Smart Segmentation® knowledge-based contouring combines the ability to use either an atlas or model-based approach for automated and manual segmentation of patient structures. Used in the planning of radiation treatments, it facilitates the definition of targets and organs at risk in an efficient and consistent manner.

KEY BENEFITS:

- A library of cases contoured by experts, including:
  - expert case browser
  - tumor site and stage specific search filters
  - free text search
- Create your own personalized expert case
- Modify and edit existing expert case library
- Clinical commentary on tumor volume for each expert case
- Several 2-D and 3-D tools to edit structures and adapt according to clinical preference
- Fully integrated option with the Eclipse™ treatment planning system
IMPROVE THE EFFICIENCY AND CONSISTENCY OF CONTOURING IN YOUR DEPARTMENT BY STREAMLINING YOUR WORKFLOW.

WORKFLOW

Users match their patient case to one of the hundreds of expert cases in the library, and through a sequence of co-registration and proprietary contour deformation algorithms, the contours of an expert case are deformed to fit the CT images of the patient.

**STEP 1**
EXPERT CASE SELECTION

The expert case browser allows fast and intuitive selection of the most appropriate expert case, based on pathology and staging.

The user may filter the search based on anatomical location, staging or by typing free text.

**STEP 2**
REVIEW EXPERT ADVICE

The user may choose to view expert advice and clinical commentary regarding appropriate structures to be contoured given the pathology and staging of the patient.

Smart Segmentation provides multiple educational resources and automation tools for immediate access to the user:

- All pre-contoured expert cases are accompanied by written rationales
- Enables simplified GTV delineation by using SUV parameters
- Anatomy atlas is the full-body electronic equivalent of a human anatomy textbook, detailing both anatomical and physiological information for each structure. The atlas is available for the user when reviewing the deformed contours, and creates an ideal teaching tool.
EXPERT CASE LIBRARY

The library includes contoured expert cases for many combinations of tumor sites and tumor classifications. The database covers head and neck, breast, gastrointestinal, genitourinary and gynecological body sites.

STEP 3
DEFORMATION OF STRUCTURES FROM EXPERT CASE

Once the user selects “Start Segmentation,” selected structures are deformed from the expert case to the patient image set.

STEP 4
STRUCTURE REVIEW, EDIT AND APPROVAL

After the segmentation process, all structure sets are automatically displayed on the patient CT dataset. Users can review and edit the result of the deformation in 2-D as contours or in 3-D as structures. Structures can be edited in any of the orthogonal views.

Key Features:

- Streamline your clinical workflow
- Reduce contouring time
- Consistency in target and OAR contouring process from one physician to the next
- Customizable expert library—add/edit cases to the expert library
- Anatomy atlas serves as a tool for both education and verification

The anatomy atlas contains segmented CT data sets that are linked to detailed images and descriptions of the selected anatomy.
<table>
<thead>
<tr>
<th>Tumor Site</th>
<th>Tumor Staging</th>
<th>Node Staging</th>
<th>Metastasis</th>
<th>Tumor Side</th>
<th>Others</th>
</tr>
</thead>
<tbody>
<tr>
<td>Breast</td>
<td>T0 T1 T2 T3 T4</td>
<td>N0 N1 N2 N3 N1mi</td>
<td>M0 M1</td>
<td>Left Right</td>
<td></td>
</tr>
<tr>
<td>Cervix</td>
<td>Ta1 Ta1b Ta2a Ta2b Ta3a Ta3b Ta4 Ta4b</td>
<td>N0 N1 N2 N3 N2a N2b N2c N3</td>
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<tr>
<td>Endometrium</td>
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<td>N0 N1 N2 N3 N2a N2b N2c N3</td>
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<tr>
<td>Head and Neck unknown</td>
<td>Ta Ta1 Ta2 Ta3 Ta4 Ta4a Ta4b</td>
<td>N0 N1 N2 N3 N2a N2b N2c N3</td>
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<tr>
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<td>T1 T2 T3 T4 T4a T4b</td>
<td>N0 N1 N2 N3 N2a N2b N2c N3</td>
<td>M0 M1</td>
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<tr>
<td>Larynx</td>
<td>T1 T2 T3 T4a T4b</td>
<td>N0 N1 N2 N3 N2a N2b N2c N3</td>
<td>M0 M1</td>
<td>Left Right</td>
<td></td>
</tr>
<tr>
<td>Nasopharynx</td>
<td>T1 T2 T3 T4</td>
<td>N0 N1 N2 N3 N2a N2b N2c N3</td>
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</tr>
<tr>
<td>Prostate</td>
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<td>N0 N1 N2 N3 N2a N2b N2c N3</td>
<td>M0 M1 M1a M1b M1c</td>
<td>Gleason Score ≤6 ≤7 ≥8 PSA &lt;10 &lt;20 ≥10 &lt;20 ≥20</td>
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</tr>
<tr>
<td>Rectum</td>
<td>T1 T2 T3 T4a T4b</td>
<td>N0 N1 N2 N3 N2a N2b</td>
<td>M0 M1 M1a M1b</td>
<td>Patient Position Prone Supine</td>
<td></td>
</tr>
<tr>
<td>Tongue Base</td>
<td>T1 T2 T3 T4a T4b</td>
<td>N0 N1 N2 N3 N2a N2b N2c N3</td>
<td>M0 M1</td>
<td>Left Right</td>
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<tr>
<td>Tonsil</td>
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<td>M0 M1</td>
<td>Left Right</td>
<td></td>
</tr>
</tbody>
</table>

Expert cases are available for any combination of tumor stage, node stage, metastasis and tumor side.