

DICOM SR of clinical data and measurement for breast cancer collections to TCIA (DICOM-SR-Breast-Clinical)

Description

The Data Integration & Imaging Informatics (DI-Cubed) project explored the issue of lack of standardized data capture at the point of data creation, as reflected in the non-image data accompanying various TCIA breast cancer collections. The work addressed the desire for semantic interoperability between various NCI initiatives by aligning on common clinical metadata elements and supporting use cases that connect clinical, imaging, and genomics data. Accordingly, clinical and measurement data was imported into I2B2 and cross-mapped to industry standard concepts for names and values including those derived from BRIDG, CDISC SDTM, DICOM Structured Reporting models and using NCI Thesaurus, SNOMED CT and LOINC controlled terminology.

A subset of the standardized data was then exported from I2B2 to CSV and thence converted to DICOM SR according to the the DICOM Breast Imaging Report template [1], which supports description of patient characteristics, histopathology, receptor status and clinical findings including measurements. The purpose was not to advocate DICOM SR as an appropriate format for interchange or storage of such information for query purposes, but rather to demonstrate that use of standard concepts harmonized across multiple collections could be transformed into an existing standard report representation. The DICOM SR can be stored and used together with the images in repositories such as TCIA and in image viewers that support rendering of DICOM SR content.

During the project, various deficiencies in the DICOM Breast Imaging Report template were identified with respect to describing breast MR studies, laterality of findings versus procedures, more recently developed receptor types, and patient characteristics and status. These were addressed via DICOM CP 1838, finalized in Jan 2019, and this subset reflects those changes.

DICOM Breast Imaging Report Templates available from: http://dicom.nema.org/medical/dicom/current/output/cthtml/part16/sect_BreastImagingReportTemplates.html

Data Access

Data Access

Please see the Detailed Description tab for related imaging, Search, & Download manifests.

Data Type	Download all or Query/Filter	License
Combined SR across 4 collections (DICOM, 1292 files, 10.0 MB)	Download Search (Download requires NBIA Data Retriever)	CC BY 3.0
SR for TCGA-BRCA (DICOM, 164 files, 1.2MB)	Download (Download requires NBIA Data Retriever)	CC BY 3.0
SR for ISPY1 (DICOM, 845 files , 6.6MB)	Download (Download requires NBIA Data Retriever)	CC BY 3.0
SR for BREAST-DIAGNOSIS (DICOM, 94 files, 750KB)	Download (Download requires NBIA Data Retriever)	CC BY 3.0
SR for Breast-MRI-NACT-Pilot (DICOM, 189 files, 1.4MB)	Download (Download requires NBIA Data Retriever)	CC BY 3.0

Please contact help@cancerimagingarchive.net with any questions regarding usage.

Collections Used in this Third Party Analysis

Below is a list of the Collections used in these analyses:

Source Data Type	Download or Search	License
TCGA-BRCA Images (DICOM, 88.1GB)	Download Search (Download requires NBIA Data Retriever)	CC BY 3.0

BREAST-DIAGNOSIS Images (DICOM, 60.8GB)	Download Search (Download requires NBIA Data Retriever)	CC BY 3.0
ISPY1 Images and Segmentations (DICOM, 76.2GB)	Download Search (Download requires NBIA Data Retriever)	CC BY 3.0
Breast-MRI-NACT-Pilot Images and Segmentations (DICOM, 19.5 GB)	Download Search (Download requires NBIA Data Retriever)	CC BY 3.0

- [TCGA-BRCA](#)
- [BREAST-DIAGNOSIS](#)
- [ISPY1](#)
- [Breast-MRI-NACT-Pilot](#)

Detailed Description

Detailed Description

	Radiology Image Statistics
Modalities	SR
Number of Participants	474
Number of Studies	1,286
Number of Series	1,292
Number of Images	1,292
Image Size	10 MB

You can download all results at once through (Combined SR across 4 collections (DICOM, 1292 files, 10.0 Mb) (note, no pixel data in SR)) or in chunks:

- SR for TCGA-BRCA - 164 files 1.2Mb
- SR for ISPY1 - 845 files , 6.6Mb
- SR for BREAST-DIAGNOSIS - 94 files, 750kB
- SR for Breast-MRI-NACT-Pilot - 189 files, 1.4Mb

Citations & Data Usage Policy

Citations & Data Usage Policy

Users must abide by the [TCIA Data Usage Policy and Restrictions](#). Attribution should include references to the following citations:



Data Citation

Clunie D., Hickman H., Ver Hoef W., Hastak S., Wagner U., Helton E. (2019). **DICOM SR of clinical data and measurement for breast cancer collections to TCIA [Data set]**. The Cancer Imaging Archive. <https://doi.org/10.7937/TCIA.2019.wglls8g1>



Publication citation

Clunie, D., Hickman, H., Ver Hoef, W., Hastak, S., Evans, J., Neville, J., & Wagner, U. (2020). **Observations from the Data Integration and Imaging Informatics (DI-Cubed) Project**. MDPI AG. <https://doi.org/10.20944/preprints202008.0474.v1>



TCIA Citation

Clark K, Vendt B, Smith K, Freymann J, Kirby J, Koppel P, Moore S, Phillips S, Maffitt D, Pringle M, Tarbox L, Prior F. **The Cancer Imaging Archive (TCIA): Maintaining and Operating a Public Information Repository**, Journal of Digital Imaging, Volume 26, Number 6, December, 2013, pp 1045-1057. DOI: <https://doi.org/10.1007/s10278-013-9622-7>

Other Publications Using This Data

TCIA maintains [a list of publications](#) that leverage TCIA data. If you have a manuscript you'd like to add please [contact the TCIA Helpdesk](#).

Versions

Version 1 (Current): Updated 2020/05/26

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