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# Diagnostic accuracy of chest X-rays acquired using a digital camera for low- cost teleradiology

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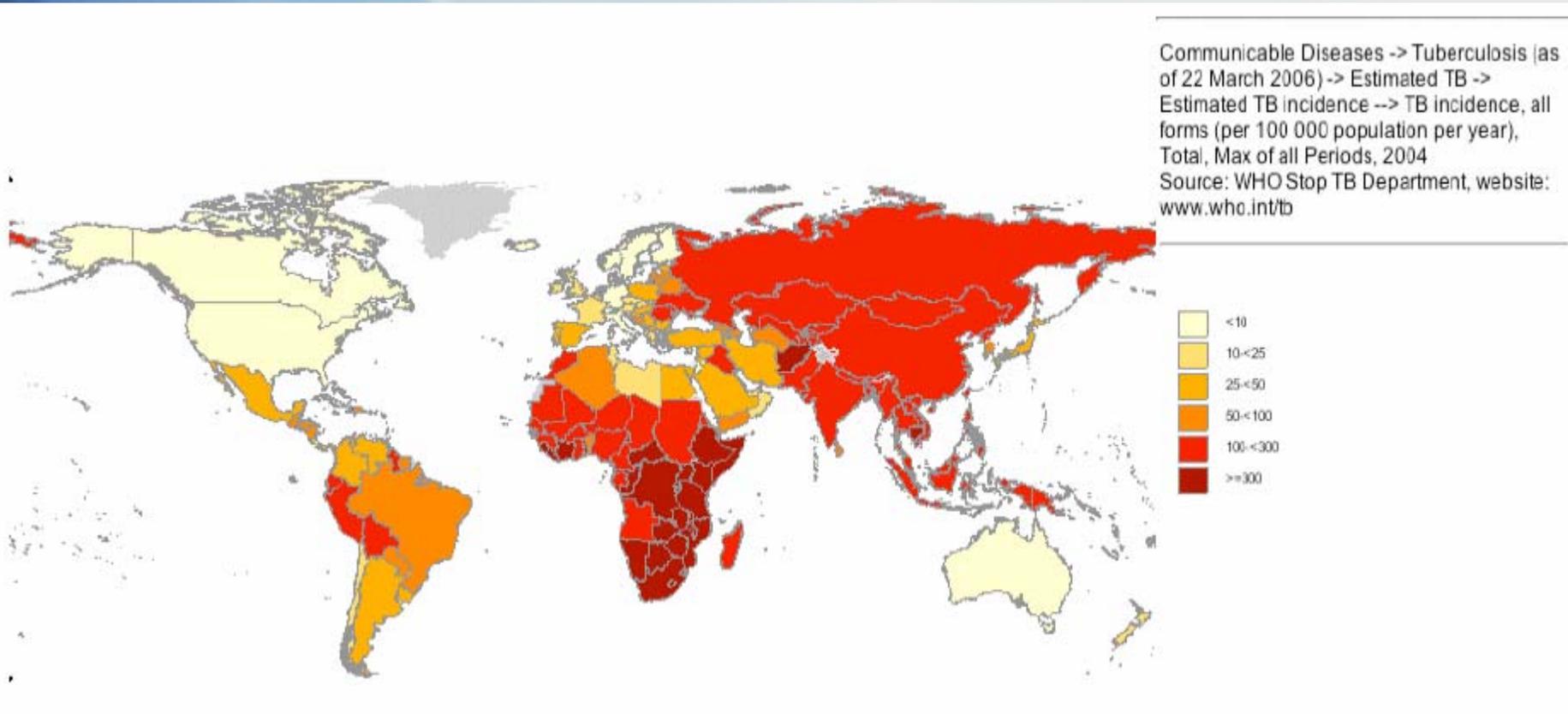
# Problem

A

B

**Two chest x-ray images removed due to copyright restrictions.**

# Incidence of TB



Courtesy of the World Health Organization. Used with permission.

# Prevalence of Physicians

<b>Country</b>	<b>Doctors/100,000 people</b>
▪ US	279
▪ South Africa	56.3
▪ Peru	93.2
▪ Haiti	13

14 countries in Africa have 0 radiologists

# Solution

- Store-and-Forward Telemedicine
  - Take digital photo of Chest X-ray
  - Edit
  - Compress file
  - Email photo with text to physician
  - Wait for DX

# Research

- What is the most compressed image format that can be used that still allows for reliable diagnosis of TB?
- Compared DX of
  - Original image
  - JPEG ~ 400 KB
  - JPEG2000 ~ 98-120 KB

# Results

- JPEG and JPEG2000 images were diagnosed similarly to the original images.
- Overexposure in the digital processing actually increased detection of calcifications

# Highlights of Paper

- Good understanding of medical imaging
  - Gray-Scale
  - Window and Level
  - Exposure
- Good understanding of TB DX
- Study did not use top-end cameras

# Questions

How do you think results would change if study had been performed in the field and not Boston?

What context does your own project take place in and how can you use that to your advantage?