strongly recommend using a laptop or a desktop computer with a large monitor. The interface is not optimized for mobile phones due to its fixed screen size.
- (Important) Select Your Assigned Version:** Before starting, please select the "Version" you were assigned in the preliminary announcement.
 - Please remember your registered ID (name with underscore). You will need the same ID after a washout period to participate in the second session.

Task Instruction:

- Diagnosis:** For each case, you will be asked to determine whether the patient has **Pneumoperitoneum** or **No Pneumoperitoneum**.
- AI Assistance (CAM Image):**
 - AI Prediction:** This shows the diagnosis predicted by the AI
 - To see where the AI focused its analysis, click the **"Show CAM Image"** button.
- CAM Image Interpretation:** The colors on the CAM (Class Activation Map) image indicate the areas the AI identified as most important for its prediction. The level of focus is represented by the following color scale:
 - Red > Yellow > Green > Blue** (Lowest Focus).
- Timing:**
 - The timer will begin as soon as you click the **"Start"** button.
 - Please make sure you have finished any other tasks before starting the study, as your session will be timed.
 - In case of emergency, a **Pause/Resume** button will be available. Please use it only when absolutely necessary.

Click this button for the 1st reading session

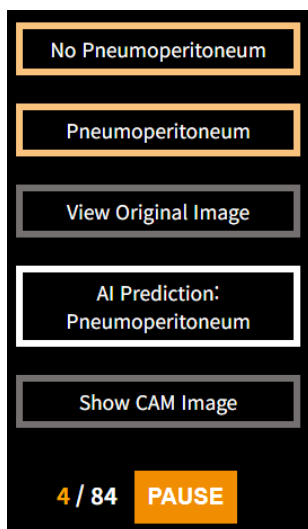
- You can adjust the window level (brightness/contrast) of the medical images by **clicking and dragging your mouse across the image**.
- Zoom**
- Click this button for the 2nd reading session**
- Original Image** button to see the image in full size

(This image shows the instruction page that appears after signing in.)

4. Study Workflow

In each session, you will review a series of neonatal abdominal X-ray images. After determining the presence or absence of neonatal pneumoperitoneum, click either the **"No Pneumoperitoneum"** or **"Pneumoperitoneum"** button to proceed to the next case.

- **Unaided Cases:** Interpret the images **without AI assistance**.
- **Aided Cases:** The AI model's prediction will be provided. You will also have the option to view the **Class Activation Map (CAM)**, which visualizes the regions the AI focused on during its prediction.



(In the Aided Mode: The AI model's prediction is shown under "AI Prediction," and the CAM can be viewed by clicking the "Show CAM Image" button.)

Thank you again for generously contributing your time and expertise to this research.

If you encounter any technical issues during the study, please contact **Professor Hee Mang Yoon** for assistance.