Submission and De-identification Overview

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Overview

At the National Cancer Institute's (NCI) direction The Cancer Imaging Archive (TCIA) curates and publishes freely available cancer imaging datasets. These include clinical and pre-clinical radiology and pathology images as well as supporting clinical data (e.g. patient demographics and clinical outcomes), image annotations, and links to externally hosted genomic and proteomic datasets in other NCI databases where available. Data comes from NIH programs, clinical trials and community-submitted proposals to publish data.

The primary objective of TCIA is to provide public access to data to enhance transparency and reproducibility in cancer imaging research. To achieve this, TCIA offers data de-identification, curation, and hosting services to relieve individual researchers and institutions of these responsibilities.

This document is intended to provide details of TCIA's protocol for data collection, de-identification and curation so that submitting sites are comfortable with the protocol prior to agreeing to use the established procedures to accomplish these activities. The Department of Biomedical Informatics at UAMS hosts The Cancer Imaging Archive for the National Cancer Institute (NCI), therefore this process is implemented under the supervision of the University of Arkansas for Medical Sciences (UAMS) Institutional Review Board (IRB # 205568).

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Submit an application to publish data on TCIA

The first step to publishing cancer imaging data on TCIA is to submit an application to publish new image Collections or Analysis Result datasets that will be reviewed by the NCI TCIA Advisory Group. The TCIA Advisory Group prioritizes data submissions using the following criteria:

- How important is this data set to facilitating research reproducibility in this topic area?
- Does this dataset address a data gap for critical current research for a clinical need?
- Is this a novel/unique dataset compared to what's already in TCIA?
- Is the dataset of a sufficient size/scale to support scientific conclusions or hypothesis development?
- Does the dataset contain sufficient supporting data (e.g. patient outcomes, classifiers/labels, tumor segmentations) and documentation?
- If the dataset consists of an analysis of image based data, is it based on a biological hypothesis or other proposed discovery about the patho-physiological basis of cancer?

With few exceptions, there is no charge associated with data submission and hosting on TCIA.

Applications are reviewed monthly by the TCIA Advisory Group to assess their utility to the TCIA user community. Proposals which contain supporting non-image data (e.g. patient outcomes, training classifiers/labels, image annotations) are highly preferred to those which lack these characteristics. The Advisory Group is composed of staff from the National Cancer Institute (NCI) who are experts in cancer imaging and related technologies. The current membership includes:

- Janet Eary, Associate Director, NCI Cancer Imaging Program
- Lalitha Shankar, Branch Chief, NCI Cancer Imaging Program
- Irina A. Lubensky, Chief, NCI Cancer Diagnosis Program
- Krishnan Patel, Assistant Research Physician, Radiation Oncology Branch, Center for Cancer Research

If approved, submitting sites must sign our TCIA Data Submission Agreement before data collection is initiated. See our Data Usage Policies and Restrictions page for more information about the rules for downstream use of these data.

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Data Curation Overview

TCIA employs an industry-leading approach to data de-identification and curation that complies with all international standards, US laws and UAMS IRB protocol requirements while leveraging TCIA's extensive knowledge base to preserve as much research-relevant information as possible. All data are anonymized to the fullest extent possible at the submitting site, and then encrypted prior to transmission to UAMS. All incoming data are captured in a quarantine system and treated as if it contains PHI. All TCIA personnel are trained in HIPAA regulations and procedures. TCIA servers are managed by UAMS IT as if they were UAMS clinical systems. Once the full analysis and de-identification is complete, data are moved to a separate public repository and made available to the research community. This process has been reviewed by the UAMS Chief Security Officer.

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Pathology Curation Steps

A TCIA submission expert will work with an imaging point of contact from your site to receive your data. The submission expert will provide instructions to clean common locations where PHI might exist (e.g. file names, slide labels) and a link to upload the data into TCIA's secure UAMS object store using IBM's Aspera Faspex. Upon receipt, the slides are visually reviewed to check for burned in PHI, incorrectly labeled slides, scan quality issues and to ensure filenames match labels. Metadata fields are also reviewed to ensure they contain no PHI. Slide types supported include: Aperio (.svs, .tif), Hamamatsu (.vms, .vmu, .ndpi), Leica (.scn), MIRAX (.mrxs), Philips (.tiff), Sakura (.svslide), Trestle (.tif), Ventana (.bif, .tif) and Generic tiled TIFF (.tif).

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Radiology Curation Steps

A TCIA submission expert will work with an imaging point of contact from your site. The submission expert will provide all the required tools for de-identifying and sending your imaging data and will answer any questions you have throughout the process. These tools have been approved by NIH and comply with the Digital Imaging and Communications in Medicine (DICOM) international standard for medical image de-identification. Following industry best practices, TCIA uses a standards-based approach to de-identification of DICOM images and non-image data to ensure that all data made publicly available are free of protected health information (PHI). The TCIA de-identification process ensures that the HIPAA de-identification standard is met by following the Safe Harbor Method as defined in section 164.514(b)(2) of the HIPPA Privacy Rule utilizing the following steps:

1. TCIA will help your technical point of contact (PACS administrator or designated IT technician, henceforth referred to as "submitter") install TCIA's software on a standard desktop computer. The software runs on regular Windows/Mac/Linux desktop computers and requires Java to also be installed. It does not require any specialized hardware (e.g. servers are not necessary).
2. TCIA will help the submitter create mapping tables (which do not leave the submitting site) which our software will use to assign anonymous patient IDs and to offset study dates.
3. TCIA will walk the submitter through software testing using a small sample set of their study data (e.g. 1-2 patients).
4. TCIA will help the submitter export the full set of imaging studies from their local PACS (or wherever the data resides) into the TCIA software for processing.
    a. **Note:** Please do not utilize your PACS system de-identification or other de-identification software as this usually deletes critical information researchers will need to make use of the data.
5. TCIA will help the submitter use the software used to de-identify and transmit images to TCIA according to DICOM standards (Attribute Confidentiality Profile – DICOM PS 3.15: Appendix E) before it leaves your institution.
6. TCIA quality control and curation staff will work with you to ensure the data are fully de- identified and received. Additional reviews are performed, and any remaining PHI are deleted if found.
7. TCIA will publish the final data set with a descriptive page and announce its addition via our mailing list and social media channels.

Software used by TCIA

- Clinical Trials Processor (CTP) - CTP is a stand-alone image processing application for DICOM (radiology) data. Our curation teams provide this tool to submitters in order to perform the initial de-identification of DICOM images before they are transferred to TCIA.

- CTP Wizard - CTP Wizard is a custom extension of CTP developed by TCIA. It provides an interactive graphical user interface which can be used to more easily walk submitters through the process of importing, de-identifying, and exporting their DICOM data.

- Posda - Posda is an open source application for the archival and curation of DICOM datasets. After receiving the data from submitters our curation teams use Posda to perform additional quality checks and ensure all data were completely de-identified. The Posda process supports multiple de-identification, QC, and DICOM conformance reviews.

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DICOM De-identification Details

Following industry best-practices, TCIA uses a standards-based approach to de-identification of DICOM images to ensure that images are free of protected health information (PHI). The TCIA de-identification process ensures that the HIPAA de-identification standard is met by following the Safe Harbor Method as defined in section 164.514(b)(2) of the HIPAA Privacy Rule. The standard for de-identification of DICOM objects is defined by Attribute Confidentiality Profile – DICOM PS 3.15: Appendix E. At the submitting site, a DICOM PS 3.15 compliant script removes or modifies DICOM tags deemed to be unsafe (See table 1 for a complete listing). TCIA incorporates the "Basic Application Confidentiality Profile" which is amended by inclusion of the following profile options: Clean Pixel Data Option, Clean Descriptors Option, Retain Longitudinal With Modified Dates Option, Retain Patient Characteristics Option, and Retain Safe Private Option. The de-identification rules applied to each object are recorded by TCIA in the DICOM sequence Method Code Sequence [0012,0063] by entering the Code Value, Coding Scheme Designator, and Code Meaning for each profile and option that were applied to the DICOM object during de-identification. The DICOM standard for de-identification of objects defines a minimum set of elements to de-identify to be in compliance with the standard. TCIA complies with the DICOM standard for data de-identification and applies additional review measures to insure that PHI is removed or cleaned according to the laws and practices in place at the time de-identification occurs.

Base level de-identification

The Basic Application Confidentiality Profile requires that Patient Name and Patient ID are either blanked or modified. TCIA incorporates an ID mapping between the original Patient ID and the ID that the images will have within TCIA. The mapping table is created at the image submitting site, the mapping performed prior to the images leaving the site's host computer, and TCIA never sees the original Patient ID. The remapped Patient ID is also mapped to the Patient Name field. This is done for the case where a DICOM viewer or application being used by the TCIA user that downloaded the data would require a Patient Name to be present. To show that the Patient Identity has been removed, the term "YES" is written into DICOM tag (0012,0062) "Patient Identity Removed".

In general, the Basic Application Profile specifies removal or modification of any tag that by definition would contain PHI that could be used either alone or together with other information to uniquely identify a subject. Removal of detailed geographic information, dates, exam identifiers, patient demographics, free text entry fields, vendor private tags, etc. are all done to minimize the possibility of being able to uniquely identify an individual. The options to the DICOM de-identification standard allows for retention of information to help make the data scientifically valuable, but as more options are added the chance of PHI is increased and a rigorous de-identification process must be followed.

Exam Identifiers - DICOM makes extensive use of universal identifiers (UID) that could be used to identify a subject if a user had access to the PACS system at the institution where the images originated. The Basic Application Confidentiality Profile requires that all UIDs be removed or modified. TCIA uses its own root UID and then appends a hashed value of the original UID and truncates the string to 64 characters. This technique insures that images stay associated with the appropriate series, study, and subject as well as ensuring that referenced images between radiation therapy objects, segmentation objects, structured reports, PET/CT, etc. are still valid references to images within TCIA. Any image resubmitted to TCIA will have the same UID to avoid the same image appearing twice with a different identifier. Original accession numbers are emptied to prevent linking of DICOM objects back to the submitting site.

Dates - The Retain Longitudinal With Modified Dates Option allows dates to be retained as long as they are modified from the original date. Date and Date-Time fields in TCIA DICOM image headers have been offset based on a random number, but the longitudinal relationship between dates is maintained. Therefore, a researcher won't know the precise date the scan occurred, but if a follow up scan was performed 120 days later, that same 120 day difference between scans of a subject will exist in the TCIA images. Dates that occur in DICOM tags other than Date or Date-Time fields are removed. An example of this would be a date entered into the Series Description field. If the date is associated with a library for Code Meaning then that date is preserved as the date would be required to look up the meaning in the correct version of the library. To show that the dates have been modified, the term "MODIFIED" is written into DICOM tag (0028,0303) "Longitudinal Temporal Information Modified".

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Optionally, a computed number of days from baseline value can be inserted in the DICOM tag (0012,0052) “Longitudinal Temporal Offset” From Event with the associated tag (0012,0053) “Longitudinal Temporal Event Type” defining the event (e.g. Registration, Surgery, etc). "Baseline Year" (e.g. year of diagnosis) can optionally be inserted in DICOM tag (0013,1051).

Patient Demographics – The keep Patient Characteristics Option allows keeping some patient demographics for research purposes. The allowed fields are Patient’s Sex, Patient’s Age, Patient’s Size, Patient’s Weight, Ethnic Group, Smoking Status, and Pregnancy Status. If a subject is over 89 years of age, then the age must be listed as 90+. Allergies, Patient State (this is not where they live, rather their condition), Pre-Medication, and Special Needs are defined by the DICOM standard as “clean”, however, TCIA chooses to delete these tags other than Pre-Medication as they have been found to often contain PHI. Other patient demographics such as birthdate, address, religious affiliations, etc. are removed or emptied.

The names of health care providers including staff, hospital name, assigned IDs etc. are removed from the DICOM objects in cases where there is enough detail to identify an individual or facility where the scan was done.

Free Text - The Clean Descriptors Option allows for DICOM tags where free text could be entered by a technician to be kept. The following tags fall under that option and are all kept, inspected, and cleaned of PHI by TCIA during the curation process: Allergies, Patient State, Study Description, Series Description, Admitting Diagnoses Description, Admitting Diagnoses Code Sequence, Derivation Description, Identifying Comments, Medical Alerts, Occupation, Additional Patient’s History, Patient Comments, Contrast Bolus Agent, Protocol Name, Acquisition Device Processing Description, Acquisition Comments, Acquisition Protocol Description, Contribution Description, Image Comments, Frame Comments, Reason for Study, Requested Procedure Description, Requested Contrast Agent, Study Comments, Discharge Diagnosis Description, Service Episode Description, Visit Comments, Scheduled Procedure Step Description, Performed Procedure Step Description, Comments on Performed Procedure Step, Requested Procedure Comments, Reason for Imaging Service Request, Imaging Service Request Comments, Interpretation Text, Interpretation Diagnosis Description, Impressions, and Results Comments. The TCIA de-identification script run at the submitting sites removes the field “Request Attributes Sequence” as that tag typically contains PHI and provides no scientific value. As of January 2024, other tags including Allergies, Patient State, Occupation, and all Comment fields are no longer being kept as they either frequently contain PHI or are being removed as part of best practices. Many of these fields contain information valuable to research and are important to retain. For images that are submitted with missing Study or Series Descriptions, TCIA will work with the submitter to update the missing values to the extent possible.

Devices – As of January 2024, TCIA no longer uses the Retain Device Identity Option of the DICOM de-identification standard which allows for the retention of information related to the scanner used. After cleaning the tags related to this option, very few of the values remained and TCIA has decided to no longer claim conformance to this option. The option allows for the following relevant tags to be retained: Station Name, Device Serial Number, Device UID, Plate ID, Generator ID, Cassette ID, Gantry ID, Detector ID, Scheduled Study Location, Scheduled Study Location AE Title, Scheduled Station AE Title, Scheduled Station Name, Scheduled Procedure Step Location, Performed Station AE Title, Performed Station Name, Performed Station Name Code Sequence, Scheduled Station Name Code Sequence, Scheduled Station Geographic Location Code Sequence, and Performed Station Geographic Location Code Sequence. TCIA removes Station Name as part of its de-identification process as Station Name often contains information related to the site where the scan occurred. The other tags listed above are retained if they are found to be free of PHI after TCIA curation of the submitted DICOM objects.

Private Tags – Scanner manufacturers store model-specific information in DICOM private tags, which sometimes contain information vital for downstream research. Unfortunately, there are many cases where vendors do not make the conformance statement for a piece of equipment publicly available or do not adequately define what is stored in the private tags..

- Private Tag Dictionary. TCIA maintains an industry-leading Private Tag Dictionary that contains definitions of vendor-specific private tags by manufacturer, model, and software version together with a disposition indicating how to process that tag to ensure that it is free of PHI. The dictionary was updated in 2020 at TCIA by

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reviewing and merging three well-known private tag dictionaries (Grassroots DICOM, DICOM3tools, DCMTK) with TCIA's private tag dictionary that contained all private tags encountered by TCIA through 2019. This dictionary is continually updated and maintained at TCIA and is available for public review and utilization. The dictionary is leveraged as part of the TCIA Posda curation workflow and allows for an expanded set of scientifically useful tags to be retained.

- Private Tag Review Process. When a submitting site sends DICOM data to TCIA, private tags known to be unsafe are removed by the CTP software used to send the data. All other private tags are retained and de-identified at TCIA during curation of the data following the Retain Safe Private Option of the DICOM de-identification standard. The Retain Safe Private Option allows for the retention of DICOM tags stored in the private fields that are known to not contain PHI. If a new private tag is encountered in the Posda database that does not have a private tag disposition, values are inspected in relation to the tag description together with values in the tags and a disposition is assigned. If there is no existing private tag description, an attempt is made to find a manufacturer's definition of the tag. If no such description can be found the disposition is defined to remove the tag. TCIA will remove any private tags from the images that are not specified in the private tag dictionary or are defined as containing a form of PHI such as name, SSN, etc. All date and datetime private tags that are retained are offset using the same offset as applied to the standard tags for the image. All private tags containing UIDs are assigned a TCIA root and appended with a hashed value as done with the standard tags. This ensures all references to other images contained within TCIA are maintained. Curators perform a manual inspection of all private tags using Posda reports and any PHI that may be found is removed, emptied, date offset, or hashed as appropriate.

Body Part Examined - When images are made public, a single body part examined, corresponding to the cancer of interest, is assigned to all images. If the collection consists of sarcoma images (or any other cancer affecting multiple organs within the image collection), there may be multiple body parts assigned, though only one to any series. In phantom collections, body part examined is simply labeled "PHANTOM".

All Tags - The TCIA de-identification process ensures that every DICOM tag of every DICOM object is free of the 18 forms of PHI as currently defined by the Safe Harbor Method. At the submitting site, a DICOM PS 3.15 compliant script removes or modifies DICOM tags deemed to be unsafe (See table 1 for a complete listing). At TCIA, a software routine extracts every unique value found within a collection being curated and prints them to a report. This report is examined by curators and any actions necessary to remove PHI are applied before moving the images from the Posda Curation Server to the TCIA Public Server. Every DICOM image is inspected by curators for burned-in PHI. Once the images reach the TCIA Public Server, the tags are inspected by two curators for PHI using Posda PHI reports. Images are spot-checked for any burned-in PHI.

The following table details the de-identification performed at the submitting site by way of a TCIA-supplied de-identification script. All other tags not mentioned in the table below are reviewed and cleaned if necessary during our Posda curation.

Table 1 - DICOM Tags Modified or Removed at the source site (18 forms of PHI as currently defined by the Safe Harbor Method, DICOM PS 3.15 compliant)

Tag	Attribute Name	TCIA Profile	TCIA Implementation	Final CTP Script
(0000,1000)	Affected SOP Instance UID	X	remove	@remove()
(0000,1001)	Requested SOP Instance UID	U	hashuid	@hashuid(@UIDROOT,this)
(0002,0003)	Media Storage SOP Instance UID	U	hashuid	@hashuid(@UIDROOT,this)
(0004,1511)	Referenced SOP Instance UID in File	U	hashuid	@hashuid(@UIDROOT,this)

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(0008,0012)	Instance Creation Date	C	incrementdate	@incrementdate(this, @DATEINC)
(0008,0013)	Instance Creation Time	C	time	@keep()
(0008,0014)	Instance Creator UID	U	hashuid	@hashuid(@UIDROOT,this)
(0008,0015)	Instance Coercion DateTime	C	incrementdate	@incrementdate(this, @DATEINC)
(0008,0017)	Acquisition UID	U	hashuid	@hashuid(@UIDROOT,this)
(0008,0018)	SOP Instance UID	U	hashuid	@hashuid(@UIDROOT,this)
(0008,0019)	Pyramid UID	U	hashuid	@hashuid(@UIDROOT,this)
(0008,0020)	Study Date	C	incrementdate	@incrementdate(this, @DATEINC)
(0008,0021)	Series Date	C	incrementdate	@incrementdate(this, @DATEINC)
(0008,0022)	Acquisition Date	C	incrementdate	@incrementdate(this, @DATEINC)
(0008,0023)	Content Date	C	incrementdate	@incrementdate(this, @DATEINC)
(0008,0024)	Overlay Date	C	incrementdate	@incrementdate(this, @DATEINC)
(0008,0025)	Curve Date	C	incrementdate	@incrementdate(this, @DATEINC)
(0008,002A)	Acquisition DateTime	C	incrementdate	@incrementdate(this, @DATEINC)
(0008,0030)	Study Time	C	time	@keep()
(0008,0031)	Series Time	C	time	@keep()
(0008,0032)	Acquisition Time	C	time	@keep()
(0008,0033)	Content Time	C	time	@keep()
(0008,0034)	Overlay Time	C	time	@keep()
(0008,0035)	Curve Time	C	time	@keep()
(0008,0050)	Accession Number	Z	empty	@empty()
(0008,0058)	Failed SOP Instance UID List	U	hashuid	@hashuid(@UIDROOT,this)
(0008,0080)	Institution Name	X	remove	@remove()
(0008,0081)	Institution Address	X	remove	@remove()
(0008,0082)	Institution Code Sequence	X	remove	@remove()

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(0008,0090)	Referring Physician's Name	Z	empty	@empty()
(0008,0092)	Referring Physician's Address	X	remove	@remove()
(0008,0094)	Referring Physician's Telephone Numbers	X	remove	@remove()
(0008,0096)	Referring Physician Identification Sequence	X	remove	@remove()
(0008,009C)	Consulting Physician's Name	Z	empty	@empty()
(0008,009D)	Consulting Physician Identification Sequence	X	remove	@remove()
(0008,0106)	Context Group Version	C	keep	@keep()
(0008,0107)	Context Group Local Version	C	keep	@keep()
(0008,0201)	Timezone Offset From UTC	X	remove	@remove()
(0008,1010)	Station Name	X	remove	@remove()
(0008,1030)	Study Description	C	keep	@keep()
(0008,103E)	Series Description	C	keep	@keep()
(0008,1040)	Institutional Department Name	X	remove	@remove()
(0008,1041)	Institutional Department Type Code Sequence	X	remove	@remove()
(0008,1048)	Physician(s) of Record	X	remove	@remove()
(0008,1049)	Physician(s) of Record Identification Sequence	X	remove	@remove()
(0008,1050)	Performing Physician's Name	X	remove	@remove()
(0008,1052)	Performing Physician Identification Sequence	X	remove	@remove()
(0008,1060)	Name of Physician(s) Reading Study	X	remove	@remove()
(0008,1062)	Physician(s) Reading Study Identification Sequence	X	remove	@remove()
(0008,1070)	Operators' Name	X	remove	@remove()
(0008,1072)	Operator Identification Sequence	X	remove	@remove()
(0008,1080)	Admitting Diagnoses Description	C	keep	@keep()
(0008,1084)	Admitting Diagnoses Code Sequence	C	process	@process()
(0008,1088)	Pyramid Description	C	keep	@keep()
(0008,1110)	Referenced Study Sequence	Z	process	@process()

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(0008,1111)	Referenced Performed Procedure Step Sequence	Z	process	@process()
(0008,1120)	Referenced Patient Sequence	X	remove	@remove()
(0008,1140)	Referenced Image Sequence	Z	process	@process()
(0008,1155)	Referenced SOP Instance UID	U	hashuid	@hashuid(@UIDROOT,this)
(0008,1195)	Transaction UID	U	hashuid	@hashuid(@UIDROOT,this)
(0008,2111)	Derivation Description	X	remove	@remove()
(0008,2112)	Source Image Sequence	Z	process	@process()
(0008,3010)	Irradiation Event UID	U	hashuid	@hashuid(@UIDROOT,this)
(0008,4000)	Identifying Comments	C	remove	@remove()
(0010,0010)	Patient's Name	Z	lookup	LOOKUP(PatientID,ptid)
(0010,0020)	Patient ID	Z	lookup	LOOKUP(this,ptid)
(0010,0021)	Issuer of Patient ID	X	remove	@remove()
(0010,0030)	Patient's Birth Date	Z	empty	@empty()
(0010,0032)	Patient's Birth Time	X	remove	@remove()
(0010,0040)	Patient's Sex	K	keep	@keep()
(0010,0050)	Patient's Insurance Plan Code Sequence	X	remove	@remove()
(0010,0101)	Patient's Primary Language Code Sequence	X	remove	@remove()
(0010,0102)	Patient's Primary Language Modifier Code Sequence	X	remove	@remove()
(0010,1000)	Other Patient IDs	X	remove	@remove()
(0010,1001)	Other Patient Names	X	remove	@remove()
(0010,1002)	Other Patient IDs Sequence	X	remove	@remove()
(0010,1005)	Patient's Birth Name	X	remove	@remove()
(0010,1010)	Patient's Age	K	keep	@keep()
(0010,1020)	Patient's Size	K	keep	@keep()
(0010,1030)	Patient's Weight	K	keep	@keep()
(0010,1040)	Patient's Address	X	remove	@remove()
(0010,1050)	Insurance Plan Identification	X	remove	@remove()
(0010,1060)	Patient's Mother's Birth Name	X	remove	@remove()

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(0010,1080)	Military Rank	X	remove	@remove()
(0010,1081)	Branch of Service	X	remove	@remove()
(0010,1090)	Medical Record Locator	X	remove	@remove()
(0010,1100)	Referenced Patient Photo Sequence	X	remove	@remove()
(0010,2000)	Medical Alerts	C	keep	@keep()
(0010,2110)	Allergies	X	remove	@remove()
(0010,2150)	Country of Residence	X	remove	@remove()
(0010,2152)	Region of Residence	X	remove	@remove()
(0010,2154)	Patient's Telephone Numbers	X	remove	@remove()
(0010,2155)	Patient's Telecom Information	X	remove	@remove()
(0010,2160)	Ethnic Group	K	keep	@keep()
(0010,2180)	Occupation	C	remove	@remove()
(0010,21A0)	Smoking Status	K	keep	@keep()
(0010,21B0)	Additional Patient History	C	keep	@keep()
(0010,21C0)	Pregnancy Status	K	keep	@keep()
(0010,21D0)	Last Menstrual Date	C	incrementdate	@incrementdate(this, @DATEINC)
(0010,21F0)	Patient's Religious Preference	X	remove	@remove()
(0010,2203)	Patient's Sex Neutered	K	keep	@keep()
(0010,2297)	Responsible Person	X	remove	@remove()
(0010,2299)	Responsible Organization	X	remove	@remove()
(0010,4000)	Patient Comments	C	remove	@remove()
(0012,0010)	Clinical Trial Sponsor Name	D	replace	removed
(0012,0020)	Clinical Trial Protocol ID	D	replace	removed
(0012,0021)	Clinical Trial Protocol Name	Z	empty	@empty()
(0012,0030)	Clinical Trial Site ID	Z	empty	@empty()
(0012,0031)	Clinical Trial Site Name	Z	empty	@empty()
(0012,0040)	Clinical Trial Subject ID	D	replace	removed
(0012,0042)	Clinical Trial Subject Reading ID	D	replace	removed
(0012,0050)	Clinical Trial Time Point ID	Z	empty	@empty()

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(0012,0051)	Clinical Trial Time Point Description	C	keep	@keep()
(0012,0060)	Clinical Trial Coordinating Center Name	Z	empty	@empty()
(0012,0071)	Clinical Trial Series ID	X	remove	@remove()
(0012,0072)	Clinical Trial Series Description	C	keep	@keep()
(0012,0081)	Clinical Trial Protocol Ethics Committee Name	D	replace	removed
(0012,0082)	Clinical Trial Protocol Ethics Committee Approval Number	X	remove	@remove()
(0012,0086)	Ethics Committee Approval Effectiveness Start Date	C	incrementdate	@incrementdate(this, @DATEINC)
(0012,0087)	Ethics Committee Approval Effectiveness End Date	C	incrementdate	@incrementdate(this, @DATEINC)
(0014,407C)	Calibration Time	C	time	@keep()
(0014,407E)	Calibration Date	C	incrementdate	@incrementdate(this, @DATEINC)
(0016,002B)	Maker Note	C	keep	@keep()
(0016,004B)	Device Setting Description	C	keep	@keep()
(0016,004D)	Camera Owner Name	X	remove	@remove()
(0016,004E)	Lens Specification	X	remove	@remove()
(0016,004F)	Lens Make	X	remove	@remove()
(0016,0050)	Lens Model	X	remove	@remove()
(0016,0051)	Lens Serial Number	X	remove	@remove()
(0016,0070)	GPS Version ID	X	remove	@remove()
(0016,0071)	GPS Latitude Ref	X	remove	@remove()
(0016,0072)	GPS Latitude	X	remove	@remove()
(0016,0073)	GPS Longitude Ref	X	remove	@remove()
(0016,0074)	GPS Longitude	X	remove	@remove()
(0016,0075)	GPS Altitude Ref	X	remove	@remove()
(0016,0076)	GPS Altitude	X	remove	@remove()
(0016,0077)	GPS Time Stamp	X	remove	@remove()
(0016,0078)	GPS Satellites	X	remove	@remove()
(0016,0079)	GPS Status	X	remove	@remove()

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(0016,007A)	GPS Measure Mode	X	remove	@remove()
(0016,007B)	GPS DOP	X	remove	@remove()
(0016,007C)	GPS Speed Ref	X	remove	@remove()
(0016,007D)	GPS Speed	X	remove	@remove()
(0016,007E)	GPS Track Ref	X	remove	@remove()
(0016,007F)	GPS Track	X	remove	@remove()
(0016,0080)	GPS Img Direction Ref	X	remove	@remove()
(0016,0081)	GPS Img Direction	X	remove	@remove()
(0016,0082)	GPS Map Datum	X	remove	@remove()
(0016,0083)	GPS Dest Latitude Ref	X	remove	@remove()
(0016,0084)	GPS Dest Latitude	X	remove	@remove()
(0016,0085)	GPS Dest Longitude Ref	X	remove	@remove()
(0016,0086)	GPS Dest Longitude	X	remove	@remove()
(0016,0087)	GPS Dest Bearing Ref	X	remove	@remove()
(0016,0088)	GPS Dest Bearing	X	remove	@remove()
(0016,0089)	GPS Dest Distance Ref	X	remove	@remove()
(0016,008A)	GPS Dest Distance	X	remove	@remove()
(0016,008B)	GPS Processing Method	X	remove	@remove()
(0016,008C)	GPS Area Information	X	remove	@remove()
(0016,008D)	GPS Date Stamp	C	incrementdate	@incrementdate(this, @DATEINC)
(0016,008E)	GPS Differential	X	remove	@remove()
(0018,0010)	Contrast/Bolus Agent	C	keep	@keep()
(0018,0027)	Intervention Drug Stop Time	C	time	@keep()
(0018,0035)	Intervention Drug Start Time	C	time	@keep()
(0018,1000)	Device Serial Number	X	remove	@remove()
(0018,1002)	Device UID	U	hashuid	@hashuid(@UIDROOT,this)
(0018,1004)	Plate ID	X	remove	@remove()
(0018,1005)	Generator ID	X	remove	@remove()
(0018,1007)	Cassette ID	X	remove	@remove()

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(0018,1008)	Gantry ID	X	remove	@remove()
(0018,1009)	Unique Device Identifier	X	remove	@remove()
(0018,100A)	UDI Sequence	X	remove	@remove()
(0018,100B)	Manufacturer's Device Class UID	U	hashuid	@hashuid(@UIDROOT,this)
(0018,1012)	Date of Secondary Capture	C	incrementdate	@incrementdate(this, @DATEINC)
(0018,1014)	Time of Secondary Capture	C	time	@keep()
(0018,1030)	Protocol Name	C	keep	@keep()
(0018,1042)	Contrast/Bolus Start Time	C	time	@keep()
(0018,1043)	Contrast/Bolus Stop Time	C	time	@keep()
(0018,1072)	Radiopharmaceutical Start Time	C	time	@keep()
(0018,1073)	Radiopharmaceutical Stop Time	C	time	@keep()
(0018,1078)	Radiopharmaceutical Start DateTime	C	incrementdate	@incrementdate(this, @DATEINC)
(0018,1079)	Radiopharmaceutical Stop DateTime	C	incrementdate	@incrementdate(this, @DATEINC)
(0018,11BB)	Acquisition Field Of View Label	C	keep	@keep()
(0018,1200)	Date of Last Calibration	X	remove	@remove()
(0018,1201)	Time of Last Calibration	X	remove	@remove()
(0018,1202)	DateTime of Last Calibration	C	incrementdate	@incrementdate(this, @DATEINC)
(0018,1203)	Calibration DateTime	C	incrementdate	@incrementdate(this, @DATEINC)
(0018,1400)	Acquisition Device Processing Description	C	keep	@keep()
(0018,2042)	Target UID	U	hashuid	@hashuid(@UIDROOT,this)
(0018,4000)	Acquisition Comments	C	keep	@keep()
(0018,5011)	Transducer Identification Sequence	X	remove	@remove()
(0018,700A)	Detector ID	X	remove	@remove()
(0018,700C)	Date of Last Detector Calibration	C	incrementdate	@incrementdate(this, @DATEINC)
(0018,700E)	Time of Last Detector Calibration	C	time	@keep()

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(0018,9074)	Frame Acquisition DateTime	C	incrementdate	@incrementdate(this, @DATEINC)
(0018,9151)	Frame Reference DateTime	C	incrementdate	@incrementdate(this, @DATEINC)
(0018,9185)	Respiratory Motion Compensation Technique Description	C	keep	@keep()
(0018,9367)	X-Ray Source ID	D	replace	removed
(0018,9369)	Source Start DateTime	C	incrementdate	@incrementdate(this, @DATEINC)
(0018,936A)	Source End DateTime	C	incrementdate	@incrementdate(this, @DATEINC)
(0018,9371)	X-Ray Detector ID	D	replace	removed
(0018,9373)	X-Ray Detector Label	X	remove	@remove()
(0018,937B)	Multi-energy Acquisition Description	C	keep	@keep()
(0018,937F)	Decomposition Description	C	keep	@keep()
(0018,9424)	Acquisition Protocol Description	C	keep	@keep()
(0018,9516)	Start Acquisition DateTime	C	incrementdate	@incrementdate(this, @DATEINC)
(0018,9517)	End Acquisition DateTime	C	incrementdate	@incrementdate(this, @DATEINC)
(0018,9623)	Functional Sync Pulse	C	keep	@keep()
(0018,9701)	Decay Correction DateTime	C	incrementdate	@incrementdate(this, @DATEINC)
(0018,9804)	Exclusion Start DateTime	C	incrementdate	@incrementdate(this, @DATEINC)
(0018,9919)	Instruction Performed DateTime	C	incrementdate	@incrementdate(this, @DATEINC)
(0018,9937)	Requested Series Description	C	keep	@keep()
(0018,A002)	Contribution DateTime	C	incrementdate	@incrementdate(this, @DATEINC)
(0018,A003)	Contribution Description	C	keep	@keep()
(0020,000D)	Study Instance UID	U	hashuid	@hashuid(@UIDROOT,this)
(0020,000E)	Series Instance UID	U	hashuid	@hashuid(@UIDROOT,this)
(0020,0010)	Study ID	Z	empty	@empty()
(0020,0027)	Pyramid Label	C	keep	@keep()

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(0020,0052)	Frame of Reference UID	U	hashuid	@hashuid(@UIDROOT,this)
(0020,0200)	Synchronization Frame of Reference UID	U	hashuid	@hashuid(@UIDROOT,this)
(0020,3401)	Modifying Device ID	X	remove	@remove()
(0020,3403)	Modified Image Date	C	incrementdate	@incrementdate(this, @DATEINC)
(0020,3405)	Modified Image Time	C	time	@keep()
(0020,3406)	Modified Image Description	X	remove	@remove()
(0020,4000)	Image Comments	C	remove	@remove()
(0020,9158)	Frame Comments	C	remove	@remove()
(0020,9161)	Concatenation UID	U	hashuid	@hashuid(@UIDROOT,this)
(0020,9164)	Dimension Organization UID	U	hashuid	@hashuid(@UIDROOT,this)
(0028,1199)	Palette Color Lookup Table UID	U	hashuid	@hashuid(@UIDROOT,this)
(0028,1214)	Large Palette Color Lookup Table UID	U	hashuid	@hashuid(@UIDROOT,this)
(0028,4000)	Image Presentation Comments	X	remove	@remove()
(0032,0012)	Study ID Issuer	X	remove	@remove()
(0032,0032)	Study Verified Date	C	incrementdate	@incrementdate(this, @DATEINC)
(0032,0033)	Study Verified Time	C	time	@keep()
(0032,0034)	Study Read Date	C	incrementdate	@incrementdate(this, @DATEINC)
(0032,0035)	Study Read Time	C	time	@keep()
(0032,1000)	Scheduled Study Start Date	C	incrementdate	@incrementdate(this, @DATEINC)
(0032,1001)	Scheduled Study Start Time	C	time	@keep()
(0032,1010)	Scheduled Study Stop Date	C	incrementdate	@incrementdate(this, @DATEINC)
(0032,1011)	Scheduled Study Stop Time	C	time	@keep()
(0032,1020)	Scheduled Study Location	X	remove	@remove()
(0032,1021)	Scheduled Study Location AE Title	X	remove	@remove()
(0032,1030)	Reason for Study	C	keep	@keep()
(0032,1032)	Requesting Physician	X	remove	@remove()
(0032,1033)	Requesting Service	X	remove	@remove()

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(0032,1040)	Study Arrival Date	C	incrementdate	@incrementdate(this, @DATEINC)
(0032,1041)	Study Arrival Time	C	time	@keep()
(0032,1050)	Study Completion Date	C	incrementdate	@incrementdate(this, @DATEINC)
(0032,1051)	Study Completion Time	C	time	@keep()
(0032,1060)	Requested Procedure Description	C	keep	@keep()
(0032,1066)	Reason for Visit	C	remove	@remove()
(0032,1067)	Reason for Visit Code Sequence	C	remove	@remove()
(0032,1070)	Requested Contrast Agent	C	keep	@keep()
(0032,4000)	Study Comments	X	remove	@remove()
(0034,0001)	Flow Identifier Sequence	D	process	@process()
(0034,0002)	Flow Identifier	D	replace	removed
(0034,0005)	Source Identifier	D	replace	removed
(0034,0007)	Frame Origin Timestamp	X	remove	@remove()
(0038,0004)	Referenced Patient Alias Sequence	X	remove	@remove()
(0038,0010)	Admission ID	X	remove	@remove()
(0038,0011)	Issuer of Admission ID	X	remove	@remove()
(0038,0014)	Issuer of Admission ID Sequence	X	remove	@remove()
(0038,001A)	Scheduled Admission Date	C	incrementdate	@incrementdate(this, @DATEINC)
(0038,001B)	Scheduled Admission Time	C	time	@keep()
(0038,001C)	Scheduled Discharge Date	C	incrementdate	@incrementdate(this, @DATEINC)
(0038,001D)	Scheduled Discharge Time	C	time	@keep()
(0038,001E)	Scheduled Patient Institution Residence	X	remove	@remove()
(0038,0020)	Admitting Date	C	incrementdate	@incrementdate(this, @DATEINC)
(0038,0021)	Admitting Time	C	keep	@keep()
(0038,0030)	Discharge Date	C	incrementdate	@incrementdate(this, @DATEINC)
(0038,0032)	Discharge Time	C	keep	@keep()
(0038,0040)	Discharge Diagnosis Description	C	keep	@keep()

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(0038,0050)	Special Needs	C	remove	@remove()
(0038,0060)	Service Episode ID	X	remove	@remove()
(0038,0061)	Issuer of Service Episode ID	X	remove	@remove()
(0038,0062)	Service Episode Description	C	keep	@keep()
(0038,0064)	Issuer of Service Episode ID Sequence	X	remove	@remove()
(0038,0300)	Current Patient Location	X	remove	@remove()
(0038,0400)	Patient's Institution Residence	X	remove	@remove()
(0038,0500)	Patient State	C	remove	@remove()
(0038,4000)	Visit Comments	C	remove	@remove()
(003A,0310)	Multiplex Group UID	U	hashuid	@hashuid(@UIDROOT,this)
(003A,0314)	Impedance Measurement DateTime	C	incrementdate	@incrementdate(this, @DATEINC)
(003A,0329)	Waveform Filter Description	C	keep	@keep()
(003A,032B)	Filter Lookup Table Description	C	keep	@keep()
(0040,0001)	Scheduled Station AE Title	X	remove	@remove()
(0040,0002)	Scheduled Procedure Step Start Date	C	incrementdate	@incrementdate(this, @DATEINC)
(0040,0003)	Scheduled Procedure Step Start Time	C	keep	@keep()
(0040,0004)	Scheduled Procedure Step End Date	C	incrementdate	@incrementdate(this, @DATEINC)
(0040,0005)	Scheduled Procedure Step End Time	C	keep	@keep()
(0040,0006)	Scheduled Performing Physician's Name	X	remove	@remove()
(0040,0007)	Scheduled Procedure Step Description	C	keep	@keep()
(0040,0009)	Scheduled Procedure Step ID	X	remove	@remove()
(0040,000B)	Scheduled Performing Physician Identification Sequence	X	remove	@remove()
(0040,0010)	Scheduled Station Name	X	remove	@remove()
(0040,0011)	Scheduled Procedure Step Location	X	remove	@remove()
(0040,0012)	Pre-Medication	C	keep	@keep()
(0040,0241)	Performed Station AE Title	X	remove	@remove()
(0040,0242)	Performed Station Name	X	remove	@remove()
(0040,0243)	Performed Location	X	remove	@remove()

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(0040,0244)	Performed Procedure Step Start Date	C	incrementdate	@incrementdate(this, @DATEINC)
(0040,0245)	Performed Procedure Step Start Time	C	time	@keep()
(0040,0250)	Performed Procedure Step End Date	C	incrementdate	@incrementdate(this, @DATEINC)
(0040,0251)	Performed Procedure Step End Time	C	time	@keep()
(0040,0253)	Performed Procedure Step ID	X	remove	@remove()
(0040,0254)	Performed Procedure Step Description	C	keep	@keep()
(0040,0275)	Request Attributes Sequence	X	remove	@remove()
(0040,0280)	Comments on the Performed Procedure Step	X	remove	@remove()
(0040,0310)	Comments on Radiation Dose	X	remove	@remove()
(0040,050A)	Specimen Accession Number	X	remove	@remove()
(0040,0512)	Container Identifier	D	replace	removed
(0040,0513)	Issuer of the Container Identifier Sequence	Z	process	@process()
(0040,051A)	Container Description	C	keep	@keep()
(0040,0551)	Specimen Identifier	D	replace	removed
(0040,0554)	Specimen UID	U	hashuid	@hashuid(@UIDROOT,this)
(0040,0555)	Acquisition Context Sequence	C	process	@process()
(0040,0562)	Issuer of the Specimen Identifier Sequence	Z	process	@process()
(0040,0600)	Specimen Short Description	C	keep	@keep()
(0040,0602)	Specimen Detailed Description	C	keep	@keep()
(0040,0610)	Specimen Preparation Sequence	C	process	@process()
(0040,06FA)	Slide Identifier	X	remove	@remove()
(0040,1001)	Requested Procedure ID	X	remove	@remove()
(0040,1002)	Reason for the Requested Procedure	C	remove	@remove()
(0040,1004)	Patient Transport Arrangements	X	remove	@remove()
(0040,1005)	Requested Procedure Location	X	remove	@remove()
(0040,100A)	Reason for Requested Procedure Code Sequence	C	remove	@remove()
(0040,1010)	Names of Intended Recipients of Results	X	remove	@remove()

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(0040,1011)	Intended Recipients of Results Identification Sequence	X	remove	@remove()
(0040,1101)	Person Identification Code Sequence	D	replace	removed
(0040,1102)	Person's Address	X	remove	@remove()
(0040,1103)	Person's Telephone Numbers	X	remove	@remove()
(0040,1104)	Person's Telecom Information	X	remove	@remove()
(0040,1400)	Requested Procedure Comments	C	remove	@remove()
(0040,2001)	Reason for the Imaging Service Request	C	remove	@remove()
(0040,2004)	Issue Date of Imaging Service Request	C	incrementdate	@incrementdate(this, @DATEINC)
(0040,2005)	Issue Time of Imaging Service Request	C	time	@keep()
(0040,2008)	Order Entered By	X	remove	@remove()
(0040,2009)	Order Enterer's Location	X	remove	@remove()
(0040,2010)	Order Callback Phone Number	X	remove	@remove()
(0040,2011)	Order Callback Telecom Information	X	remove	@remove()
(0040,2016)	Placer Order Number / Imaging Service Request	Z	empty	@empty()
(0040,2017)	Filler Order Number / Imaging Service Request	Z	empty	@empty()
(0040,2400)	Imaging Service Request Comments	C	keep	@keep()
(0040,3001)	Confidentiality Constraint on Patient Data Description	X	remove	@remove()
(0040,4005)	Scheduled Procedure Step Start DateTime	C	incrementdate	@incrementdate(this, @DATEINC)
(0040,4008)	Scheduled Procedure Step Expiration DateTime	C	incrementdate	@incrementdate(this, @DATEINC)
(0040,4010)	Scheduled Procedure Step Modification DateTime	C	incrementdate	@incrementdate(this, @DATEINC)
(0040,4011)	Expected Completion DateTime	C	incrementdate	@incrementdate(this, @DATEINC)
(0040,4023)	Referenced General Purpose Scheduled Procedure Step Transaction UID	U	hashuid	@hashuid(@UIDROOT,this)
(0040,4025)	Scheduled Station Name Code Sequence	X	remove	@remove()
(0040,4027)	Scheduled Station Geographic Location Code Sequence	X	remove	@remove()

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(0040,4028)	Performed Station Name Code Sequence	X	remove	@remove()
(0040,4030)	Performed Station Geographic Location Code Sequence	X	remove	@remove()
(0040,4034)	Scheduled Human Performers Sequence	X	remove	@remove()
(0040,4035)	Actual Human Performers Sequence	X	remove	@remove()
(0040,4036)	Human Performer's Organization	X	remove	@remove()
(0040,4037)	Human Performer's Name	X	remove	@remove()
(0040,4050)	Performed Procedure Step Start DateTime	C	incrementdate	@incrementdate(this, @DATEINC)
(0040,4051)	Performed Procedure Step End DateTime	C	incrementdate	@incrementdate(this, @DATEINC)
(0040,4052)	Procedure Step Cancellation DateTime	C	incrementdate	@incrementdate(this, @DATEINC)
(0040,A023)	Findings Group Recording Date (Trial)	C	incrementdate	@incrementdate(this, @DATEINC)
(0040,A024)	Findings Group Recording Time (Trial)	C	incrementdate	@incrementdate(this, @DATEINC)
(0040,A027)	Verifying Organization	D	replace	removed
(0040,A030)	Verification DateTime	C	incrementdate	@incrementdate(this, @DATEINC)
(0040,A032)	Observation DateTime	C	incrementdate	@incrementdate(this, @DATEINC)
(0040,A033)	Observation Start DateTime	C	incrementdate	@incrementdate(this, @DATEINC)
(0040,A073)	Verifying Observer Sequence	D	process	@process()
(0040,A075)	Verifying Observer Name	D	replace	removed
(0040,A078)	Author Observer Sequence	X	remove	@remove()
(0040,A07A)	Participant Sequence	X	remove	@remove()
(0040,A07C)	Custodial Organization Sequence	X	remove	@remove()
(0040,A082)	Participation DateTime	C	incrementdate	@incrementdate(this, @DATEINC)
(0040,A088)	Verifying Observer Identification Code Sequence	Z	remove	@remove()
(0040,A110)	Date of Document or Verbal Transaction (Trial)	C	incrementdate	@incrementdate(this, @DATEINC)

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(0040,A112)	Time of Document Creation or Verbal Transaction (Trial)	C	time	@keep()
(0040,A120)	DateTime	C	incrementdate	@incrementdate(this, @DATEINC)
(0040,A121)	Date	C	incrementdate	@incrementdate(this, @DATEINC)
(0040,A122)	Time	C	time	@keep()
(0040,A123)	Person Name	D	replace	removed
(0040,A124)	UID	U	hashuid	@hashuid(@UIDROOT,this)
(0040,A13A)	Referenced DateTime	C	incrementdate	@incrementdate(this, @DATEINC)
(0040,A171)	Observation UID	U	hashuid	@hashuid(@UIDROOT,this)
(0040,A172)	Referenced Observation UID (Trial)	U	hashuid	@hashuid(@UIDROOT,this)
(0040,A192)	Observation Date (Trial)	C	incrementdate	@incrementdate(this, @DATEINC)
(0040,A193)	Observation Time (Trial)	C	time	@keep()
(0040,A307)	Current Observer (Trial)	X	remove	@remove()
(0040,A352)	Verbal Source (Trial)	X	remove	@remove()
(0040,A353)	Address (Trial)	X	remove	@remove()
(0040,A354)	Telephone Number (Trial)	X	remove	@remove()
(0040,A358)	Verbal Source Identifier Code Sequence (Trial)	X	remove	@remove()
(0040,A402)	Observation Subject UID (Trial)	U	hashuid	@hashuid(@UIDROOT,this)
(0040,A730)	Content Sequence	C	process	@process()
(0040,DB06)	Template Version	C	keep	@keep()
(0040,DB07)	Template Local Version	C	keep	@keep()
(0040,DB0C)	Template Extension Organization UID	U	hashuid	@hashuid(@UIDROOT,this)
(0040,DB0D)	Template Extension Creator UID	U	hashuid	@hashuid(@UIDROOT,this)
(0040,E004)	HL7 Document Effective Time	C	time	@keep()
(0042,0011)	Encapsulated Document	D	replace	removed
(0044,0004)	Approval Status DateTime	C	incrementdate	@incrementdate(this, @DATEINC)

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(0044,000B)	Product Expiration DateTime	C	incrementdate	@incrementdate(this, @DATEINC)
(0044,0010)	Substance Administration DateTime	C	incrementdate	@incrementdate(this, @DATEINC)
(0044,0104)	Assertion DateTime	C	incrementdate	@incrementdate(this, @DATEINC)
(0044,0105)	Assertion Expiration DateTime	C	incrementdate	@incrementdate(this, @DATEINC)
(0050,001B)	Container Component ID	X	remove	@remove()
(0050,0020)	Device Description	X	remove	@remove()
(0050,0021)	Long Device Description	C	keep	@keep()
(0062,0021)	Tracking UID	U	hashuid	@hashuid(@UIDROOT,this)
(0068,6226)	Effective DateTime	C	incrementdate	@incrementdate(this, @DATEINC)
(0068,6270)	Information Issue DateTime	C	incrementdate	@incrementdate(this, @DATEINC)
(006A,0003)	Annotation Group UID	D	hashuid	@hashuid(@UIDROOT,this)
(006A,0005)	Annotation Group Label	C	keep	@keep()
(006A,0006)	Annotation Group Description	C	keep	@keep()
(0070,0001)	Graphic Annotation Sequence	D	remove	@remove()
(0070,0082)	Presentation Creation Date	C	incrementdate	@incrementdate(this, @DATEINC)
(0070,0083)	Presentation Creation Time	C	time	@keep()
(0070,0084)	Content Creator's Name	Z	empty	@empty()
(0070,0086)	Content Creator's Identification Code Sequence	X	remove	@remove()
(0070,031A)	Fiducial UID	U	hashuid	@hashuid(@UIDROOT,this)
(0070,1101)	Presentation Display Collection UID	U	hashuid	@hashuid(@UIDROOT,this)
(0070,1102)	Presentation Sequence Collection UID	U	hashuid	@hashuid(@UIDROOT,this)
(0072,000A)	Hanging Protocol Creation DateTime	C	keep	@keep()
(0072,005F)	Selector AS Value	K	keep	@keep()
(0072,0061)	Selector DA Value	C	keep	@keep()
(0072,0063)	Selector DT Value	C	keep	@keep()

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(0072,0065)	Selector OB Value	D	remove	@remove()
(0072,0066)	Selector LO Value	C	keep	@keep()
(0072,0068)	Selector LT Value	C	keep	@keep()
(0072,006A)	Selector PN Value	D	remove	@remove()
(0072,006B)	Selector TM Value	C	keep	@keep()
(0072,006C)	Selector SH Value	C	keep	@keep()
(0072,006D)	Selector UN Value	D	remove	@remove()
(0072,006E)	Selector ST Value	C	keep	@keep()
(0072,0070)	Selector UT Value	C	keep	@keep()
(0072,0071)	Selector UR Value	D	remove	@remove()
(0088,0140)	Storage Media File-set UID	U	hashuid	@hashuid(@UIDROOT,this)
(0088,0200)	Icon Image Sequence	X	remove	@remove()
(0088,0904)	Topic Title	X	remove	@remove()
(0088,0906)	Topic Subject	X	remove	@remove()
(0088,0910)	Topic Author	X	remove	@remove()
(0088,0912)	Topic Keywords	X	remove	@remove()
(0100,0420)	SOP Authorization DateTime	C	incrementdate	@incrementdate(this, @DATEINC)
(0400,0100)	Digital Signature UID	U	hashuid	@hashuid(@UIDROOT,this)
(0400,0105)	Digital Signature DateTime	C	incrementdate	@incrementdate(this, @DATEINC)
(0400,0115)	Certificate of Signer	D	remove	@remove()
(0400,0310)	Certified Timestamp	C	remove	@remove()
(0400,0402)	Referenced Digital Signature Sequence	X	remove	@remove()
(0400,0403)	Referenced SOP Instance MAC Sequence	X	remove	@remove()
(0400,0404)	MAC	X	remove	@remove()
(0400,0550)	Modified Attributes Sequence	X	remove	@remove()
(0400,0551)	Nonconforming Modified Attributes Sequence	X	remove	@remove()
(0400,0552)	Nonconforming Data Element Value	X	remove	@remove()
(0400,0561)	Original Attributes Sequence	X	remove	@remove()

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(0400,0562)	Attribute Modification DateTime	C	incrementdate	@incrementdate(this, @DATEINC)
(0400,0563)	Modifying System	D	replace	removed
(0400,0564)	Source of Previous Values	Z	empty	@empty()
(0400,0565)	Reason for the Attribute Modification	C	keep	@keep()
(0400,0600)	Instance Origin Status	X	remove	@remove()
(2030,0020)	Text String	X	remove	@remove()
(2100,0040)	Creation Date	C	incrementdate	@incrementdate(this, @DATEINC)
(2100,0050)	Creation Time	C	time	@keep()
(2200,0002)	Label Text	C	keep	@keep()
(2200,0005)	Barcode Value	Z	empty	@empty()
(3006,0002)	Structure Set Label	C	keep	@keep()
(3006,0004)	Structure Set Name	C	keep	@keep()
(3006,0006)	Structure Set Description	C	keep	@keep()
(3006,0008)	Structure Set Date	C	incrementdate	@incrementdate(this, @DATEINC)
(3006,0009)	Structure Set Time	C	time	@keep()
(3006,0024)	Referenced Frame of Reference UID	U	hashuid	@hashuid(@UIDROOT,this)
(3006,0026)	ROI Name	C	keep	@keep()
(3006,0028)	ROI Description	C	keep	@keep()
(3006,0038)	ROI Generation Description	C	keep	@keep()
(3006,0085)	ROI Observation Label	C	keep	@keep()
(3006,0088)	ROI Observation Description	C	keep	@keep()
(3006,00A6)	ROI Interpreter	Z	empty	@empty()
(3006,00C2)	Related Frame of Reference UID	U	hashuid	@hashuid(@UIDROOT,this)
(3008,0024)	Treatment Control Point Date	C	incrementdate	@incrementdate(this, @DATEINC)
(3008,0025)	Treatment Control Point Time	C	time	@keep()
(3008,0054)	First Treatment Date	C	incrementdate	@incrementdate(this, @DATEINC)
(3008,0056)	Most Recent Treatment Date	C	incrementdate	@incrementdate(this, @DATEINC)

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(3008,0105)	Source Serial Number	Z	empty	@empty()
(3008,0162)	Safe Position Exit Date	C	incrementdate	@incrementdate(this, @DATEINC)
(3008,0164)	Safe Position Exit Time	C	time	@keep()
(3008,0166)	Safe Position Return Date	C	incrementdate	@incrementdate(this, @DATEINC)
(3008,0168)	Safe Position Return Time	C	time	@keep()
(3008,0250)	Treatment Date	C	incrementdate	@incrementdate(this, @DATEINC)
(3008,0251)	Treatment Time	C	time	@keep()
(300A,0002)	RT Plan Label	C	keep	@keep()
(300A,0003)	RT Plan Name	C	keep	@keep()
(300A,0004)	RT Plan Description	C	keep	@keep()
(300A,0006)	RT Plan Date	C	incrementdate	@incrementdate(this, @DATEINC)
(300A,0007)	RT Plan Time	C	time	@keep()
(300A,000B)	Treatment Sites	C	keep	@keep()
(300A,000E)	Prescription Description	C	keep	@keep()
(300A,0013)	Dose Reference UID	U	hashuid	@hashuid(@UIDROOT,this)
(300A,0016)	Dose Reference Description	C	keep	@keep()
(300A,0072)	Fraction Group Description	C	keep	@keep()
(300A,0083)	Referenced Dose Reference UID	U	hashuid	@hashuid(@UIDROOT,this)
(300A,00B2)	Treatment Machine Name	Z	empty	@empty()
(300A,00C3)	Beam Description	C	keep	@keep()
(300A,00DD)	Bolus Description	C	keep	@keep()
(300A,0196)	Fixation Device Description	C	keep	@keep()
(300A,01A6)	Shielding Device Description	C	keep	@keep()
(300A,01B2)	Setup Technique Description	C	keep	@keep()
(300A,0216)	Source Manufacturer	X	remove	@remove()
(300A,022C)	Source Strength Reference Date	C	incrementdate	@incrementdate(this, @DATEINC)
(300A,022E)	Source Strength Reference Time	C	time	@keep()

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(300A,02EB)	Compensator Description	C	keep	@keep()
(300A,0608)	Treatment Position Group Label	C	keep	@keep()
(300A,0609)	Treatment Position Group UID	U	hashuid	@hashuid(@UIDROOT,this)
(300A,0611)	RT Accessory Holder Slot ID	Z	empty	@empty()
(300A,0615)	RT Accessory Device Slot ID	Z	empty	@empty()
(300A,0619)	Radiation Dose Identification Label	C	keep	@keep()
(300A,0623)	Radiation Dose In-Vivo Measurement Label	C	keep	@keep()
(300A,062A)	RT Tolerance Set Label	C	keep	@keep()
(300A,0650)	Patient Setup UID	U	hashuid	@hashuid(@UIDROOT,this)
(300A,0676)	Equipment Frame of Reference Description	C	keep	@keep()
(300A,067C)	Radiation Generation Mode Label	C	keep	@keep()
(300A,067D)	Radiation Generation Mode Description	C	keep	@keep()
(300A,0700)	Treatment Session UID	U	hashuid	@hashuid(@UIDROOT,this)
(300A,0734)	Treatment Tolerance Violation Description	C	keep	@keep()
(300A,0736)	Treatment Tolerance Violation DateTime	C	incrementdate	@incrementdate(this, @DATEINC)
(300A,073A)	Recorded RT Control Point DateTime	C	incrementdate	@incrementdate(this, @DATEINC)
(300A,0741)	Interlock DateTime	C	incrementdate	@incrementdate(this, @DATEINC)
(300A,0742)	Interlock Description	C	keep	@keep()
(300A,0760)	Override DateTime	C	incrementdate	@incrementdate(this, @DATEINC)
(300A,0783)	Interlock Origin Description	C	keep	@keep()
(300A,0785)	Referenced Treatment Position Group UID	U	hashuid	@hashuid(@UIDROOT,this)
(300A,078E)	Patient Treatment Preparation Procedure Parameter Description	C	keep	@keep()
(300A,0792)	Patient Treatment Preparation Method Description	C	keep	@keep()
(300A,0794)	Patient Setup Photo Description	C	keep	@keep()

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(300A,079A)	Displacement Reference Label	C	keep	@keep()
(300C,0113)	Reason for Omission Description	C	keep	@keep()
(300C,0127)	Beam Hold Transition DateTime	C	incrementdate	@incrementdate(this, @DATEINC)
(300E,0004)	Review Date	C	incrementdate	@incrementdate(this, @DATEINC)
(300E,0005)	Review Time	C	time	@keep()
(300E,0008)	Reviewer Name	Z	hashname	REV-@hashname(this,4)
(3010,0006)	Conceptual Volume UID	U	hashuid	@hashuid(@UIDROOT,this)
(3010,000B)	Referenced Conceptual Volume UID	U	hashuid	@hashuid(@UIDROOT,this)
(3010,000F)	Conceptual Volume Combination Description	C	keep	@keep()
(3010,0013)	Constituent Conceptual Volume UID	U	hashuid	@hashuid(@UIDROOT,this)
(3010,0015)	Source Conceptual Volume UID	U	hashuid	@hashuid(@UIDROOT,this)
(3010,0017)	Conceptual Volume Description	C	keep	@keep()
(3010,001B)	Device Alternate Identifier	Z	empty	@empty()
(3010,002D)	Device Label	D	replace	removed
(3010,0031)	Referenced Fiducials UID	U	hashuid	@hashuid(@UIDROOT,this)
(3010,0033)	User Content Label	C	keep	@keep()
(3010,0034)	User Content Long Label	C	keep	@keep()
(3010,0035)	Entity Label	C	keep	@keep()
(3010,0036)	Entity Name	C	keep	@keep()
(3010,0037)	Entity Description	C	keep	@keep()
(3010,0038)	Entity Long Label	C	keep	@keep()
(3010,003B)	RT Treatment Phase UID	U	hashuid	@hashuid(@UIDROOT,this)
(3010,0043)	Manufacturer's Device Identifier	Z	empty	@empty()
(3010,004C)	Intended Phase Start Date	C	incrementdate	@incrementdate(this, @DATEINC)
(3010,004D)	Intended Phase End Date	C	incrementdate	@incrementdate(this, @DATEINC)
(3010,0054)	RT Prescription Label	C	keep	@keep()
(3010,0056)	RT Treatment Approach Label	C	keep	@keep()

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(3010,005A)	RT Physician Intent Narrative	C	keep	@keep()
(3010,005C)	Reason for Superseding	C	keep	@keep()
(3010,0061)	Prior Treatment Dose Description	C	keep	@keep()
(3010,006E)	Dosimetric Objective UID	U	hashuid	@hashuid(@UIDROOT,this)
(3010,006F)	Referenced Dosimetric Objective UID	U	hashuid	@hashuid(@UIDROOT,this)
(3010,0077)	Treatment Site	C	replace	removed
(3010,007A)	Treatment Technique Notes	C	remove	@remove()
(3010,007B)	Prescription Notes	C	remove	@remove()
(3010,007F)	Fractionation Notes	C	remove	@remove()
(3010,0081)	Prescription Notes Sequence	C	remove	@remove()
(3010,0085)	Intended Fraction Start Time	C	time	@keep()
(4000,0010)	Arbitrary	X	remove	@remove()
(4000,4000)	Text Comments	X	remove	@remove()
(4008,0040)	Results ID	X	remove	@remove()
(4008,0042)	Results ID Issuer	X	remove	@remove()
(4008,0100)	Interpretation Recorded Date	C	remove	@remove()
(4008,0101)	Interpretation Recorded Time	C	remove	@remove()
(4008,0102)	Interpretation Recorder	X	remove	@remove()
(4008,0108)	Interpretation Transcription Date	C	remove	@remove()
(4008,0109)	Interpretation Transcription Time	C	remove	@remove()
(4008,010A)	Interpretation Transcriber	X	remove	@remove()
(4008,010B)	Interpretation Text	C	keep	@keep()
(4008,010C)	Interpretation Author	X	remove	@remove()
(4008,0111)	Interpretation Approver Sequence	X	remove	@remove()
(4008,0112)	Interpretation Approval Date	C	remove	@remove()
(4008,0113)	Interpretation Approval Time	C	remove	@remove()
(4008,0114)	Physician Approving Interpretation	X	remove	@remove()
(4008,0115)	Interpretation Diagnosis Description	C	keep	@keep()
(4008,0118)	Results Distribution List Sequence	X	remove	@remove()
(4008,0119)	Distribution Name	X	remove	@remove()

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(4008,011A)	Distribution Address	X	remove	@remove()
(4008,0200)	Interpretation ID	X	remove	@remove()
(4008,0202)	Interpretation ID Issuer	X	remove	@remove()
(4008,0300)	Impressions	C	keep	@keep()
(4008,4000)	Results Comments	C	keep	@keep()
(50xx,xxxx)	Curve Data	X	remove	Remove curves
(60xx,3000)	Overlay Data	X	remove	Remove Overlays
(60xx,4000)	Overlay Comments	X	remove	@remove()
(FFFA,FFFA)	Digital Signatures Sequence	X	remove	@remove()
(FFFC,FFFC)	Data Set Trailing Padding	X	remove	@remove()
(gggg,eeee) where gggg is odd	Private Attributes	C	Remove Unsafe	Private Attributes are cleaned in Posda as part of curation
(0018,1205)	Date of Installation	C	incrementdate	@incrementdate(this, @DATEINC)
(0018,1204)	Date of Manufacture	C	incrementdate	@incrementdate(this, @DATEINC)
(2100,0140)	Destination AE	D	replace	removed
(0008,1000)	Network ID	X	remove	@remove()
(2100,0070)	Originator	X	remove	@remove()
(3002,0123)	Position Acquisition Template Description	C	remove	@remove()
(3002,0121)	Position Acquisition Template Name	C	remove	@remove()
(0074,1234)	Receiving AE	X	remove	@remove()
(0074,1236)	Requesting AE	X	remove	@remove()
(0008,0054)	Retrieve AE Title	X	remove	@remove()
(0072,005E)	Selector AE Value	D	remove	@remove()
(0064,0003)	Source Frame of Reference UID	U	hashuid	@hashuid(@UIDROOT,this)
(0008,0055)	Station AE Title	X	remove	@remove()

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