



GE Healthcare

Critical Care Suite enables expedited treatment of a spontaneous pneumothorax in an intubated COVID-19 patient



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Background

A patient with 2019 Novel Coronavirus (COVID-19) pneumonia was admitted to the COVID ICU at University Hospitals of Cleveland Medical Center. The patient was intubated and placed on mechanical ventilation due to significant respiratory distress.

PACS Worklist Management

This institution uses Sectra PACS worklist flags, a “red dot” for STAT and a “yellow dot” for Urgent, on radiology exams from the emergency department and intensive care units, according to how the ordering physician requests the exam.

To enhance this method of worklist prioritization, Critical Care Suite was implemented to flag critical findings discovered by AI after image acquisition, which may have been unknown to the physician at the time of ordering the exam.

Diagnosis and Treatment

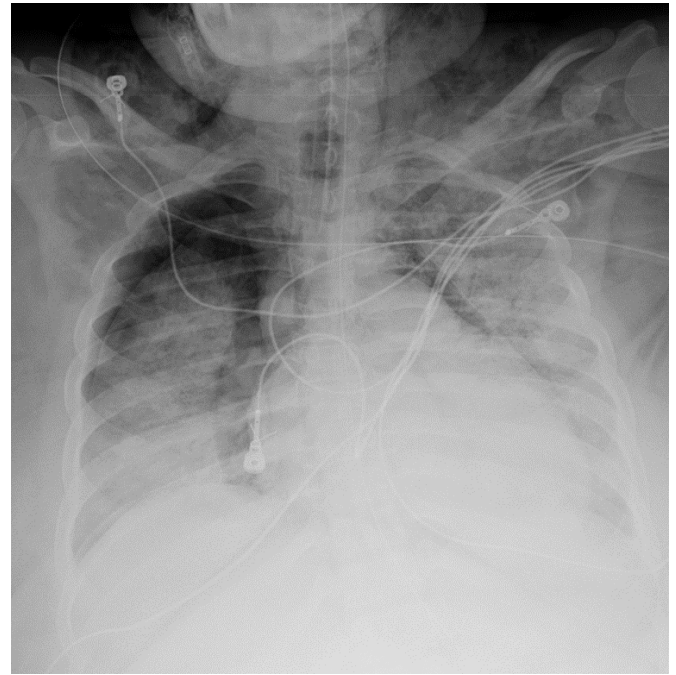
The intubated ICU patient with COVID-19 received a mobile chest x-ray on a Saturday morning, ordered as Urgent, “yellow dot” priority. The attending radiologist had approximately 150 exams on their worklist and estimated it may have taken up to 6 hours to read this case.

Fortunately, this exam was conducted using GE Healthcare’s AMX 240 mobile x-ray system enabled with the Critical Care Suite. Upon acquisition, the AI algorithms embedded within the X-ray system flagged the case as suspicious for pneumothorax. The PACS worklist displayed the AI result of a “Suspicious Finding,” via the use of public DICOM tags.

A radiologist prioritized reading the case within an hour of acquisition. The patient was quickly diagnosed with a spontaneous pneumothorax and a chest tube was placed within 15 minutes.

Conclusion

The use of public DICOM tags that integrate within existing PACS worklists to complement standard prioritization schemes can help radiologists reduce time to diagnose unsuspected pneumothoraces and reduce time to treatment.



Chest X-ray Image

| Arrival time | AI Findings (UH...) |
|--------------|---------------------|
| 11:25 PM | No Finding |
| 10:20 PM | No Finding |
| 10:57 AM | No Finding |
| 9:27 AM | Suspicious Fin... |
| 5:38 PM | No Finding |

Sectra PACS Worklist with AI Flag

“The seamless integration of the AI alert into PACS has significantly impacted patient care and has been integrated into our standard radiology workflow.”

- Dr. Amit Gupta, Modality Director of Diagnostic Radiography, University Hospitals Cleveland Medical Center

“The AI alert made a significant difference in this patient’s care.”

- Dr. Robert Gilkeson, Division Chief Cardiothoracic Imaging, University Hospitals Cleveland Medical Center

About Critical Care Suite

GE Healthcare’s Critical Care Suite is the world’s first, on-device AI solution that enables triage of critical conditions such as pneumothorax and provides AI-based tools for improving quality and efficiency. Critical Care Suite automatically analyzes images upon acquisition for critical findings (pneumothorax), producing triage notifications to be sent directly to PACS for review by the Radiologist.

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