

Verification and Validation Report: CXR

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1 Revision History

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2 Disclaimer

This document has been created following the guidance of this [markdown guide](#). We have list all principles for 5 pages in total, which include a mix of pros and cons per principles.

3 Norman Principles Evaluation

3.1 Patient List Page

PATIENT ID	NAME	CONTACT	AGE	GENDER	DIAGNOSIS	STATUS
PID-c18bb5f0	Jane T Doe		31	Male	Type B	● Emergency
PID-817b2530	Patrick Zhou		32	Female	Type A	● Emergency
PID-217ba510	Bob Smith		31	Female	Type C	● Emergency
PID-014b0550	Humaira Perven		14	Female	Type A	● Emergency
PID-612b45a0	Poppy Luong		32	Female	Type A	● Emergency
PID-912b2510	Eric Lee		31	Male	Type A	● Emergency
PID-419b75d0	John Smith		31	Male	Type C	● Emergency

Figure 1: Patient List View

Principles	Type	Descriptions
Visibility	Pros	Important data are too hard to see due to the small font-size and large white spaces. To improve readability, font-size should be increased.
Feedback	Pros	The row highlight provides clear visual feedback that a patient is selected.
Consistency	Pros	Visual style and patterns are consistent. Icons, rows, status dots — all behave predictably.
Affordance	Cons	When hover, the entire row change color, afford the user to click on the empty space on the row but not the patient’s ID. To improve, hover effect on row should be less visible.
Mapping	Cons	The placement and appearance of the phone and email icons do not clearly indicate they trigger actions, unlike other static fields (name, status). To improve, they should be displayed as buttons to distinguish interactive elements.
Constraints	Cons	Clicking the email icon immediately redirects the user outside the app, which may lead to unintended navigation. The interface lacks a constraint to prevent this abrupt action. A confirmation pop-up or warning could serve as a soft constraint to guide user intent and prevent accidental redirection.

Table 1: Analysis of Patient List View

3.2 Doctor Profile Page

The screenshot shows a web form titled "Lung Vision AI" in the top left corner. In the top right corner, there is a user profile icon and the text "Nathan Luong Specialist". The form itself is a light gray box with a white background. It contains several input fields: "First Name" with the value "Nathan", "Last Name" with the value "Luong", "Gender", "Age", "Notes", "Addresses" with the value "Hamilton, Ontario, Canada", "Postal Code", "Email" with the value "nathan_doctor@neuralanalyzer.com", and "Phone Number". At the bottom right of the form, there are two buttons: "Discard" and "Save".

Figure 2: Doctor Profile Page

Principles	Type	Descriptions
Visibility	Pros	Labels and input fields are well-aligned and clearly indicate what information should be entered, making the interface easy to scan and fill out.
Feedback	Cons	There is no visible confirmation or indication that clicking “Save” or “Discard” was successful. To improve, information toast can display at the top to provide user feedback.
Consistency	Pros	Field styles, input borders, and spacing are consistently applied throughout the form, speeding up data entry.
Affordance	Cons	The “Save” and “Discard” buttons have similar visual weight, which could confuse users about which action is more critical. To improve, the buttons should contain additional cues (hover states, confirmations, ...) to support the user.
Mapping	Pros	Related fields are grouped together (e.g., name, contact, address), and button placement at the bottom aligns with common form expectations.
Constraints	Cons	Fields like “Phone Number” and “Postal Code” allow free text input without validation constraints. Input masks or format hints could prevent invalid entries and improve data quality.

Table 2: Analysis of Profile Edit Form Interface

3.3 Patient Overview Page

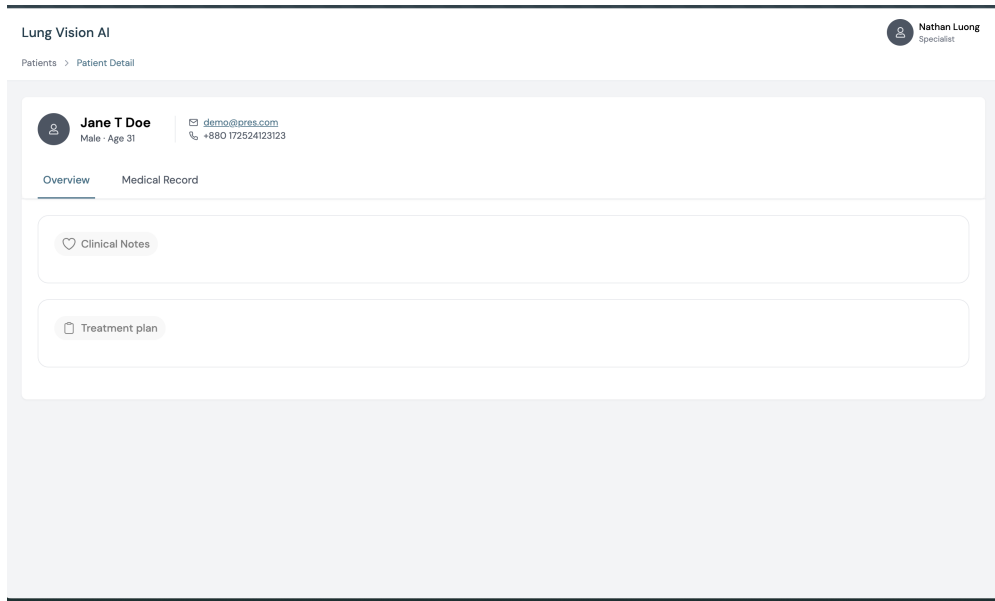


Figure 3: Patient Overview With Empty Note and Prescriptions

Principles	Type	Descriptions
Visibility	Pros	Key patient data such as name, age, gender, email, and phone number are prominently displayed at the top, making critical info always visible.
Feedback	Cons	Sections for clinical notes, or medical treatments supposed to show data from the latest visit. However, if these fields are empty, it will also show up as empty on this screen, making it un-intuitive and confusing. To improve, the interface can show "Empty Note", or "Empty Treatment".
Consistency	Pros	The design language remains consistent with other screens (e.g., layout, avatar style, tab appearance), making the user experience cohesive.
Affordance	Cons	"Clinical Notes" and "Treatment Plan" look too similar to a button, which afford the user to click, or interact with it. To improve, a "Read Only" note can be displayed to clarify its functionality.
Mapping	Pros	Information on the interface is grouped logically.
Constraints	Pros	There are nothing to interact with on this page, user are greatly constraints to perform any action.

Table 3: Analysis of Patient Detail View

3.4 Patient Record History Page

The screenshot displays the 'Patient Record History' page for Jane T. Doe. The page includes a patient profile section with contact information and a 'Medical Record' tab. Below the tab is a table of medical records. The table has five columns: Record ID, Priority, Report, Created, and Updated. There are 12 rows of records, all with a priority of 'Medium' and a status of 'In Progress'. A 'Create New Record' button is located at the top left of the table area.

Record ID	Priority	Report	Created	Updated
RID-62926628	Medium	In Progress	3/30/2025	3/30/2025
RID-6fa35efa	Medium	In Progress	3/30/2025	3/30/2025
RID-6aa46dd5	Medium	In Progress	3/30/2025	3/30/2025
RID-6f7bd4ae	Medium	In Progress	3/30/2025	3/30/2025
RID-6bda6a04	Medium	In Progress	3/29/2025	3/29/2025
RID-a3970c93	Medium	In Progress	3/30/2025	3/30/2025
RID-6b896b65	Medium	In Progress	3/29/2025	3/29/2025
RID-a9dbda05	Medium	In Progress	3/29/2025	3/29/2025
RID-619753d6	Medium	In Progress	3/29/2025	3/29/2025
RID-d0a06210	Medium	In Progress	3/30/2025	3/30/2025
RID-6bc40677	Medium	In Progress	3/30/2025	3/30/2025
RID-08a698d1	Medium	In Progress	3/30/2025	3/30/2025
RID-62a82d19	Medium	In Progress	3/30/2025	3/30/2025

Figure 4: Patient Records History

Principles	Type	Descriptions
Visibility	Cons	Important data such as Record ID, Priority, and Status are shown on the tables, but the font-size is too small, unsuitable for time-sensitive situation such as health care. To improve, font size should be increased, and whitesapces should be minimize.
Feedback	Pros	Hovering effects are present for record row and Record's ID.
Consistency	Pros	The column structure, button styles, tag visuals (“In Progress”), and priority indicators are consistent with other views in the system.
Affordance	Cons	The entire row has a hovering effect afford the user to click on an empty space of the row, however this will not work. To improve, hover effect on the row should be very light and less visually appealing.
Mapping	Pros	The table format and content placement follow standard data table conventions.
Constraints	Cons	Users can click “Create New Record” regardless of system state or user role. There are no visible constraints or checks, such as disabling the button when the user lacks permission or when a max record limit is reached. This could lead to confusion or errors.

Table 4: Analysis of Medical Record Table View

3.5 Create New Record Page

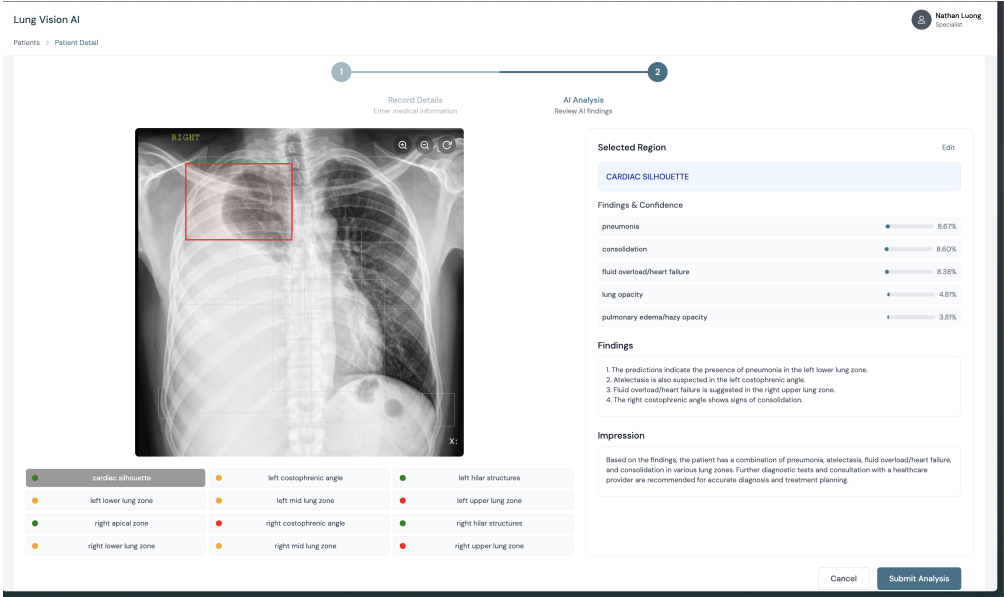


Figure 5: Machine Learning Analysis Result

Principles	Type	Descriptions
Visibility	Cons	There are multiple regions that user can select by clicking on the bounding boxes on the image. However, the inactive bounding boxes are extremely faded, making it barely visible. To improve, subtle colors can be introduced on other 11 boxes to make them more visible.
Feedback	Pros	Clicking on a bounding box will change 3 separate UI elements on the webpage, providing a very strong feedback that user's selection has been successful.
Consistency	Pros	Visual and textual elements (progress indicators, font styles, and button design) are consistent with previous screens, helping users remain oriented throughout the workflow.
Affordance	Cons	The lung zones at the bottom resemble buttons or tags, but it's not visually obvious that clicking them changes the region. If they are interactive, they should have more obvious affordances like shadows, hover highlights, or tooltips.
Mapping	Pros	The selected region on the X-ray corresponds clearly to the section on the right panel, and the findings below map well to anatomical references. Users can make logical connections between image highlights and written data.
Constraints	Cons	There are way too many clickable on the screen (12 bounding boxes, 12 static buttons, Edit button, rotate, zoom buttons, etc.) User will be overwhelmed with choice which might make the UI unintuitive. To improve, there should be a help box, or video to guide user through the software.

Table 5: Analysis of AI Analysis Screen (Medical Imaging Interface)