

Critical Care Suite 2.0

AI reading worklist prioritization

Critical Care Suite 2.0 (CCS) enables AI-driven triage by flagging exams with suspicious findings consistent with pneumothorax. The CCS AI output is designed to highlight cases that could benefit from a prioritized review by the radiologist. Exams are flagged through use of public DICOM® attribute (tags) encoding.

DICOM® is an international standard for interoperable Radiology data sharing. Many PACS/RIS vendors allow users to customize worklists by modifying columns to visualize study-level information within DICOM® tags.

PACS-driven worklist prioritization

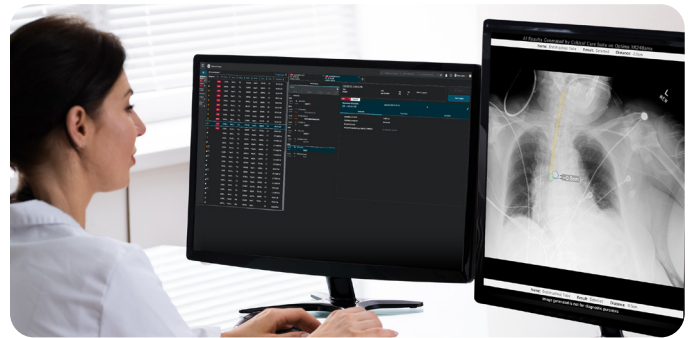
Public tags are readily available and follow an international DICOM® standard. These tags are globally recognizable and useable.

For Critical Care Suite, 15 infrequently used public DICOM® tags are configurable for CCS users to populate with AI results. One tag should be selected based on site preference and PACS compatibility to visualize the tag on the worklist. Once configured, this setup enables the radiologist to prioritize their read order based on the AI findings displayed in their PACS worklist.

Interoperability requirements

The following is required for a PACS-driven CCS 2.0 integration:

- Image Manager that supports DICOM® C-store as SCP
- Support for one of the 15 compatible DICOM® attributes (tags)
- Ability to visualize one of the 15 tags in a worklist column



RIS-driven worklist prioritization

DICOM Modality Performed Procedure Step (MPPS) allows exam information to be sent back to Radiology Information Systems (RIS). A DICOM® tag within the MPPS is configurable for CCS user to populate AI result data consistent with Pneumothorax. Similar to DICOM tags within X-ray images, one tag should be selected based on site preference and RIS compatibility to visualize tag on the Reading Worklist.

Interoperability requirements

The following is required for a RIS-driven CCS 2.0 integration:

- RIS that supports DICOM® MPPS as SCP
- Support for one of the 2 compatible DICOM® attributes (tags)
- Ability to visualize one of the 2 tags in a RIS worklist column

Modality images stored

Aquisition
modality X-ray



Image
manager PACS

Modality performed procedure step

Aquisition
modality X-ray



Worklist
provider RIS

PACS-supported DICOM® attributes

0008, 0090	Referring Physician's Name
0008, 1048	Physician(s) of Record
0008, 1060	Name of Physician(s) Reading Study
0008, 1080	Admitting Diagnoses Description
0010, 2000	Medical Alerts
0010, 2110	Allergies
0010, 21B0	Additional Patient History
0012, 0050	Clinical Trial Time Point ID
0012, 0051	Clinical Trial Time Point Description
0032, 1033	Requesting Service
0032, 1066	Reason for Visit
0038, 0010	Admission ID
0038, 0010	Service Episode ID
0038, 0062	Service Episode Description
0038, 0500	Patient State

MPPS DICOM® attributes

0040,0254	Performed Procedure Step Description
0040,0280	Comments on the Performed Procedure Step

Case studies

Seamless Integration of Artificial Intelligence Into the Clinical Environment: Our Experience with a Novel Pneumothorax Detection Artificial Intelligence Algorithm. *Journal of the American College Of Radiology*. 28 September 2021

References:

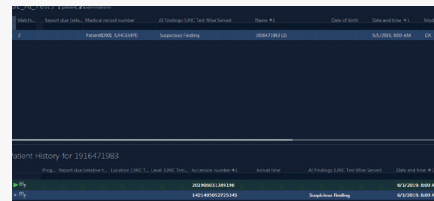
- 1 Version v7.0 or later
- 2 V8
- 3 Version 21.1
- 4 Version 6.5.3
- 5 Version 14.0.0.1101

Tested integrations: PACS-driven

- GE HealthCare Centricity™ Universal Viewer¹
- GE HealthCare Universal Viewer²
- Sectra³
- AGFA with IMPAX Client⁴
- CHANGE⁵

Pt. #	Pt. Name	Pt. ID	Accession Number	Date	Time	Radiologist	Study Description	Images	Rt. App	Requesting Service	Status Name	Specialty	MOD
1	1916471983	PatientE0001	1421480502725345	6/1/2019	8:30 AM		XR CHEST POSTABLE	2	AI	AI: SUSPICIOUS FINDING	AI: SusT	CHEST	DX
2	1916471983	PatientE0001	20596601198596	6/1/2019	8:30 AM		XR CHEST POSTABLE	2	AI	AI: SUSPICIOUS FINDING	AI: SusT	BODY	DX
3	1916471983	PatientE0001	1421480502725345	6/1/2019	9:30 AM		XR CHEST POSTABLE	2	AI	AI: SUSPICIOUS FINDING	AI: SusT	CHEST	DX
4	1916471983	PatientE0001	1421480502725345	6/1/2019	9:30 AM		XR CHEST POSTABLE	2	AI	AI: SUSPICIOUS FINDING	AI: SusT	CHEST	DX
5	1916471983	PatientE0001	1421480502725345	6/1/2019	10:30 AM		XR CHEST POSTABLE	2	AI	AI: SUSPICIOUS FINDING	AI: SusT	CHEST	DX
6	TEST TEST	UCSF-TEST-0001	1360814001	6/1/2019	2:30 PM		XR CHEST POSTABLE	1	60 yrs	AI: SUSPICIOUS FINDING	AI: SusT	CHEST	DX
7	TEST TEST TEST	UCSF-TEST-0001	1360814002	6/1/2019	2:30 PM		CT CHEST	0	60 yrs	AI: SUSPICIOUS FINDING	AI: SusT	CHEST	DX

Agfa IMPAX worklist with "AI: Suspicious Finding" included in the public DICOM tag (0032,1033) - Requesting Service



Sectra AB, Model : IDS7, Version: 21.1

Tested integrations: RIS-driven

- EPIC™ Radiant with Radiant Reading Worklist (See SLG 6627904)