



QA WHERE IT IS NEEDED MOST

The first quality assurance tool for one of the most critical steps in the treatment planning process, the contouring of structures



● STRUCTURES ARE CRITICAL

Accurately contouring both the target and critical structures is vitally important to the preparation of a treatment plan and is widely considered to be the biggest and most unpredictable source of error in radiation oncology.

StructSure Software imports pairs of DICOM RT structure datasets and evaluates them both qualitatively and quantitatively.

StructSure analysis is volumetric and quantitative, not just comparing “closed loop contours” but rather generating 3D volumes of critical structures and tracing errors in all 3-dimensions.

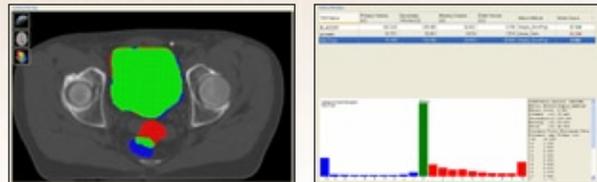
● IMPROVE CONTOURING CONSISTENCY

Until now, there has not been a robust tool to quantitatively assess the performance and accuracy of contouring “systems” (system = operator, software, data output). Maintaining consistency and adhering to facility or industry protocols is virtually impossible to evaluate without a QA tool.

With StructSure QA Software you can easily and quickly analyze pairs of datasets which can be utilized to train your personnel or evaluate the abilities of a new staff member. With StructSure you will have confidence that each treatment plan created in your facility starts with contours that meet your standards.

● AUTOMATED TOOLS NEED QA

If you are considering an automatic contouring tool StructSure QA Software can assist you in comparing the capabilities of each system and in properly commissioning the usage of the system(s) you choose to use clinically. Using a baseline and approved structure set as the primary you can assess how each automated tool under consideration can re-produce the manually delineated structures so you can be sure you are purchasing the device that best meets your expectations.



In this example of auto-contouring vs. manual-contouring, the auto-contouring system performs well for the bladder but performs poorly for the rectum.

If you already own an auto-contouring system use StructSure for commissioning to determine where the tool excels and which contours require manual intervention. You can also use StructSure to test and commission new releases of auto-contouring software to determine what improvements have been made and to re-validate to ensure that no errors were introduced.

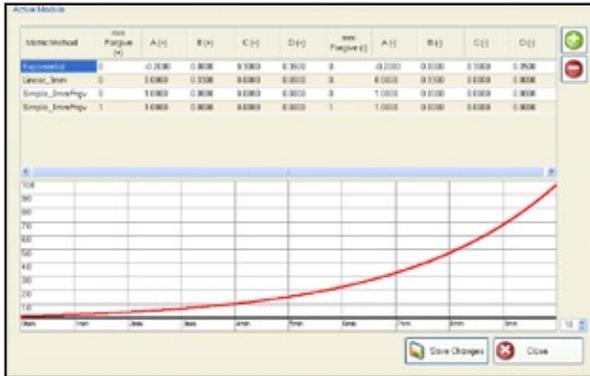
**patent pending*

Features

Customizable metrics give you control over your QA

StructSure QA Software features a patent pending method of creating customizable metrics to meet your QA needs. An intuitive metric parameter generation module makes it easy to create different metrics for different regions of interest.

- For structures where exact precision is not required, set a forgiveness distance so that any voxel that is within the forgiveness region is not penalized
- Use the arithmetic or exponential function for increased penalties based on distance



- For complete control over your QA, set different penalty functions for extra voxels and missing voxels
- All analyses are done in 3D space, not just for axial slices or contour "loops"

Once a metric is created, set default metrics for each common structure for ease of use and consistency in evaluations.

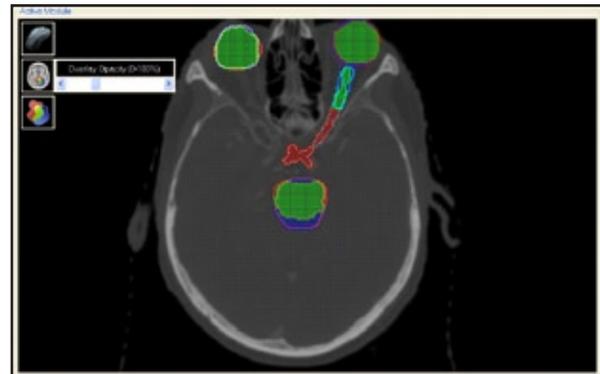
Visualization tools for easy interpretation of results

StructSure QA Software reports a score for each set of matching regions of interest that are evaluated. A 100 score signifies a perfect match, then, depending on the metric used, penalties are applied for missing and extra voxels found in the secondary set of structures. Scoring is an excellent way to determine how well your two structure sets are alike or different but determining why they are or are not alike can be the most important aspect of your analysis.

ROI Name	Primary Volume (cc)	Secondary Volume (cc)	Missing Volume (cc)	Extra Volume (cc)	Metric Method	Metric Score
REACTOR	22.628	22.465	23.952	8.728	Simple_SimpleFgr	87.528
Heart	34.321	32.461	33.934	33.726	Linear_Dist	82.288
Rectum	73.198	72.198	2.1507	4.892	Simple_SimpleFgr	9.983

An example of a StructSure scoring report

Structure offers easy to use visualization tools that allow you to quickly interpret where the two sets differ and possibly why they differ. This can assist you in training by giving you tangible data that you can share with the trainee showing them where and how to improve. In the case of automated tools you may be able to use the data to adjust parameters of the automated system to improve performance.



Changing the opacity of the difference regions reveals the 3D image slice below to analyze why differences may exist between structure sets

StructSure QA Software SPECIFICATIONS

OPERATING SYSTEM

Microsoft® Windows® 2000
Microsoft® Windows® XP

PROCESSOR Intel® or AMD®, 600 MHz or greater

MEMORY 256 MB or greater

HARD DRIVE 50 MB or greater

SCREEN RESOLUTION 1024 x 768 or higher

CD-ROM DRIVE 2X speed or greater

PRODUCT STANDARDS Designed to meet IEC 60601-1-4 **CE**

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3120 Deming Way Middleton WI 53562-1461 USA
800-261-4446 . ph 608-831-0025 . fax 608-831-2202
www.standardimaging.com