The Abbreviated Injury Scale (AIS)

A brief introduction

Abbreviated Injury Scale
1990 Revision
Update 98
The Abbreviated Injury Scale
produced by:
Association for the Advancement of Automotive Medicine
(AAAM)
Based in Illinois, U.S.A.

Developed in 1971 to aid vehicle crash investigators

Extended in 1990 to be more relevant to medical audit and research
AIS - Evolution

- 1976 - Clarified injury terminology
- 1980 - Revised ‘brain’ section
- 1985 - Extended in 1990 to be more relevant to medical audit and research
- 1990 – Introduced age (<15) to some injury descriptors
- 1990 - Update-98
  - Expanded coding rules
  - Clarified coding of External injuries
  - Included the Organ Injury Scale grades
- 2004 – Update due with expansion of Orthopaedic codes
AIS defined

The AIS is an:

Anatomically based

Consensus derived

Global

Severity scoring system that classifies each injury in every body region according to its relative importance on a six point ordinal scale.
The 6 point ordinal AIS (Post dot) severity scale

1 = minor

2 = moderate

3 = serious

4 = severe

5 = critical

6 = maximum (Currently untreatable)
What does the AIS severity score indicate?

The relative risk of “threat to life” in an average person who sustains the coded injury as his or her only injury.
In addition to the single ‘Post dot’ AIS severity code, there is a 6 digit ‘Pre dot’ numerical identifier

e.g. Femoral Shaft fracture:-

Numerical identifier = 8518148

AIS = .3
How are the numerical identifiers structured?

Example: Femoral shaft fracture = 851814.3

8 = Body Region: Lower Extremity

5 = Type of Anatomic Structure: Skeletal

18 = Specific Anatomic Structure: Femur

14 = Level of injury: Shaft

.3 = AIS: Severity score
The structure & content of the AIS dictionary
# AIS Dictionary has 9 separate chapters

<table>
<thead>
<tr>
<th>Chapter</th>
<th>Codes Begin With</th>
</tr>
</thead>
<tbody>
<tr>
<td>Head</td>
<td>1</td>
</tr>
<tr>
<td>Face</td>
<td>2</td>
</tr>
<tr>
<td>Neck</td>
<td>3</td>
</tr>
<tr>
<td>Thorax</td>
<td>4</td>
</tr>
<tr>
<td>Abdomen &amp; pelvic contents</td>
<td>5</td>
</tr>
<tr>
<td>Spine</td>
<td>6</td>
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<tr>
<td>Upper extremities</td>
<td>7</td>
</tr>
<tr>
<td>Lower extremities</td>
<td>8</td>
</tr>
<tr>
<td>External, burns &amp; other trauma</td>
<td>9</td>
</tr>
</tbody>
</table>
Most AIS chapters have injuries categorised in the following order:

Whole Area

Vessels

Nerves

Internal Organs

Skeletal
Exceptions are:-

Head Chapter
Which has two additional categories:

1) Length of Unconsciousness
2) Level of Unconsciousness
Spinal Chapter

Which is divided into 3 sections:

(1) Cervical Spine, (2) Thoracic Spine, (3) Lumbar spine

And has a unique structure:

- Cord Injury
- Disc Injury
- Ligament Injury
- Nerve Root Injury
- Whole Area

Cervical Spine also contains: Brachial Plexus Injury
Lumbar Spine also contains: Cauda Equina Injury
Abdomen & Pelvic Contents Chapter
Which has no skeletal injuries

Upper & Lower Extremities Chapter
Which includes 2 additional categories

1) Muscles, Tendons, Ligaments
2) Joints
External, Burns, Other Trauma Chapter

Which has a unique structure:

- Skin and Subcutaneous Tissue
- Burns
- Other Trauma
How to code using the AIS dictionary
AIS Allows Coding of

- Blunt Trauma
- Penetrating Trauma
- Burns
- Selected Other Trauma
  - Inhalation injury
  - High Voltage electrical injury
Preliminary diagnosis are not coded!

- Suspected
- Possible
- Probable
- Rule out
Complications are not coded!

Examples:

- Infections
- Pneumonia
- Epilepsy following head injury
- Pulmonary embolism following skeletal injury
Consequences or outcomes are not coded as injuries!

Including:-
- Death
- Blindness
- Asphyxia
- Obstruction
- Miscarriage
- Detachment
- Deafness
- Swelling (except in the brain)

With the following exceptions
- Blood loss
- Air embolism
- Haemo/pneumothorax
- Cerebral oedema
- Compartment syndrome
- Retroperitoneal haemorrhage

Each of these may affect the severity score of a given AIS code, but must only be taken into account, following strict AIS guidelines!
NFS = Not further specified

This appears throughout the AIS dictionary & allows the coding of injuries when detailed information is lacking

e.g. Injury description is Liver laceration

Would be coded as: 541820.2 (Liver laceration NFS)
Rules for coding AIS 6 injuries

- Never code AIS 6 just because a patient dies!

- An AIS 6 code should only be used when there is documented medical evidence of an injury equivalent to AIS 6
List of AIS 6 Injuries by body region

**Head or Neck**
- Brain stem: laceration, crush, penetrating or transection
- C3 or higher complete cord transection or contusion

**Thorax**
- Heart: rupture, multiple lacerations or avulsion
- Total chest crush
- Aortic rupture + haemorrhage not confined to mediastinum

**Abdominal & Pelvic contents**
- Liver avulsion

**External**
- 2nd or 3rd degree burns > 90% Total Body Surface
**AIS 9**

Usually appears at the start of an AIS chapter

**What does AIS 9 mean?**

We have no information regarding injury to specific organ or structure *e.g.*

- Closed head injury NFS 115099.9
- Blunt thoracic injury NFS 415099.9
- Blunt cervical spine injury NFS 615999.9
  - died without further evaluation 615999.9

**When should AIS 9 be used?**

- AIS 9 should only be used for frequency counts
- AIS 9 **does not** allow the calculation of an Injury Severity Score (ISS) - & therefore **should not** be used on this course
FINALLY

ALWAYS REMEMBER:
To help the coder, the Anatomical Index at the Back of the dictionary, lists:

- All the injury descriptions in alphabetical order
- The body region in which the injury is located
- The page on which it can be found