

DICOM Correction Proposal

STATUS	Final Text
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Correction Number	CP-1206
Log Summary: Dose Summation Type Clarification	
Name of Standard PS 3 2011	
<p>Rationale for Correction:</p> <p>The Dose Summation Type (3004,000A) data element specifies the scope (level of treatment plan hierarchy) of the dose represented in an RT Dose instance. The Dose Summation Type may be an entire RT Plan (PLAN), two or more RT Plans (MULTI_PLAN), a single fraction group (FRACTION), one or more Beams within an RT Plan (BEAM), one or more Brachy Application Setups within an RT Plan (BRACHY), or one or more Control Points within a Beam (CONTROL_POINT).</p> <p>It is believed that the vast majority of applications interpret <i>scaling</i> of the RT Dose instance to represent the <i>entire dose</i>, i.e., all delivered fractions, for Dose Summation Type (3004,000A) values of PLAN, MULTI_PLAN, FRACTION, BEAM, and BRACHY. However, use of the Defined Term "FRACTION" to indicate a Fraction Group (a set of Beams, which are always delivered together with the same dosimetric weighting) has resulted in confusion, since the word "fraction" denotes the radiation dose delivered in a single treatment session.</p> <p>While almost all existing applications interpret dose scaling in a consistent manner, this scaling has not been explicitly specified in the DICOM standard. To address uncertainty in the scaling of doses for fraction groups, beams, and brachy application setups, it is proposed to clarify the explanation of existing Dose Summation Type Defined Terms (PLAN, MULTI_PLAN, FRACTION, BEAM, and BRACHY) and to add three new Defined Terms to indicate single-session dose scaling for fraction group (FRACTION_SESSION), beam (BEAM_SESSION), and brachy application setup (BRACHY_SESSION).</p>	
Correction Wording: Make changes indicated below.	

In PS 3.3 Section C.8.8.3 RT Dose Module, Table C.8-39 make the following changes:

Dose Summation Type	(3004,000A)	1	<p>Type of dose summation.</p> <p>Defined Terms:</p> <p>PLAN = dose calculated for entire <u>delivery of all fraction groups of</u> RT Plan</p> <p>MULTI_PLAN = dose calculated for <u>entire delivery of 2</u> or more RT Plans</p> <p>FRACTION = dose calculated for <u>entire delivery of</u> a single Fraction Group within RT Plan</p> <p>BEAM = dose calculated for <u>entire delivery of</u> one or more Beams within RT Plan</p> <p>BRACHY = dose calculated for <u>entire</u></p>
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			<p>delivery of one or more Brachy Application Setups within RT Plan</p> <p><u>FRACTION SESSION = dose calculated for a single session (“fraction”) of a single Fraction Group within RT Plan</u></p> <p><u>BEAM SESSION = dose calculated for a single session (“fraction”) of one or more Beams within RT Plan</u></p> <p><u>BRACHY SESSION = dose calculated for a single session (“fraction”) of one or more Brachy Application Setups within RT Plan</u></p> <p>CONTROL_POINT = dose calculated for one or more Control Points within a Beam for a single fraction.</p>
Referenced RT Plan Sequence	(300C,0002)	1C	<p>Sequence describing RT Plan associated with dose. Required if Dose Summation Type (3004,000A) is PLAN, MULTI_PLAN, FRACTION, BEAM, BRACHY, <u>FRACTION SESSION, BEAM SESSION, BRACHY SESSION,</u> or CONTROL_POINT.</p> <p>Only a single item shall be included in this sequence, unless Dose Summation Type (3004,000A) is MULTI_PLAN, in which case two or more items shall be included in this sequence. See Note 1.</p>
...			
>Referenced Fraction Group Sequence	(300C,0020)	1C	<p>Introduces sequence of one Fraction Group containing beams or brachy application setups contributing to dose. Required if Dose Summation Type (3004,000A) is FRACTION, BEAM, BRACHY, <u>FRACTION SESSION, BEAM SESSION, BRACHY SESSION,</u> or CONTROL_POINT.</p> <p>Only a single item shall be included in this sequence. See Note 1.</p>
...			
>>Referenced Beam Sequence	(300C,0004)	1C	<p>Introduces sequence of Beams in current Fraction Group contributing to dose. Required if Dose Summation Type (3004,000A) is BEAM, <u>BEAM SESSION,</u> or CONTROL_POINT.</p> <p>One or more items shall be included in this sequence.</p>
...			
>>Referenced Brachy Application Setup Sequence	(300C,000A)	1C	<p>Introduces sequence of Brachy Application Setups in current Fraction Group contributing to dose. Required if Dose Summation Type (3004,000A) is BRACHY or <u>BRACHY SESSION.</u> One or more items shall be included in this sequence.</p>

Note: In order to prevent misrepresentation of the dose summation:

- a. If the Dose Summation Type (3004, 000A) is PLAN, then only a single instance of RT Plan is referenced and the dose will be for the entire plan (i.e. it is not viable to combine only certain fraction groups of different plans).
- b. If the Dose Summation Type (3004,000A) is MULTI_PLAN, then 2 or more instances of RT Plan may be referenced. As above, each reference will be for the entire plan.
- c. If the Dose Summation Type (3004,000A) is FRACTION **or FRACTION SESSION**, then only a single instance of RT PLAN and a single Fraction Group are referenced (i.e. component beams or brachy application setups are not referenced).