

DICOM Correction Proposal

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Correction Number	CP-1396
Log Summary:	Clarify Dose Value units for DVH in RT Dose
Name of Standard	PS 3.3 2011
Rationale for Correction:	<p>The specification of 3 attributes annotation the Minimum, Maximum and Mean Dose for DVH in the RT Dose IOD is not sufficiently explicit. The unit which shall be used in these attributes is supposed to be the unit of the DVH Data itself. However, since that is not mentioned, there has been questions by implementers whether this is the correct interpretation.</p> <p>That CP clarifies the unit to be used.</p>
Correction Wording:	

In PS 3.3, Section C.8.8.4 RT DVH Module, extend the attribute description as follows:

C.8.8.4 RT DVH Module

The RT DVH module provides for the inclusion of differential or cumulative dose volume histogram data. The data contained within this module may supplement dose data in the RT Dose and/or RT Dose ROI modules, or it may be present in the absence of other dose data.

Table C.8-40—RT DVH MODULE ATTRIBUTES

Attribute Name	Tag	Type	Attribute Description
Referenced Structure Set Sequence	(300C,0060)	1	Introduces sequence of one class/instance pair describing Structure Set containing structures which are used to calculate Dose-Volume Histograms (DVHs). Only a single item shall be included in this sequence. See C.8.8.4.1.
<i>>Include 'SOP Instance Reference Macro' Table 10-11</i>			
DVH Normalization Point	(3004,0040)	3	Coordinates (x, y, z) of common DVH normalization point in the patient based coordinate system described in C.7.6.2.1.1 (mm).
DVH Sequence	(3004,0050)	1	Introduces sequence of DVHs. One or more items shall be included in this sequence.
>DVH Referenced ROI Sequence	(3004,0060)	1	Introduces sequence of referenced ROIs used to calculate DVH. One or more items shall be included in this

			sequence.
>>Referenced ROI Number	(3006,0084)	1	Uniquely identifies ROI used to calculate DVH specified by ROI Number (3006,0022) in Structure Set ROI Sequence (3006,0020) in Structure Set Module within RT Structure Set referenced by referenced RT Plan in Referenced RT Plan Sequence (300C,0002) in RT Dose Module.
>>DVH ROI Contribution Type	(3004,0062)	1	Specifies whether volume within ROI is included or excluded in DVH. See C.8.8.4.2. Enumerated Values: INCLUDED, EXCLUDED.
>DVH Type	(3004,0001)	1	Type of DVH. Enumerated Values: DIFFERENTIAL = differential dose-volume histogram CUMULATIVE = cumulative dose-volume histogram NATURAL = natural dose volume histogram
>Dose Units	(3004,0002)	1	Dose axis units. Enumerated Values: GY = Gray RELATIVE = dose relative to reference value specified in DVH Normalization Dose Value (3004,0042)
>Dose Type	(3004,0004)	1	Type of dose. Defined Terms: PHYSICAL = physical dose EFFECTIVE = physical dose after correction for biological effect using user-defined modeling technique ERROR = difference between desired and planned dose
>DVH Dose Scaling	(3004,0052)	1	Scaling factor that when multiplied by the dose bin widths found in DVH Data (3004,0058), yields dose bin widths in the dose units as specified by Dose Units (3004,0002).
>DVH Volume Units	(3004,0054)	1	Volume axis units. Defined Terms: CM3 = cubic centimeters PERCENT = percent PER_U= volume per u with u(dose)=dose-3/2. See C.8.8.4.3.
>DVH Number of Bins	(3004,0056)	1	Number of bins n used to store DVH Data (3004,0058).
>DVH Data	(3004,0058)	1	A data stream describing the dose bin widths Dn and associated volumes Vn in DVH Volume Units (3004,0054) in the order D1V1, D2V2, ... DnVn. Note: DVH Data arrays may not be properly encoded if Explicit-VR transfer syntax is used and the VL of this attribute

			exceeds 65534 bytes.
>DVH Minimum Dose	(3004,0070)	3	Minimum calculated dose to ROI(s) described by DVH Referenced ROI Sequence (3004,0060)- <u>in units specified by Dose Units (3004,0002) of the current sequence item.</u>
>DVH Maximum Dose	(3004,0072)	3	Maximum calculated dose to ROI(s) described by DVH Referenced ROI Sequence (3004,0060)- <u>in units specified by Dose Units (3004,0002) of the current sequence item.</u>
>DVH Mean Dose	(3004,0074)	3	Mean calculated dose to ROI(s) described by DVH Referenced ROI Sequence (3004,0060)- <u>in units specified by Dose Units (3004,0002) of the current sequence item.</u>