DICOM Correction Proposal

STATUS
Assigned

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Submission Date
2012/08/01

Correction Number
CP-1246

Log Summary:
Autosequencing Support in Beam Delivery Instruction

Name of Standard
PS 3 2011

Rationale for Correction:
When delivering a Radiotherapy Treatment Fraction of an RT Plan, which contains several beams, the user may decide that all beams or groups of beams are delivered consecutively without user intervention. This decision is done on a case-by-case base and therefore is tied to individual plans (it is not a characteristic of a delivery system). While the plan could re-define beams to fold them into one, this could lead to significant uncertainties, where there is a need to trace back delivered beams to a planning system, or e.g. when beams need to be adapted in adaptive treatment situations, since the beam are redefined. Further on, there may be interest in specifying auto-sequencing after the first fraction is delivered, or depending on specific imaging procedures applied at specific fraction. This would cause changes in the RT Plan, although the dosimetric content does not change.

Therefore this change proposal adds the specification of the auto-sequencing advice to the RT Beams Delivery Instruction IOD.

Correction Wording:

In PS 3.3, Section C.8.8.29 RT Beams Delivery Instruction Module, Table C.8.8.29-1, make the following changes:

<table>
<thead>
<tr>
<th>Attribute Name</th>
<th>Tag</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt;Referenced Beam Number</td>
<td>(300C,0006)</td>
<td>1</td>
<td>Uniquely identifies the Beam which is specified by Beam Number (300A,00C0) within Beam Sequence (300A,00B0) in RT Beams Module of referenced RT Plan or RT Ion Plan.</td>
</tr>
<tr>
<td>&gt;Beam Order Index</td>
<td>(0074,1024)</td>
<td>3</td>
<td>Identifies required ordering of beam delivery, monotonically increasing by 1, starting from 1.</td>
</tr>
<tr>
<td>Attribute Name</td>
<td>Tag</td>
<td>Type</td>
<td>Description</td>
</tr>
<tr>
<td>---------------</td>
<td>-----------</td>
<td>------</td>
<td>-------------</td>
</tr>
<tr>
<td>Autosequence Flag</td>
<td>(xxxx,yyyy)</td>
<td>3</td>
<td>Defined Terms: YES: The beam following the current beam as defined by the Beam Order Index (0074,1024) shall be automatically treated once the current beam is delivered. NO: The current beam shall not be auto-sequenced. See C.8.8.29.6.</td>
</tr>
</tbody>
</table>

... C.8.8.29.5 Beam Order Index

If the Beam Order Index (0074,1024) is present for any item in the Beam Task Sequence (0074,1020), it shall be provided for all items in that sequence.

C.8.8.29.6 Autosequence Flag

The Autosequence Flag (xxxx,yyyy) shall not be present when the Beam Order Index (0074,1024) is not present. The last treatment Beam (Beam Task Type (0074,1022) is not VERIFY) as specified by the Beam Order Index (0074,1024), shall have an Autosequence Flag (xxxx,yyyy) value of NO.

In PS 3.6, Section 6, add the following new attributes:

| (xxxx,yyyy) | Autosequence Flag | AutosequenceFlag | CS | 1 |

Ulrich Busch 10/3/12 2:16 PM
Deleted: T

Ulrich Busch 10/3/12 2:17 PM
Deleted: following

Ulrich Busch 10/3/12 2:17 PM
Deleted: the preceding beam (TBD – Thought from WG-06: Should it be better defined on the preceding beam for the next one), as defined by the Beam Order Index (0074,1024).

Ulrich Busch 10/3/12 2:17 PM
Deleted: first