

Preparing for AIS 2005 in NTRACS

Whitepaper
April 5, 2007



In October of 2006, the Association for the Advancement of Automotive Medicine (AAAM) officially released and announced the AIS 2005 codes and coding manual.

This whitepaper outlines Digital Innovation's roadmap for incorporating AIS 2005 codes into the NTRACS product line beginning with the release of NTRACS v4.1 in April 2007.

Included in this whitepaper:

- Differences between AIS 2005 and AIS 98 code sets
- Licensing requirements and training recommendations for AIS 2005
- Working with AIS 2005 and AIS 98 in the same Registry
- Deciding when to switch to AIS 2005

Differences between AIS 2005 and AIS 98 code sets

AIS 2005 is a significant update to the AIS that changes both the rules for coding and the code set itself. AIS 2005 contains over 600 new codes as well as changes to well over 900 existing codes and/or description changes. This equates to an overhaul of more than 50% of the codes existing in AIS 98.

Major areas that have significantly changed include:

Head Trauma and consideration of Level of Consciousness (LOC): LOC is no longer coded as an isolate from physical trauma as was possible in AIS 98. In addition, the method of LOC consideration has been significantly simplified. Most of the codes that existed for LOC in AIS 98 no longer are applicable in AIS 2005.

More Detailed Fracture Coding: Many of the fracture codes have been significantly expanded to support different types of fractures and different fracture locations (e.g. butterfly, shaft, distal, proximal, complete, complex, wedge, partial articular, etc.). Much of this detail was not represented in AIS 98. In addition, codes for fractures of the hand and foot have been greatly expanded to support specific bone details (e.g. cuneiform, cuboid, carpus, metacarpus, etc.).

Abstraction Differences for Pelvic Fractures: Pelvic fractures are no longer assessed solely on specific bones fractured, but on the complexity and type of fracture. Rather than looking at the pubis, iliac and symphysis in

isolate, severity is instead determined by the overall stability of the pelvis. This is a marked abstraction difference and will require clinicians to document pelvic stability when describing pelvic fractures. Acetabular fractures are examined in a similar fashion with consideration of how much articulation the fracture entailed.

Other changes: Closed fractures are combined with NFS for extremities. Also, pneumo and hemothoracies have been changed.

AIS 2005 provides crosswalks to AIS 98 in both directions (both from AIS 98 to AIS 2005 and from AIS 2005 back to AIS 98). These crosswalks can be used to create queries that can handle data coded in AIS 98 as well as AIS 2005 without reabstraction and recoding. However, even with the crosswalks, it is not a completely accurate comparison due to the following:

1. Abstraction guidelines have changed between AIS 98 and AIS 2005. Because of this, records abstracted for AIS 98 may not capture the necessary detail to correctly portray the injuries in AIS 2005.
2. Some coding considerations used in AIS 98 no longer apply, which could yield skewed results when comparing severity between AIS 98 and AIS 2005. For example, LOC codes are no longer applicable in AIS 2005. A case abstracted and coded for AIS 98 could produce different Injury Severity scores when reabstracted and recoded in AIS 2005.

It is also important to point out that despite all of the changes to AIS 2005, the AAAM and/or other associations and research institutions have not yet tackled the remodeling of probability of survival models based on the new codes. Until the appropriate studies are completed and new coefficients are calculated that truly comprehend the AIS 2005 code set, probability of survival calculations will likely be more accurate for records coded in AIS 98 than those coded in AIS 2005.

Licensing and Training

A separate AAAM license to the AIS 2005 coding and crosswalk tables must be purchased in order to obtain these updates. DI has been authorized by the AAAM to sell this license on their behalf.

The fundamental processes for abstraction and for coding have not changed with the introduction of the AIS 2005 codes. For users who are knowledgeable of these processes, training *may* not be required. However, because it is prudent for users to fully understand the changes to the AIS from 98 to 2005 and to be able to adjust abstraction guidelines and coding rules accordingly, training is recommended.

Training in the use of the AIS 2005 is available through the AAAM. The association also offers certification programs for coding.

Working with AIS 2005 and AIS 98 in the Same Registry

Digital Innovation, Inc. is in the beta testing phase of a DI Coder module designed to support both AIS 2005 and AIS 98 codes. Integration of this new DI Coder module across all trauma registry lines will take place over the coming weeks after the successful completion of this beta.

When using a trauma registry equipped with the new DI coder, users select if a trauma record is to be coded in AIS 2005 or AIS 98 within the demographics section and the appropriate drill-down menus for the selected code set are then activated within the DI coder.

Users do not need to include additional fields in their existing reports after switching to AIS 2005. The AIS code sets on the record are stored within the same field of the database to minimize any impact on existing reports. Users running queries across a range of records that span both AIS 2005 and AIS 98 code sets will see their coding results with the correct menu descriptions for that menu's code set automatically.

Although DI invested considerable time and effort to minimize the impact of the code set changes with AIS 2005, it is possible that reports, queries and custom logic rules based on AIS codes (specifically PREDOT) may still need to be modified because of the addition, obsolescence or changed meaning of many of the AIS 98 codes. Users converting to AIS 2005 should plan to review all reports, queries and custom logic that may use AIS codes (specifically PREDOT) within any selection criteria or filter rules to ensure that they still hold appropriate meaning for the AIS 2005 code set.

Digital Innovation's implementation of AIS 2005 codes within our trauma registries will not affect submissions to a central site at a technical level because there are no changes to fields, field sizes or formats. However, modifications to injury abstraction and documentation will need to be revised to support accurate coding in AIS 2005.

Deciding when to Switch to AIS 2005

Making the decision on when to switch to AIS 2005 will likely depend on when your region, state or province will be changing. If the particular region, state or province to which you submit trauma data from your registry requires that your data submissions should remain coded in AIS 98 then it is not recommended that you switch to AIS 2005 codes at this time. Conversely, if a state, region or province adopts AIS 2005 starting on a particular quarter or year, it is imperative that your trauma registry is prepared to make the change and install the necessary software provided to you from the state or directly by DI prior to the adoption of AIS 2005.

Since there are significant changes with both the codes and some aspects of abstraction for coding in AIS 2005, any region, state or province should carefully consider and plan for the adoption of AIS 2005. Items to consider are:

- At what time do we want to start to require submission to be sent with AIS 2005 coding?
- How will reports generated at the central site need to be changed to support AIS 2005 codes?
- How will registrars and clinicians at hospitals within the trauma system be trained in coding for AIS 2005?

Some other concerns for AIS 2005 adoption on the trauma system level include:

- Understanding the impact of adopting AIS 2005 for current research initiatives that rely on AIS coding.
 - Changes to trauma inclusion criteria that are dependent on AIS coding or severity / ISS criterion.
 - Impact on probability of survival models, injury severity scoring, and other related severity measures dependant on AIS coding.
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