Pediatric Chest/Abdomen/Pelvic CT Exams with Expert Organ Contours (Pediatric-CT-SEG)

Summary

This dataset was collected by a collaboration of researchers from Children's Wisconsin, Marquette University, Varian Medical Systems, Medical College of Wisconsin, and Stanford University as part of a project funded by the National Institute of Biomedical Imaging and Bioengineering (U01EB023822) to develop tools for rapid, patient-specific CT organ dose estimation. The collection consists of CT images in DICOM format of 359 pediatric chest-abdomen-pelvis or abdomen-pelvis exams acquired from three CT scanners. The datasets represent random pediatric cases based upon routine clinical indications. Each dataset contains expert contours of up to twenty-nine structures in DICOM RTSS format. Some datasets are missing structures that are not in the scan range or that, in younger patients, could not be reliably identified. Patient ages range from 5 days to 16 years, with a mean age of 7 and with a near equal distribution of male (180) and female (179) patients. The CT acquisition protocols and reconstruction methods vary across the scanner models and patient sizes, with specifications available in the DICOM headers. This data can be used to develop autosegmentation methods for radiation therapy, CT dosimetry, CT diagnostic algorithms, or other applications. The metadata of each CT image series contains the correct patient age and the height and weight data when available.
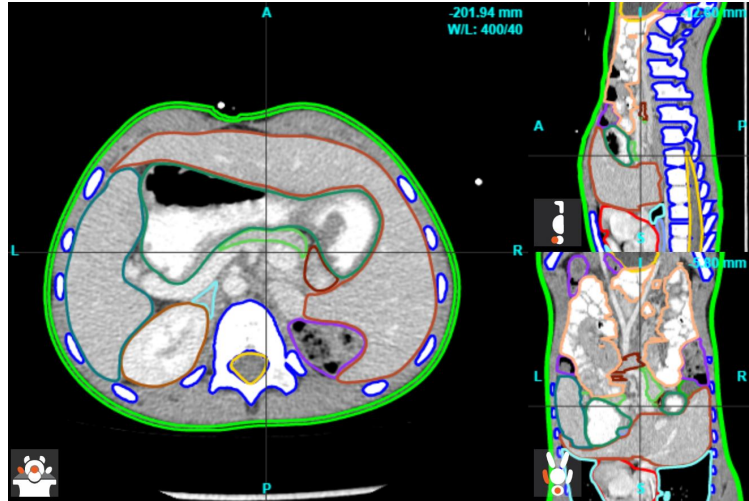
The native slice thickness for the acquired images was 0.625 mm for the GE scanners and 0.6 mm for the Siemens scanners. Sixty-two datasets were manually contoured at this native slice thickness. However, this process required extensive manual labor and was also challenged by high noise in the thin slices. Therefore, the subsequent 297 datasets were reformatted to 2.0-mm slice thickness using a cubic spline interpolation algorithm prior to contouring. For some datasets, this interpolation caused artifacts in the most inferior or superior slices in the volume. This is a known limitation of this dataset and users may need to disregard these corrupted slices, depending on the intended application.

Acknowledgements

Data Access

Data Access

Images and Radiation Therapy Structures (DICOM, 61 GB)	*Download Search* (Download requires the NBIA Data Retriever)	CC BY 4.0

Click the Versions tab for more info about data releases.

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

Additional Resources for this Dataset

The NCI Cancer Research Data Commons (CRDC) provides access to additional data and a cloud-based data science infrastructure that connects data sets with analytics tools to allow users to share, integrate, analyze, and visualize cancer research data.

- Imaging Data Commons (IDC) (Imaging Data)

Detailed Description

Detailed Description

Image Statistics	
Modalities	CT, RTSTRUCT
Number of Patients	359
Number of Studies	359
Number of Series	718
Number of Images	110442
Images Size (GB)	61

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**
>
> Jordan, P., Adamson, P. M., Bhattbhatt, V., Beriwal, S., Shen, S., Radermecker, O., Bose, S., Strain, L. S., Offe, M., Fraley, D., Principi, S., Ye, D. H., Wang, A. S., Van Heteren, J., Vo, N.-J., & Schmidt, T. G. (2021). Pediatric Chest/Abdomen/Pelvic CT Exams with Expert Organ Contours (Pediatric-CT-SEG) (Version 2) [Data set]. The Cancer Imaging Archive. https://doi.org/10.7937/TCIA.X0H0-1706

Other Publications Using This Data

TCIA maintains a list of publications which leverage TCIA data. If you have a manuscript you'd like to add please contact the TCIA Helpdesk.

Adamson, P. M., Bhattbhatt, V., Principi, S., Beriwal, S., Strain, L. S., Offe, M., Wang, A. S., Vo, N., Gilat Schmidt, T., & Jordan, P. (2022). Technical note: Evaluation of a VNet autosegmentation algorithm for pediatric CT scans: Performance, generalizability, and application to patientspecific CT dosimetry. In Medical Physics (Vol. 49, Issue 4, pp. 2342–2354). Wiley. https://doi.org/10.1002/mp.15521

Versions

Version 2 (Current): Updated 2022/03/31

Data Type	Download all or Query/Filter
Images (DICOM, 61 GB)	*Download Search* (Download requires the NBIA Data Retriever)

Note: Corrected RTSTRUCTs - 103 RTSTRUCT series incorrectly contained 2 files, where one file had skin contours with errors and one file had corrected skin contours. There is now only 1 file per each RTSTRUCT series containing the corrected skin contours. Also note, the new RTSTRUCT data directory path, when downloaded using the *descriptive* download option, will be slightly different from downloads of the previous version and will contain "NA" in the directory path while downloads of the older version will contain "RTSTRUCT" in the path.

Version 1: Updated 2021/11/30

Data Type	Download all or Query/Filter
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