

## KII and FGD Guides: Exploring Initial Perceptions of AI Technology for Tuberculosis Detection Using Chest X-Rays

### Purpose of the interview/discussion:

To explore healthcare workers' **initial perceptions, expectations, and concerns** regarding the potential use of an **AI-based application** for detecting tuberculosis (TB) through chest X-rays.

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### General Notes for Facilitators:

- Emphasise that this is an **exploratory discussion**—we are interested in their honest opinions and feelings *before* the technology is introduced.
- Encourage participants to share their **expectations, hopes**, and **concerns**, even if they have no direct experience with AI.
- Use simple language when explaining AI and the potential tool, avoiding technical jargon.
- Provide a short, clear description of what the AI technology aims to do:  
*“This AI technology is being developed to assist healthcare workers in detecting signs of tuberculosis on chest X-rays. It analyses the X-ray images and provides a result that can help you make faster and more accurate decisions.”*
- Demonstrate the use of tbscreen.ai to the informants of the interviews and group discussions

Key Informant Interview	Focus Group Discussion (FGD)
<ol style="list-style-type: none"><li>1. Internists</li><li>2. Pulmonologists</li><li>3. Radiologists</li></ol>	Frontliners at TB care (at the clinic): <ol style="list-style-type: none"><li>1. General practitioners</li><li>2. Nurses</li><li>3. Paramedics</li></ol>

## **KII Guide for Specialists (Radiologists, Pulmonologists, Internists/TB Specialists)**

### **Introduction (5 minutes)**

- Welcome and thank the participant.
  - Explain the purpose: “We want to understand your initial thoughts on the potential use of an AI application for detecting TB from chest X-rays before it’s introduced in your setting.”
  - Clarify confidentiality and request consent.
  - Collect background: role, years of experience, exposure to TB diagnosis and AI technologies (if any).
  - Demonstrate the use of tbscreen.ai to the informants of the interviews
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### **Interview Questions (30-45 minutes)**

#### **A. Initial Perceptions of AI for TB Detection**

1. What is your first reaction to hearing about AI technology that can assist with TB detection from chest X-rays?

Prompt:

- What are the potential benefits and challenges?
- Could AI potentially be used as a screening tool?
  - How could AI affect the speed and accuracy of screening, both positively and negatively?
  - Could AI change your workload? If so, is it likely to reduce or increase it? How? What about in places that do not have specialist doctors?
  - Do you think AI could affect the speed of TB screening? If so, in what way (faster, slower, or no change)?

2. Have you used any decision-support tools or AI technologies in your practice before? If yes, what kind?

Prompt: If you have never used it before: can doctors/health workers explain, to the best of their knowledge, what AI is?

3. Do you think there is a difference between using AI tools for screening (as an early detection tool) and for treatment decisions (e.g., starting TB treatment in patients)?
  - Would you feel more comfortable with one application over the other? Why?

#### **B. Anticipated Downsides or Concerns**

4. If AI is used to assist in TB screening, how confident would you be in the AI screening results?

Prompt:

- How would you rate the accuracy of the reading?
  - What factors determine your level of confidence in the AI results?
5. What concerns or challenges come to mind when you think about using AI for TB screening?

Prompt:

- Risk of over-reliance on AI and losing clinical judgment?
  - Replacing the role of doctors/other healthcare professionals?
  - Data privacy and patient confidentiality?
6. If AI-based TB screening results turn out to be wrong, how do you think accountability should be handled?
- Prompt:
- Do you think clinicians will still feel personally responsible for the results, or will accountability change when AI is involved?
7. Do you have concerns about how patients might react if they know their diagnosis was assisted by AI?

### **C. Impact on Clinical Practice**

8. How do you think this AI tool might change your daily workflow?
- Would it make things easier or more complicated?
9. Does the use of AI make you more confident in your diagnosis or does it cause confusion?

Prompt:

- If they mention seeking a second opinion, why?
- Or if there are other new statements, keep asking “why?”

### **D. Support and Training Needs**

10. What kind of support or training would you need to feel confident using this technology?
11. What would make you trust the AI results?

Prompt:

- validation studies, clear accuracy rates

### **E. Final Thoughts**

12. Do you think AI technology has a place in TB screening in your facility? Why or why not?

- Note for enumerators: ask for the reason behind any answer given. For example, if the answer is: to increase the coverage/number of patients who can be diagnosed. Ask: how significant is this difference in coverage?

- Prompt:

- 1) Do you think most of your colleagues have similar or different views on AI? Why is that?

- 2) Do you think sufficient numbers of your colleagues are willing to test AI technology so that it can be implemented in your facility?
13. What would make you and your colleagues confident in using this AI tool in your daily practice?
- Sample answer: “reducing the frequency of visits.” Ask why? And by how much?
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At the end of the interview:

1. Discuss the TB-AI interface. Ask the following questions while demonstrating/navigating the TB-AI application:
  - a. Do you find the interface/display intuitive?
  - b. Is the data entry process easy, or are there any steps that feel unclear?
  - c. Do you find the application's output (TB risk score/diagnostic recommendations) easy to interpret?
  - d. How do you think this fits into your daily workflow?
  - e. Would you trust a digital or AI-based TB detection tool like this for initial screening?
  - f. What types of patient data would you feel comfortable entering here?
2. Once completed, and the results are out:
  - a. How would you rate the reliability of AI-based TB detection results like this?
  - b. Would you like to see the “reasons” or confidence levels behind the results?
  - c. How important is it for you that this application integrates with existing diagnostic tools (such as GeneXpert or CXR results)?
  - d. Would this tool help reduce diagnostic delays or missed cases in your context?

## FGD Guide for Nursing Staff, Paramedics, and GPs (Group Discussion)

### Introduction (5-10 minutes)

- Welcome participants and introduce the session.
  - Explain: *“We want to understand your thoughts and expectations about a new AI tool that could help detect TB from chest X-rays. It hasn’t been introduced yet, but we’re gathering your views in advance.”*
  - Clarify confidentiality, obtain consent, and establish ground rules.
  - Quick introductions: name, role, years in healthcare, experience with TB cases.
  - Demonstrate the use of tbscreen.ai to the informants of the group discussions
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### Discussion Questions (60-75 minutes)

#### A. Initial Reactions to AI for TB Detection

1. What’s your **first impression** of an AI tool that can help detect TB from chest X-rays?

Prompt:

- What potential benefits do you think it could bring to your work?
- In your opinion, can AI be useful as a screening or diagnostic tool, or are there reasons why AI may not be appropriate?
- How can AI affect the speed and accuracy of diagnosis, both positively and negatively?
- Can AI change your workload? If so, is it likely to reduce or increase it? How? What about in places that do not have specialists?
- Do you think AI could affect the time it takes to detect TB? If so, how (earlier, later, or no change)?
- How could AI affect your ability to communicate results to patients?
- What impact, if any, might AI have on the referral process?
- Are there any other risks or challenges in using AI?
- Do you think AI could be misused? What are some examples?
- Are there any ways you think AI could increase your workload?

2. Have you used any diagnostic tools or technology-based applications before (e.g., digital X-ray systems, mobile health apps)? What was that like?

Prompt:

- Do you think AI is more appropriate as a screening tool (like other tests that help you decide who needs further investigation) or as a diagnostic/treatment decision tool?
- How would you feel if treatment decisions were made based on AI results?

## **B. Trust and Anticipated Concerns**

3. If AI were used to assist in TB screening, would you feel confident in the results?

Prompt:

- Will the readings be accurate?
- What factors will affect your confidence level?
- Will it give results that you do not understand?
- Will patients trust the diagnosis?

4. What concerns or challenges come to mind when you think about using AI for TB diagnosis?

Prompt:

- Risk of over-reliance on AI and losing clinical judgment?
- Replacing the role of doctors/other healthcare professionals?
- Data privacy and patient confidentiality?

5. Do you have concerns about how patients might react if they know their diagnosis was assisted by AI?

Prompt:

- If AI results in an incorrect diagnosis, who do you think should be held responsible?
- Do concerns about accountability affect your willingness to use such tools?

## **C. Impact on Clinical Practice**

6. If this AI tool is implemented in your facility, how do you think this AI tool might change your daily workflow?

Prompt:

- How does it affect workflow?
- Assist the referral system?
- Impact on workload?

## **D. Training and Support Needs**

7. What kind of training or support would you need before using this AI to assist in TB diagnosis?

- Hands-on practice?
- Easy-to-understand guidelines?
- A simple guide?

8. What would make you trust the AI results?

Prompt:

- Do you need validation studies?
- Would you like to know the clear accuracy rates?

## **E. Final Thoughts**

9. Are there any thoughts about AI technology for TB detection in your facility?

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**Closing (5 minutes)**

- Thank participants for sharing their honest opinions.
- Explain how their input will help in planning and designing the introduction of the AI tool.
- Offer contact details for follow-up questions.