Changes from the AIM Foundation to AIM 4.0, Revision 48

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Introduction

AIM version 4 revision 48 Radiology and Oncology (called RadOnc) is an extension of the AIM 4.0 Foundation Model, which covers fundamental image annotation needs. The RadOnc model has nine new classes that cover Oncology lesion annotation needs. You can download the RadOnc model.

You can download AIM 4.0 revision 43 and 44.

Summary of Changes between the AIM Foundation and AIM 4.0, Revision 48 Models

AIM 4.0 has fifty-five new classes. Twelve classes were renamed and four were deleted. This document describes changes from the AIM 3.0 to the AIM 4.0 Foundation Model. Descriptions of the new classes follow.

LesionObservationEntity (RadOnc)

The class is an abstract class stores observations made about lesions in both clinical trial and day-to-day clinical treatments. For detailed information, see *DICOM Clinical Trials Results Reporting Supplement (Working group 18).*

GeneralLesionObservationEntity (RadOnc)

This class contains general observations made about lesions in clinical trial results and day-to-day clinical treatment that are not specific to time point. For detailed information, see *DICOM Clinical Trials Results Reporting Supplement (Working group 18).*

TimePointLesionObservationEntity (RadOnc)

This class contains observations made about lesions in day-to-day clinical interpretations and clinical trial results at a specific time point. It also includes "lesions" that are created for the purpose of calibrating scanned film or other secondary capture images. For detailed information, see *DICOM Clinical Trials Results Reporting Supplement (Working group 18).*

Classes derived from *AnnotationOfAnnotationStatement*

AnnotationOfAnnotationHasGeneralLesionObservationEntityStatement (RadOnc)

An instance of annotation of annotation may have one or more general lesion observations associate with it. *AnnotationOfAnnotationHasGeneralLesionObservationEntityStatement* represents a direct relationship between an instance of annotation of annotation and general lesion observation. If you have two general lesion observations, you will need to create two statements.

A use case:

An adjudicator wants to create a general lesion observation statement from an annotation of annotation.

Assumption:

1. An annotation of annotation, each with general lesion observation, was created earlier from a reader.

2. There is a system capable of reading and extracting information from the annotation for further displaying, computing and manipulating purposes.

Working with AIM:

1. Create a general lesion observation instance.
2. Create an *AnnotationOfAnnotationHasGeneralLesionObservationEntityStatement* statement linking the annotation of annotation (subjects) to the general lesion observation (objects).

AnnotationOfAnnotationHasTimePointLesionObservationEntityStatement (RadOnc)

An instance of annotation of annotation may have one or more time-point lesion observations associate with it. *AnnotationOfAnnotationHasTimePointLesio nObservationEntityStatement* represents a direct relationship between an instance of annotation of annotation and time-point lesion observation. If you have two time-point lesion observations, you will need to create two statements.

A use case:

An adjudicator wants to create a time-point lesion observation statement from an annotation of annotation.

Assumption:

1. An annotation of annotation, each with time-point lesion observation, was created earlier from a reader.
2. There is a system capable of reading and extracting information from the annotations for further displaying, computing and manipulating purposes.

Working with AIM:

1. Create a time-point lesion observation instance.
2. Create a *AnnotationOfAnnotationHasTimePointLesionObservationEntityStatement* statement linking the annotation of annotation (subjects) to the time-point lesion observation (objects).

Classes derived from *ImageAnnotationStatement*

The following *classes* were derived from *ImageAnnotationStatement*.

GeneralLesionObservationEntityHasImgingPhysicalEntityStatement (RadOnc)

The class is used to record a relationship between a general lesion observation entity and imaging physical entity. Each lesion observation can only be directly related to one imaging physical entity.

A use case:

An imaging interpreter wants to link a general lesion observation and imaging physical annotation.

Working with AIM:

1. Create an imaging physical entity instance.
2. Create a general lesion observation entity instance.
3. Create an *GeneralLesionObservationEntityHasImagingPhysicalEntityStatement* statement linking the general lesion observation entity (subjects) to the imaging physical entity (objects).

ImageAnnotationHasGeneralLesionObservationEntityStatement (RadOnc)

An instance of image annotation may have one or more general lesion observations associate with it. *ImageAnnotationHasGeneralLesionObservationEntity Statement* represents a direct relationship between an instance of image annotation and general lesion observation. If you have two general lesion observations, you will need to create two statements.

A use case:

An adjudicator wants to create a time-point lesion observation statement from an image annotation.

Assumption:

1. An image annotation, each with time-point lesion observation, was created earlier from a reader.
2. There is a system capable of reading and extracting information from the annotation for further displaying, computing and manipulating purposes.

Working with AIM:

1. Create a time-point lesion observation instance.
2. Create an *ImageAnnotationHasTimePointLesionObservationEntityStatement* statement linking the annotation of annotation (subjects) to the time-point lesion observation (objects).

ImageAnnotationHasTimePointLesionObservationEntityStatement (RadOnc)

An instance of image annotation may have one or more time-point lesion observations associate with it. *ImageAnnotationHasTimePointLesionObservation EntityStatement* represents a direct relationship between an instance of image annotation and time-point lesion observation. If you have two general lesion observations, you will need to create two statements.

A use case:

An adjudicator wants to create a time-point lesion observation statement from an image annotation.

Assumption:

1. An image annotation, each with time-point lesion observation, was created earlier from a reader.
2. There is a system capable of reading and extracting information from the annotation for further displaying, computing and manipulating purposes.

Working with AIM:

1. Create a time-point lesion observation instance.
2. Create a *ImageAnnotationHasTimePointLesionObservationEntityStatement* statement linking the image annotation (subjects) to the time-point lesion observation (objects).

TimePointLesionObservationEntityHasImgingPhysicalEntityStatement (RadOnc)

The class is used to record a relationship between a timepoint lesion observation entity and imaging physical entity. Each lesion observation can only be directly related to one imaging physical entity.

A use case:

An imaging interpreter wants to link a timepoint lesion observation and imaging physical annotation.

Working with AIM:

1. Create an imaging physical entity instance.
2. Create a timepoint lesion observation entity instance.
3. Create a *TimePointLesionObservationEntityHasImagingPhysicalEntityStatement* statement linking the timepoint lesion observation entity (subjects) to the imaging physical entity (objects).