Beyond Error Detection and Efficiency Enhancement: Point-of-Care Photography as a QI Tool in Radiography

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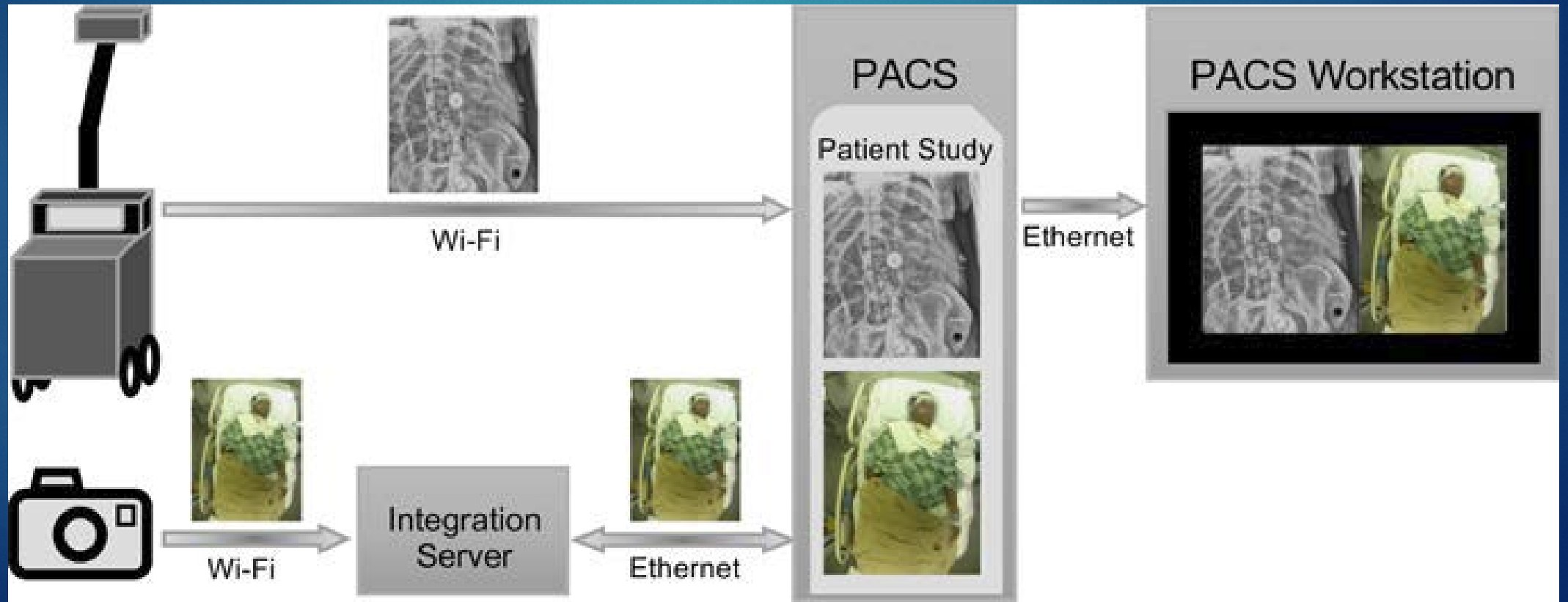
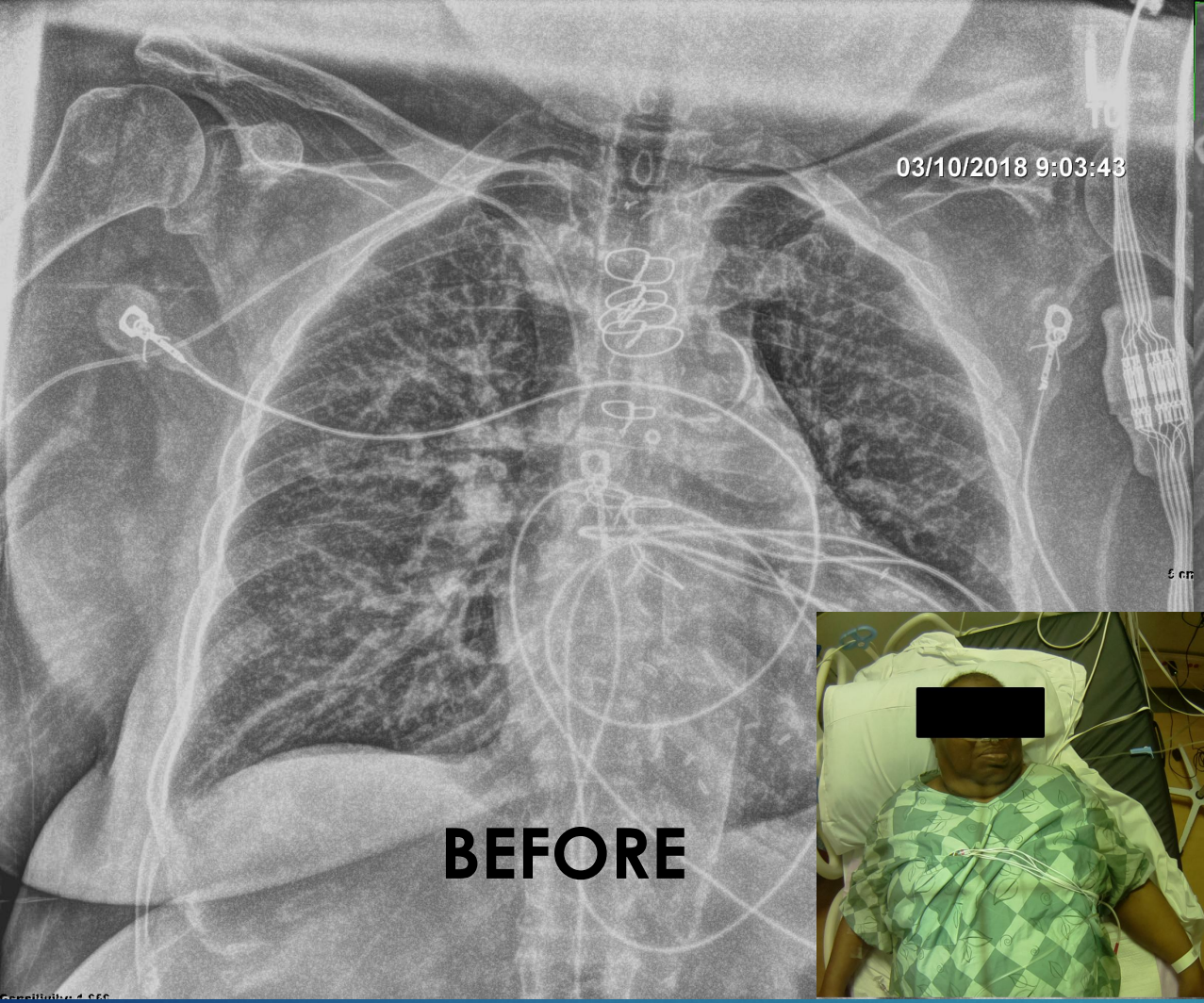
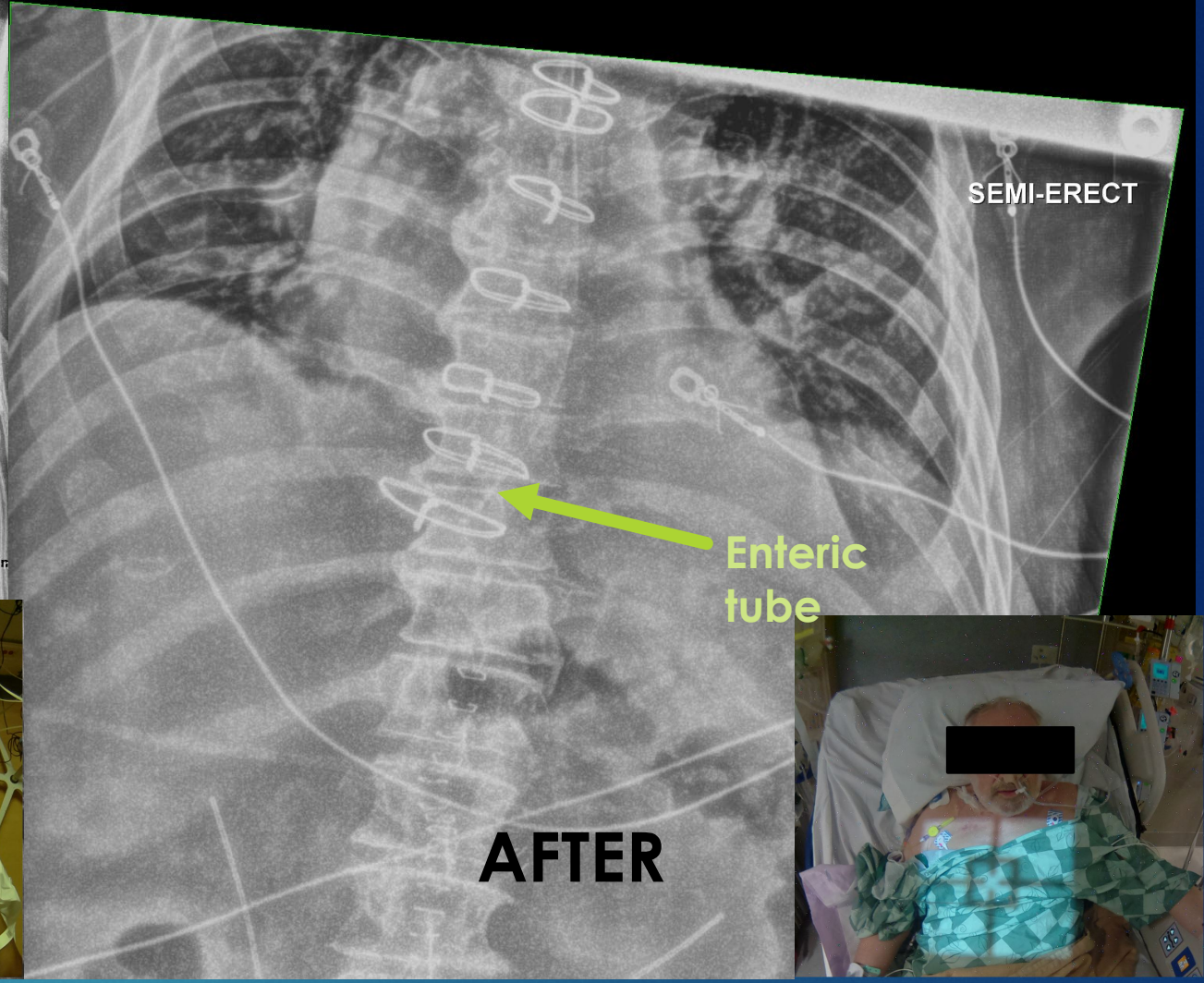
Point-of-Care Photographs: How and Why?

- Point-of-care photographs can:
  - Increase detection rate of wrong-patient errors
  - Provide image-related clinical context, which can speed up the diagnosis and make the diagnosis more relevant
  - Help radiologists connect with the patient: we no longer just look through the patient, but actually see them
- Technology is available to obtain point-of-care (near simultaneously obtained) patient photographs along with medical imaging studies

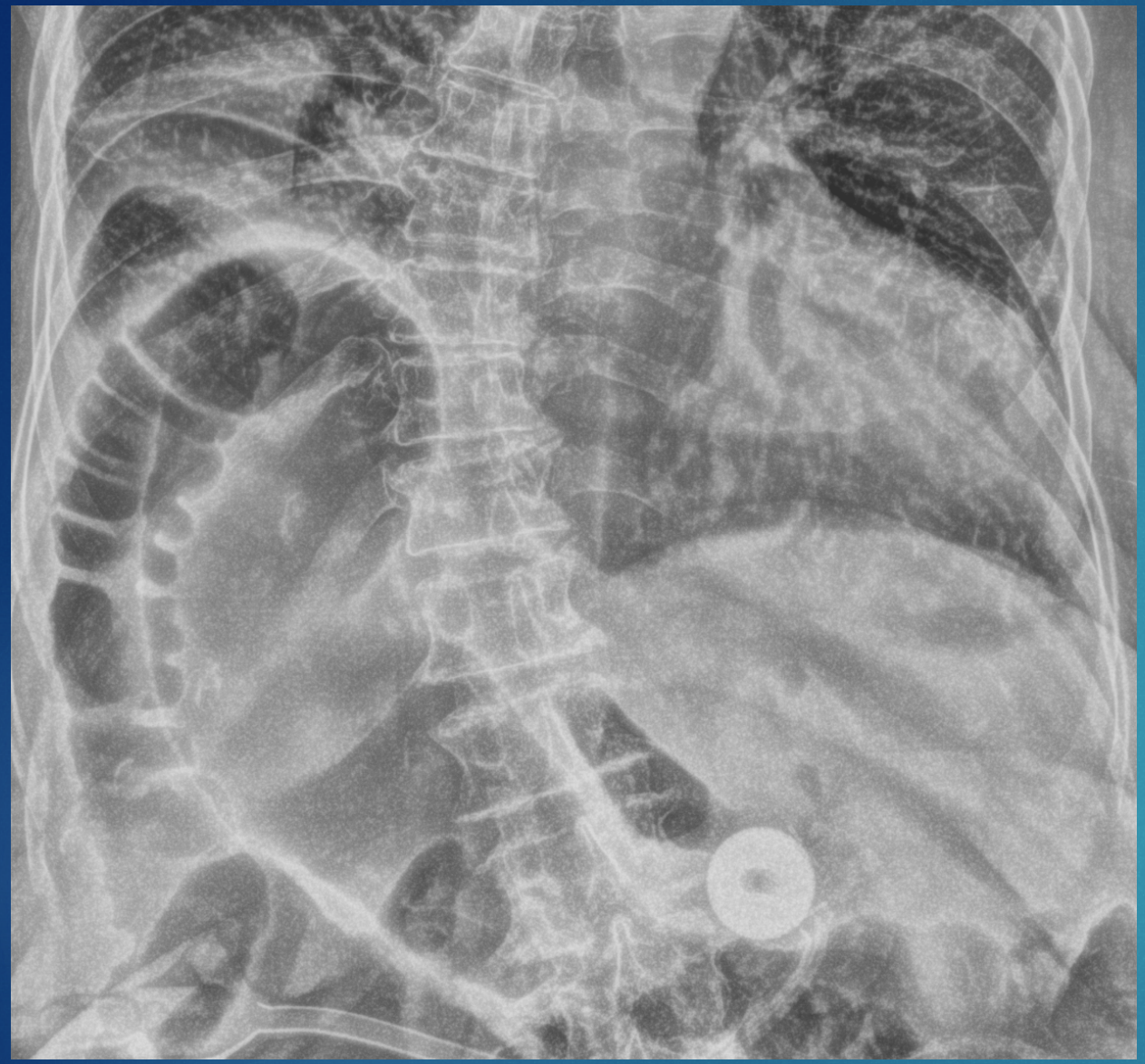






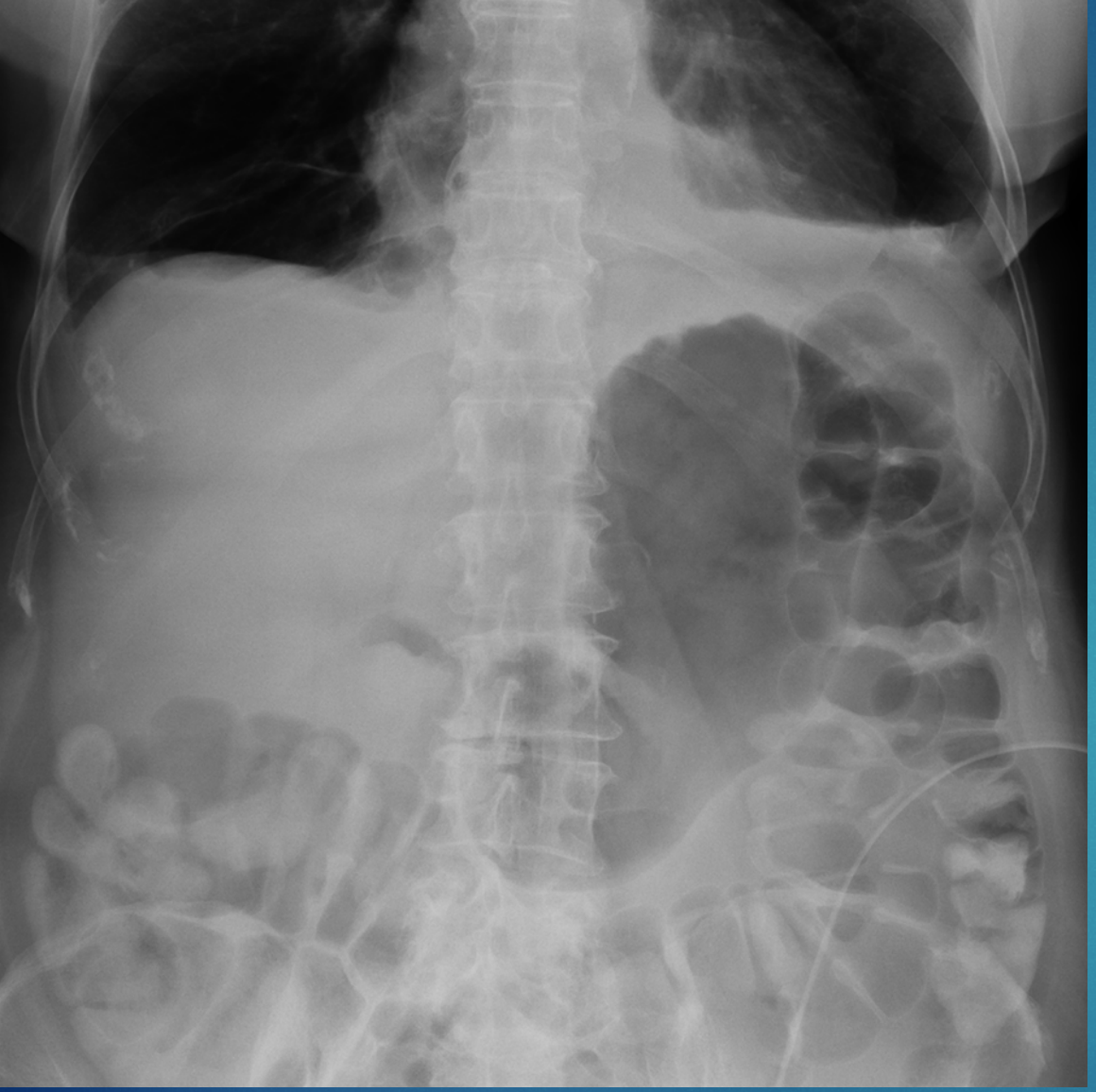
Use Case I: *Use Case I*: Portable radiographs obtained before and after enteric tube placement. Is the tube position satisfactory? The "after" image shows the enteric tube in the distal esophagus.

Point-of-care photos obtained with the radiographs clearly show that these are two different patients; the wrong-patient error may not be obvious on the radiographs.



Use Case 2: Radiograph obtained to rule out free air. Is this a supine or upright abdominal radiograph? Can't tell because of missing marker.

Photo clearly shows upright position adding to radiologist's confidence in the diagnosis.

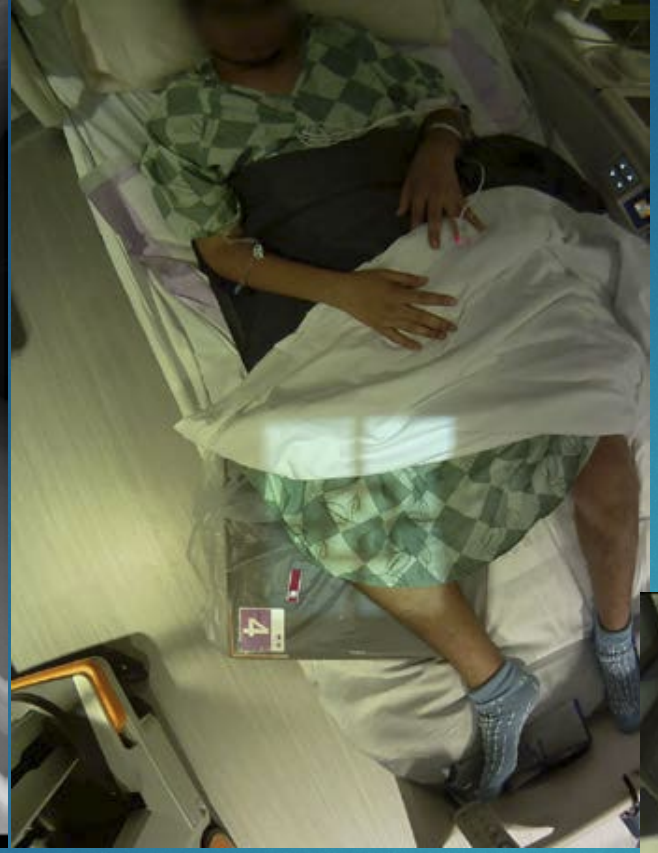


Use Case 3: Does the patient have a feeding tube? Feeding tube not seen on radiograph.

However, photo shows no feeding tube entering the mouth or nose—an urgent call to the clinical service is therefore not required.

Use Case 4: Patient with diabetic foot ulcer, rule out osteomyelitis. What information would be useful to speed up evaluation of the radiograph?

Knowledge of where the ulcer is extremely useful.



Use Case 5: Even with markers, can you be absolutely sure about the laterality of these bilateral knee radiographs?

Use Case 5: With the photographs, we can be sure about the laterality even if markers were not placed.

Easy Wins

- 2 wrong-patient errors detected in first 8000 cases obtained with radiographs
- 2 wrong-side errors detected in first 350 extremity radiographs

Radiologist Confidence

- Reader study conducted with eye-tracking system demonstrated that
  - Radiologists' confidence increased for identification of lines and tubes on portable radiographs
  - Radiologists' accuracy increased for identification of lines and tubes

Challenges

- Patients not properly draped at the time of imaging
- Solutions:
  - Further training of technologists to properly drape the patient
  - Develop an override switch that technologists can use to prevent a photograph can being obtained
  - Privacy screens on WoW carts in the hospitals where radiology images may be viewed
  - Decreased automatic logout time on WoW carts

Conclusions

- Point-of-care patient photographs can be obtained simultaneously with medical imaging studies
- No technologist involvement is needed for acquisition
- The technology is HIPAA compliant
- The advantages of point-of-care photographs are:
  - Help identify wrong-patient errors
  - Provide clinical context leading to faster and better diagnosis
  - Empathy—allow a radiologist to "connect" with the patient
- Challenges are in protecting patients' dignity
  - Require both technologic and workflow solutions

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