

## Scaling system for organ specific injuries

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**Table 1**

| Cervical vascular organ injury scale |  |        |        |
|--------------------------------------|--|--------|--------|
| Grade                                | Description of injury  | ICD-9  | AIS-90 |
| I                                    | Thyroid vein   | 900.8  |        |
|                                      | Common facial vein   | 900.8  |        |
|                                      | External jugular vein  | 900.81 | 1-3    |
|                                      | Non-named arterial/venous branches   | 900.9  |        |
| II                                   | External carotid arterial branches (ascending pharyngeal, superior thyroid, lingual, facial maxillary, occipital, posterior auricular) | 900.8  |        |
|                                      | Thyrocervical trunk or primary branches  |        |        |
|                                      | Internal jugular vein  | 900.8  |        |
| III                                  | External carotid artery  | 900.1  | 1-3    |
|                                      | Subclavian vein  | 900.02 | 2-3    |
|                                      | Vertebral artery   | 901.3  | 3-4    |
| IV                                   | Common carotid artery  | 900.8  | 2-4    |
|                                      | Subclavian artery  | 900.01 | 3-5    |
| V                                    | Internal carotid artery (extracranial)   | 901.1  | 3-4    |
|                                      |  | 900.03 | 3-5    |

\*Increase one grade for multiple grade III or IV injuries involving more than 50% vessel circumference. Decrease one grade for less than 25% vessel circumference disruption for grade IV or V.  
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**Table 2**

| Chest wall injury scale* |             |  |               |        |
|--------------------------|-------------|--|---------------|--------|
| Grade                    | Injury Type | Description of Injury  | ICD-9         | AIS-90 |
| I                        | Contusion   | Any size   | 911.0/922.1   | 1      |
|                          | Laceration  | Skin & subcutaneous  | 875.0         | 1      |
|                          | Fracture    | < 3 ribs, closed; nondisplaced clavicle closed               | 807.01        | 1-2    |
| II                       |             |  | 807/02        |        |
|                          |             |  | 810.00/810.03 | 2      |
|                          | Laceration  | Skin, subcutaneous and muscle                                | 875.1         | 1      |
|                          | Fracture    | ≥3 adjacent ribs, closed                                     | 807.03/807.09 | 2-3    |
|                          |             | Open or displaced clavicle                                   | 810.10/810.13 | 2      |
|                          |             | Nondisplaced sternum, closed                                 | 807.2         | 2      |
|                          |             | Scapular body, open or closed                                | 811.00/811.18 | 2      |
| III                      | Laceration  | Full thickness including pleural penetration                 | 862.29        | 2      |
|                          | Fracture    | Open or displaced sternum                                    | 807.2         | 2      |
|                          |             | Flail sternum  | 807.3         |        |
| IV                       |             | Unilateral flail segment (<3 ribs)                           | 807.4         | 3-4    |
|                          | Laceration  | Avulsion of chest wall tissues with underlying rib fractures | 807.10/807.19 | 4      |
|                          |             | Unilateral flail chest (≥3 ribs)                             |               |        |
| V                        | Fracture    | Bilateral flail chest (≥3 ribs on both sides)                | 807.4         | 3-4    |
|                          | Fracture    |  | 807.4         | 5      |

\*This scale is confined to the chest wall alone and does not reflect associated internal or abdominal injuries. Therefore, further delineation of upper versus lower or anterior versus posterior chest wall was not considered, and a grade VI was warranted. Specifically, thoracic crush was not used as a descriptive term; instead, the geography and extent of fractures and soft tissue injury were used to define the grade. From Moore et al. [2]; with permission.

**Table 3**

| Heart injury scale |  |        |        |
|--------------------|--|--------|--------|
| Grade              | Description of injury  | ICD-9  | AIS-90 |
| I                  | Blunt cardiac injury with minor ECG abnormality (nonspecific ST or T wave changes, premature arterial or ventricular contraction or persistent sinus tachycardia)                                    | 861.01 | 3      |
| II                 | Blunt or penetrating pericardial wound with out cardiac injury, cardiac tamponade, or cardiac herniation   | 861.01 | 3      |
|                    | Blunt cardiac injury with heart block (right or left bundle branch, left anterior fascicular, or atrioventricular) or ischemic changes (ST depression or T wave inversion) without cardiac failure   | 861.12 | 3      |
| III                | Penetrating tangential myocardial wound up to, but not extending through endocardium, without tamponade  | 861.01 | 3-4    |
|                    | Blunt cardiac injury with sustained ( $\geq 6$ beats/min) or multilocal ventricular contractions   | 861.01 | 3-4    |
|                    | Blunt or penetrating cardiac injury with septal rupture, pulmonary or tricuspid valvular incompetence, papillary muscle dysfunction, or distal coronary arterial occlusion without cardiac failure   | 861.01 | 3-4    |
| IV                 | Blunt pericardial laceration with cardiac herniation   |        |        |
|                    | Blunt cardiac injury with cardiac failure  |        |        |
|                    | Penetrating tangential myocardial wound up to, but extending through, endocardium, with tamponade  | 861.01 | 3-4    |
|                    | Blunt or penetrating cardiac injury with septal rupture, pulmonary or tricuspid valvular incompetence, papillary muscle dysfunction, or distal coronary arterial occlusion producing cardiac failure | 861.12 | 3      |
|                    | Blunt or penetrating cardiac injury with aortic mitral valve incompetence  | 861.12 | 3      |
| V                  | Blunt or penetrating cardiac injury of the right ventricle, right atrium, or left atrium   |        |        |
|                    | Blunt or penetrating cardiac injury with proximal coronary arterial occlusion  |        |        |
|                    | Blunt or penetrating left ventricular perforation  |        |        |
|                    | Stellate wound with < 50% tissue loss of the right ventricle, right atrium, or of left atrium  | 861.03 | 5      |
| VI                 | Blunt avulsion of the heart; penetrating wound producing > 50% tissue loss of a chamber  | 861.03 |        |
|                    |  | 861.13 | 5      |
|                    |  | 861.03 | 5      |
| VI                 |  | 861.13 | 6      |

\*Advance one grade for multiple wounds to a single chamber or multiple chamber involvement.  
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**Table 4**

| Lung Injury Scale |                            |   |         |        |
|-------------------|----------------------------|---|---------|--------|
| Grade*            | Injury Type                | Description of Injury                             | ICD-9   | AIS-90 |
| I                 | Contusion                  | Unilateral, <1 lobe                               | 861.12  | 3      |
|                   |                            |   | 861.31  |        |
| II                | Contusion                  | Unilateral, single lobe                           | 861.20  | 3      |
|                   |                            |   | 861.30  |        |
|                   |                            |   | 860.0/1 |        |
| III               | Laceration                 | Simple pneumothorax                               | 861.20  | 3      |
|                   |                            |   | 861.30  |        |
|                   | Contusion                  | Unilateral, > 1 lobe                              | 860.0/1 | 3-4    |
|                   |                            |   | 860.4/5 |        |
| IV                | Laceration                 | Persistent (> 72 hrs) air leak from distal airway | 862.0   | 4-5    |
|                   |                            |   | 861.30  |        |
|                   | Hematoma                   | Nonexpanding intraparenchymal                     | 861.30  |        |
|                   |                            |   | 862.21  |        |
|                   | Laceration                 | Major (segmental or lobar) air leak               | 861.31  |        |
| Vascular          | Expanding intraparenchymal | 901.40  | 3-5     |        |
|                   |                            | Primary branch intrapulmonary vessel disruption   |         |        |
| V                 | Vascular                   | Hilar vessel disruption                           | 901.41  | 4      |
|                   |                            |   | 901.42  |        |
| VI                | Vascular                   | Total uncontained transection of pulmonary hilum  | 901.41  | 4      |
|                   |                            |   | 901.42  |        |

\*Advance one grade for bilateral injuries up to grade III. Hemothorax is scored under thoracic vascular injury scale. From Moore et al. [3]; with permission.

**Table 5**

| Thoracic Vascular Injury Scale |   |                  |        |
|--------------------------------|---|------------------|--------|
| Grade*                         | Description of injury                             | ICD-9            | AIS-90 |
| I                              | Intercostal artery/vein                           | 901.81           | 2-3    |
|                                | Internal mammary artery/vein                      | 901.82           | 2-3    |
|                                | Bronchial artery/vein                             | 901.89           | 2-3    |
|                                | Esophageal artery/vein                            | 901.9            | 2-3    |
|                                | Hemizygous vein                                   | 901.89           | 2-3    |
|                                | Unnamed artery/vein                               | 901.9            | 2-3    |
| II                             | Azygos vein                                       | 901.89           | 2-3    |
|                                | Internal jugular vein                             | 900.1            | 2-3    |
|                                | Subclavian vein                                   | 901.3            | 3-4    |
|                                | Innominate vein                                   | 901.3            | 3-4    |
| III                            | Carotid artery                                    | 900.01           | 3-5    |
|                                | Innominate artery                                 | 901.1            | 3-4    |
|                                | Subclavian artery                                 | 901.1            | 3-4    |
| IV                             | Thoracic aorta, descending                        | 901.0            | 4-5    |
|                                | Inferior vena cava (intrathoracic)                | 902.10           | 3-4    |
|                                | Pulmonary artery, primary intraparenchymal branch | 901.41           | 3      |
|                                | Pulmonary vein, primary intraparenchymal branch   | 901.42           | 3      |
| V                              | Thoracic aorta, ascending and arch                | 901.0            | 5      |
|                                | Superior vena cava                                | 901.2            | 3-4    |
|                                | Pulmonary artery, main trunk                      | 901.41           | 4      |
|                                | Pulmonary vein, main trunk                        | 901.42           | 4      |
| VI                             | Uncontained total transection of                  | 901.0            | 5      |
|                                | thoracic aorta or pulmonary hilum                 | 901.41<br>901.42 | 4      |

\*Increase one grade for multiple grade III or IV injuries if more than 50% circumference; decrease one grade for grade IV injuries if less than 25% circumference.

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**Table 6**

| Diaphragm injury scale |   |       |        |
|------------------------|---|-------|--------|
| Grade*                 | Description of injury                                     | ICD-9 | AIS-90 |
| I                      | Contusion   | 862.0 | 2      |
| II                     | Laceration <2cm   | 862.1 | 3      |
| III                    | Laceration 2-10cm   | 862.1 | 3      |
| IV                     | Laceration >10 cm with tissue loss $\leq 25 \text{ cm}^2$ | 862.1 | 3      |
| V                      | Laceration with tissue loss $> 25 \text{ cm}^2$           | 862.1 | 3      |

\*Advance one grade for bilateral injuries up to grade III.  
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**Table 7**

| Spleen injury scale (1994 revision) |             |   |                  |        |
|-------------------------------------|-------------|---|------------------|--------|
| Grade*                              | Injury type | Description of injury   | ICD-9            | AIS-90 |
| I                                   | Hematoma    | Subcapsular, <10% surface area  | 865.01<br>865.11 | 2      |
|                                     | Laceration  | Capsular tear, <1cm<br>parenchymal depth  | 865.02<br>865.12 |        |
| II                                  | Hematoma    | Subcapsular, 10%-50% surface area;<br>intraparenchymal, <5 cm in diameter   | 865.01<br>865.11 | 2      |
|                                     | Laceration  | Capsular tear, 1-3cm parenchymal depth that does not<br>involve a trabecular vessel   | 865.02<br>865.12 |        |
| III                                 | Hematoma    | Subcapsular, >50% surface area or expanding; ruptured<br>subcapsular or parenchymal hematoma; intraparenchymal<br>hematoma $\geq 5 \text{ cm}$ or expanding |                  | 3      |
|                                     | Laceration  | >3 cm parenchymal depth or involving trabecular vessels   | 865.03<br>865.13 |        |
| IV                                  | Laceration  | Laceration involving segmental or hilar vessels producing<br>major devascularization (>25% of spleen)   |                  | 4      |
| V                                   | Laceration  | Completely shattered spleen   | 865.04           | 5      |
|                                     | Vascular    | Hilar vascular injury with devascularizes spleen  | 865.14           | 5      |

\*Advance one grade for multiple injuries up to grade III.  
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**Table 8**

| Liver injury scale (1994 revision) |                |  |                  |        |
|------------------------------------|----------------|--|------------------|--------|
| Grade*                             | Type of Injury | Description of injury  | ICD-9            | AIS-90 |
| I                                  | Hematoma       | Subcapsular, <10% surface area   | 864.01<br>864.11 | 2      |
|                                    | Laceration     | Capsular tear, <1cm parenchymal depth  | 864.02<br>864.12 | 2      |
| II                                 | Hematoma       | Subcapsular, 10% to 50% surface area; intraparenchymal <10 cm in diameter  | 864.01<br>864.11 | 2      |
|                                    | Laceration     | Capsular tear 1-3 parenchymal depth, <10 cm in length  | 864.03<br>864.13 | 2      |
| III                                | Hematoma       | Subcapsular, >50% surface area of ruptured subcapsular or parenchymal hematoma; intraparenchymal hematoma > 10 cm or expanding |                  | 3      |
|                                    | Laceration     | >3 cm parenchymal depth  | 864.04<br>864.14 | 3      |
| IV                                 | Laceration     | Parenchymal disruption involving 25% to 75% hepatic lobe or 1-3 Couinaud's segments  | 864.04<br>864.14 | 4      |
| V                                  | Laceration     | Parenchymal disruption involving >75% of hepatic lobe or >3 Couinaud's segments within a single lobe                           |                  | 5      |
|                                    | Vascular       | Juxtahepatic venous injuries; ie, retrohepatic vena cava/central major hepatic veins   |                  | 5      |
| VI                                 | Vascular       | Hepatic avulsion   |                  | 6      |

\*Advance one grade for multiple injuries up to grade III  
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**Table 9**

| Extrahepatic biliary tree injury scale |   |        |        |
|--|---|--------|--------|
| Grade*                                 | Description of injury   | ICD-9  | AIS-90 |
| I                                      | Gallbladder contusion/hematoma                                  | 868.02 | 2      |
|  | Portal triad contusion  | 868.02 | 2      |
| II                                     | Partial gallbladder avulsion from liver bed; cystic duct intact | 868.02 | 2      |
|  | Laceration or perforation of the gallbladder                    | 868.12 | 2      |
| III                                    | Complete gallbladder avulsion from liver bed                    | 868.02 | 3      |
|  | Cystic duct laceration  | 868.12 | 3      |
| IV                                     | Partial or complete right hepatic duct laceration               | 868.12 | 3      |
|  | Partial or complete left hepatic duct laceration                | 868.12 | 3      |
|  | Partial common hepatic duct laceration (<50%)                   | 868.12 | 3      |
|  | Partial common bile duct laceration (<50%)                      | 868.12 | 3      |
| V                                      | >50% transection of common hepatic duct                         | 868.12 | 3-4    |
|  | >50% transection of common bile duct                            | 868.12 | 3-4    |
|  | Combined right and left hepatic duct injuries                   | 868.12 | 3-4    |
|  | Intraduodenal or intrapancreatic bile duct injuries             | 868.12 | 3-4    |

\*Advance one grade for multiple injuries up to grade III.  
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**Table 10**

| Pancreas Injury Scale |                |   |               |        |
|-----------------------|----------------|---|---------------|--------|
| Grade*                | Type of Injury | Description of Injury   | ICD-9         | AIS-90 |
| I                     | Hematoma       | Minor contusion without duct injury                                       | 863.81-863.84 | 2      |
|                       | Laceration     | Superficial laceration without duct injury                                |               | 2      |
| II                    | Hematoma       | Major contusion without duct injury or tissue loss                        | 863.81-863.84 | 2      |
|                       | Laceration     | Major laceration without duct injury or tissue loss                       |               | 3      |
| III                   | Laceration     | Distal transection or parenchymal injury with duct injury                 | 863.92/863.94 | 3      |
| IV                    | Laceration     | Proximal <sup>a</sup> transection or parenchymal injury involving ampulla | 863.91        | 4      |
| V                     | Laceration     | Massive disruption of pancreatic head                                     | 863.91        | 5      |

\*Advance one grade for multiple injuries up to grade III. \*863.51,863.91 - head; 863.99,862.92-body;863.83,863.93-tail. <sup>a</sup>Proximal pancreas is to the patients' right of the superior mesenteric vein.

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**Table 11**

| Esophagus injury scale |  |            |        |
|------------------------|--|------------|--------|
| Grade*                 | Description of injury                    | ICD-9      | AIS-90 |
| I                      | Contusion/hematoma                       | 862.22/.32 | 2      |
|                        | Partial thickness laceration             | 862.22/.32 | 3      |
| II                     | Laceration <50% circumference            | 862.22/.32 | 4      |
| III                    | Laceration >50% circumference            | 862.22/.32 | 4      |
| IV                     | Segmental loss or devascularization <2cm | 862.22/.32 | 5      |
| V                      | Segmental loss or devascularization >2cm | 862.22/.32 | 5      |

\*Advance one grade for multiple lesions up to grade III.

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**Table 12**

| Stomach injury scale |   |          |        |
|----------------------|---|----------|--------|
| Grade*               | Description of injury                         | ICD-9    | AIS-90 |
| I                    | Contusion/hematoma                            | 863.0/.1 | 2      |
|                      | Partial thickness laceration                  | 863.0/.1 | 2      |
| II                   | Laceration <2cm in GE junction or pylorus     | 863.0/.1 | 3      |
|                      | <5cm in proximal 1/3 stomach                  | 863.0/.1 | 3      |
|                      | <10cm in distal 2/3 stomach                   | 863.0/.1 | 3      |
| III                  | Laceration >2cm in GE junction or pylorus     | 863.0/.1 | 3      |
|                      | >5cm in proximal 1/3 stomach                  | 863.0/.1 | 3      |
|                      | >10cm in distal 2/3 stomach                   | 863.0/.1 | 3      |
| IV                   | Tissue loss or devascularization <2/3 stomach | 863.0/.1 | 4      |
| V                    | Tissue loss or devascularization >2/3 stomach | 863.0/.1 | 4      |

\*Advance one grade for multiple lesions up to grade III. GE-gastroesophageal.

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**Table 13**

| Duodenum injury scale |                |  |        |        |
|-----------------------|----------------|--|--------|--------|
| Grade*                | Type of injury | Description of injury  | ICD-9  | AIS-90 |
| I                     | Hematoma       | Involving single portion of duodenum   | 863.21 | 2      |
|                       | Laceration     | Partial thickness, no perforation  | 863.21 | 3      |
| II                    | Hematoma       | Involving more than one portion  | 863.21 | 2      |
|                       | Laceration     | Disruption <50% of circumference   | 863.31 | 4      |
| III                   | Laceration     | Disruption 50%-75% of circumference of D2  | 863.31 | 4      |
|                       |                | Disruption 50%-100% of circumference of D1,D3,D4                                       | 863.31 | 4      |
| IV                    | Laceration     | Disruption >75% of circumference of D2<br>Involving ampulla or distal common bile duct | 863.31 | 5<br>5 |
| V                     | Laceration     | Massive disruption of duodenopancreatic complex  | 863.31 | 5      |
|                       | Vascular       | Devascularization of duodenum  | 863.31 | 5      |

\*Advance one grade for multiple injuries up to grade III. D1-first position of duodenum; D2-second portion of duodenum; D3-third portion of duodenum; D4-fourth portion of duodenum  
From Moore et al. [6]; with permission.

**Table 14**

| Small bowel injury scale |                |  |        |        |
|--------------------------|----------------|--|--------|--------|
| Grade*                   | Type of injury | Description of injury                                      | ICD-9  | AIS-90 |
| I                        | Hematoma       | Contusion or hematoma without devascularization            | 863.20 | 2      |
| II                       | Laceration     | Partial thickness, no perforation                          | 863.20 | 2      |
|                          | Laceration     | Laceration <50% of circumference                           | 863.30 | 3      |
| III                      | Laceration     | Laceration $\geq$ 50% of circumference without transection | 863.30 | 3      |
| IV                       | Laceration     | Transection of the small bowel                             | 863.30 | 4      |
| V                        | Laceration     | Transection of the small bowel with segmental tissue loss  | 863.30 | 4      |
|                          | Vascular       | Devascularized segment                                     | 863.30 | 4      |

\*Advance one grade for multiple injuries up to grade III.  
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**Table 15**

| Colon injury scale |                |  |               |        |
|--------------------|----------------|--|---------------|--------|
| Grade*             | Type of injury | Description of injury                                      | ICD-9         | AIS-90 |
| I                  | Hematoma       | Contusion or hematoma without devascularization            | 863.40-863.44 | 2      |
|                    | Laceration     | Partial thickness, no perforation                          | 863.40-863.44 | 2      |
| II                 | Laceration     | Laceration <50% of circumference                           | 863.50-863.54 | 3      |
| III                | Laceration     | Laceration $\geq$ 50% of circumference without transection | 863.50-863.54 | 3      |
| IV                 | Laceration     | Transection of the colon                                   | 863.50-863.54 | 4      |
| V                  | Laceration     | Transection of the colon with segmental tissue loss        | 863.50-863.54 | 4      |
|                    | Vascular       | Devascularized segment                                     | 863.50-863.54 | 4      |

\*Advance one grade for multiple injuries up to grade III. \*863.41,863.51-ascending;863.42, 863.52-transverse;863.45,863.53-descending; 863.44,863.54-rectum.  
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**Table 16**

| Rectum injury scale |                |  |        |        |
|---------------------|----------------|--|--------|--------|
| Grade*              | Type of injury | Description of injury                                      | ICD-9  | AIS-90 |
| I                   | Hematoma       | Contusion or hematoma without devascularization            | 863.45 | 2      |
|                     | Laceration     | Partial-thickness laceration                               | 863.45 | 2      |
| II                  | Laceration     | Laceration < 50% of circumference                          | 863.55 | 3      |
| III                 | Laceration     | Laceration ≥ 50% of circumference                          | 863.55 | 4      |
| IV                  | Laceration     | Full-thickness laceration with extension into the perineum | 863.55 | 5      |
| V                   | Vascular       | Devascularized segment                                     | 863.55 | 5      |

\*Advance one grade for multiple injuries up to grade III.  
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**Table 17**

| Abdominal vascular injury scale |   |            |                                       |
|---------------------------------|---|------------|---------------------------------------|
| Grade*                          | Description of injury   | ICD-9      | AIS-90                                |
| I                               | Non-named superior mesenteric artery or superior mesenteric vein branches               | 902.20/.39 | NS                                    |
|                                 | Non-named inferior mesenteric artery or inferior mesenteric vein branches               | 902.27/.32 | NS                                    |
|                                 | Phrenic artery or vein  | 902.89     | NS                                    |
|                                 | Lumbar artery or vein   | 902.89     | NS                                    |
|                                 | Gonadal artery or vein  | 902.89     | NS                                    |
|                                 | Ovarian artery or vein  | 902.81/.82 | NS                                    |
|                                 | Other non-named small arterial or venous structures requiring ligation                  | 902.90     | NS                                    |
|                                 | Right, left, or common hepatic artery   | 902.22     | 3                                     |
|                                 | Splenic artery or vein  | 902.23/.34 | 3                                     |
|                                 | Right or left gastric arteries  | 902.21     | 3                                     |
| II                              | Gastroduodenal artery   | 902.24     | 3                                     |
|                                 | Inferior mesenteric artery, or inferior mesenteric vein, trunk                          | 902.27/.32 | 3                                     |
|                                 | Primary named branches of mesenteric artery (e.g., ileocolic artery) or mesenteric vein | 902.26/.31 | 3                                     |
|                                 | Other names abdominal vessels requiring ligation or repair                              | 902.89     | 3                                     |
|                                 | Superior mesenteric vein, trunk   | 902.31     | 3                                     |
|                                 | Renal artery or vein  | 902.41/.42 | 3                                     |
|                                 | Iliac artery or vein  | 902.53/.54 | 3                                     |
|                                 | Hypogastric artery or vein  | 902.51/.52 | 3                                     |
|                                 | Vena cava, infrarenal   | 902.10     | 3                                     |
|                                 | Superior mesenteric artery, trunk   | 902.25     | 3                                     |
| III                             | Celiac axis proper  | 902.24     | 3                                     |
|                                 | Vena cava, suprarenal and infrahepatic  | 902.10     | 3                                     |
|                                 | Aorta, infrarenal   | 902.00     | 4                                     |
|                                 | Portal vein   | 902.33     | 3                                     |
|                                 | Extraparenchymal hepatic vein   | 902.11     | 3 (hepatic vein)<br>5 (liver + veins) |
| IV                              | Vena cava, retrohepatic or suprahepatic   | 902.19     | 5                                     |
|                                 | Aorta suprarenal, subdiaphragmatic  | 902.00     | 4                                     |

\*This classification system is applicable to extraparenchymal vascular injuries. If the vessel injury is within 2 cm of the organ parenchyma, refer to specific organ injury scale. Increase one grade for multiple grade III or IV injuries involving > 50% vessel circumference. Downgrade one grade if <25% vessel circumference laceration for grades IV or V. NS-not scored.  
From Moore et al [2]; with permission



**Table 18**

| Adrenal organ injury scale |   |            |        |  |
|----------------------------|---|------------|--------|--|
| Grade*                     | Description of injury   | ICD-9      | AIS-90 |  |
| I                          | Contusion   | 868.01/.11 | 1      |  |
| II                         | Laceration involving only cortex (<2 cm)  | 868.01/.11 | 1      |  |
| III                        | Laceration extending into medulla (≥ 2 cm)  | 868.01/.11 | 2      |  |
| IV                         | >50% parenchymal destruction  | 868.01/.11 | 2      |  |
| V                          | Total parenchymal destruction (including massive intraparenchymal hemorrhage)<br>Avulsion from blood supply | 868.01/.11 | 3      |  |

\*Advance one grade for bilateral lesions up to grade V  
From Moore et al [1]; with permission

**Table 19**

| Kidney injury scale |                |  |                  |        |
|---------------------|----------------|--|------------------|--------|
| Grade*              | Type of injury | Description of injury  | ICD-9            | AIS-90 |
| I                   | Contusion      | Microscopic or gross hematuria, urologic studies normal  | 866.01           | 2      |
|                     | Hematoma       | Subcapsular, nonexpanding without parenchymal laceration   | 866.11           | 2      |
| II                  | Hematoma       | Nonexpanding perirenal hematoma confirmed to renal retroperitoneum                                   | 866.01<br>866.11 | 2      |
|                     | Laceration     | <1.0 cm parenchymal depth of renal cortex without urinary extravagation                              | 866.02<br>866.12 | 2      |
| III                 | Laceration     | <1.0 cm parenchymal depth of renal cortex without collecting system rupture or urinary extravagation | 866.02           | 3      |
| IV                  | Laceration     | Parenchymal laceration extending through renal cortex, medulla, and collecting system                | 866.12           | 4      |
|                     | Vascular       | Main renal artery or vein injury with contained hemorrhage   |                  | 4      |
| V                   | Laceration     | Completely shattered kidney  | 866.03           | 5      |
|                     | Vascular       | Avulsion of renal hilum which devascularizes kidney  | 866.13           | 5      |

\*Advance one grade for bilateral injuries up to grade III  
From Moore et al. [7]; with permission

**Table 20**

| Ureter injury scale |                |   |             |        |
|---------------------|----------------|---|-------------|--------|
| Grade*              | Type of injury | Description of injury                             | ICD-9       | AIS-90 |
| I                   | Hematoma       | Contusion or hematoma without devascularization   | 867.2/867.3 | 2      |
| II                  | Laceration     | < 50% transection                                 | 867.2/867.3 | 2      |
| III                 | Laceration     | ≥ 50% transection                                 | 867.2/867.3 | 3      |
| IV                  | Laceration     | Complete transection with < 2cm devascularization | 867.2/867.3 | 3      |
| V                   | Laceration     | Avulsion with > 2cm of devascularization          | 867.2/867.3 | 3      |

\*Advance one grade for bilateral up to grade III.  
From Moore et al. [2]; with permission

**Table 21**

| Bladder injury scale |             |  |             |        |
|----------------------|-------------|--|-------------|--------|
| Grade*               | Injury type | Description of injury  | ICD-9       | AIS-90 |
| I                    | Hematoma    | Contusion, intramural hematoma   | 867.0/867.1 | 2      |
|                      | Laceration  | Partial thickness  |             | 3      |
| II                   | Laceration  | Extraperitoneal bladder wall laceration <2 cm  | 867.0/867.1 | 4      |
| III                  | Laceration  | Extraperitoneal (≥2cm) or intraperitoneal (<2cm) bladder wall laceration   | 867.0/867.1 | 4      |
| IV                   | Laceration  | Intraperitoneal bladder wall laceration ≥2cm   | 867.0/867.1 | 4      |
| V                    | Laceration  | Intraperitoneal or extraperitoneal bladder wall laceration extending into the bladder neck or ureteral orifice (trigone) | 867.0/867.1 | 4      |

\*Advance one grade for multiple lesions up to grade III  
From Moore et al. [2]; with permission

**Table 22**

| Urethra injury scale |                     |   |             |        |
|----------------------|---------------------|---|-------------|--------|
| Grade*               | Injury type         | Description of injury   | ICD-9       | AIS-90 |
| I                    | Contusion           | Blood at urethral meatus; retrography normal  | 867.0/867.1 | 2      |
| II                   | Stretch injury      | Elongation of urethra without extravasation on urethrography  | 867.0/867.1 | 2      |
| III                  | Partial disruption  | Extravasation of urethrography contrast at injury site with visualization in the bladder                                | 867.0/867.1 | 2      |
| IV                   | Complete disruption | Extravasation of urethrography contrast at injury site without visualization in the bladder; <2cm of urethra separation | 867.0/867.1 | 3      |
| V                    | Complete disruption | Complete transection with $\geq 2$ cm urethral separation, or extension into the prostate or vagina                     | 867.0/867.1 | 4      |

\*Advance one grade for bilateral injuries up to grade III  
From Moore et al. [2]; with permission

**Table 23**

| Uterus (nonpregnant) injury scale |                                     |          |        |  |
|-----------------------------------|-------------------------------------|----------|--------|--|
| Grade*                            | Description of injury               | ICD-9    | AIS-90 |  |
| I                                 | Contusion/hematoma                  | 867.4/.5 | 2      |  |
| II                                | Superficial laceration (<1 cm)      | 867.4/.5 | 2      |  |
| III                               | Deep laceration ( $\geq 1$ cm)      | 867.4/.5 | 3      |  |
| IV                                | Laceration involving uterine artery | 902.55   | 3      |  |
| V                                 | Avulsion/devascularization          | 867.4/.5 | 3      |  |

\*Advance one grade for multiple injuries up to grade III  
From Moore et al. [5]; with permission

**Table 24**

| Uterus (pregnant) injury scale |   |          |        |  |
|--------------------------------|---|----------|--------|--|
| Grade*                         | Description of injury   | ICD-9    | AIS-90 |  |
| I                              | Contusion or hematoma (without placental abruption)   | 867.4/.5 | 2      |  |
| II                             | Superficial laceration (<1cm) or partial placental abruption <25%                                 | 867.4/.5 | 3      |  |
| III                            | Deep laceration ( $\geq 1$ cm) occurring in second trimester or placental abruption >25% but <50% | 867.4/.5 | 3      |  |
|                                | Deep laceration ( $\geq 1$ cm) in third trimester   |          |        |  |
| IV                             | Laceration involving uterine artery   | 867.4/.5 | 4      |  |
|                                | Deep laceration ( $\geq 1$ cm) with >50% placental abruption                                      | 902.55   | 4      |  |
| V                              | Uterine rupture   | 867.4/.5 | 4      |  |
|                                | Second trimester  | 867.4/.5 | 4      |  |
|                                | Third trimester   | 867.4/.5 | 5      |  |
|                                | Complete placental abruption  | 867.4/.5 | 4-5    |  |

\*Advance one grade for multiple injuries up to grade III  
From Moore et al. [5]; with permission

**Table 25**

| Fallopian tube injury scale |   |          |        |
|-----------------------------|---|----------|--------|
| Grade*                      | Description of injury                   | ICD-9    | AIS-90 |
| I                           | Hematoma or contusion                   | 867.6/.7 | 2      |
| II                          | Laceration <50% circumference           | 867.6/.7 | 2      |
| III                         | Laceration ≥50% circumference           | 867.6/.7 | 2      |
| IV                          | Transection                             | 867.6/.7 | 2      |
| V                           | Vascular injury; devascularized segment | 902.89   | 2      |

\*Advance one grade for bilateral injuries up to grade III  
From Moore et al. [5]; with permission

**Table 26**

| Ovary injury scale |  |          |        |
|--------------------|--|----------|--------|
| Grade*             | Description of injury                        | ICD-9    | AIS-90 |
| I                  | Contusion or hematoma                        | 867.6/.7 | 1      |
| II                 | Superficial laceration (depth <0.5 cm)       | 867.6/.7 | 2      |
| III                | Deep laceration (depth ≥ 0.5 cm)             | 867.8/.7 | 3      |
| IV                 | Partial disruption or blood supply           | 902.81   | 3      |
| V                  | Avulsion or complete parenchymal destruction | 902.81   | 3      |

\*Advance one grade for bilateral injuries up to grade III  
From Moore et al. [5]; with permission

**Table 27**

| Vagina injury scale |  |       |        |
|---------------------|--|-------|--------|
| Grade*              | Description of injury  | ICD-9 | AIS-90 |
| I                   | Contusion or hematoma  | 922.4 | 1      |
| II                  | Laceration, superficial (mucosa only)                        | 878.6 | 1      |
| III                 | Laceration, deep into fat or muscle                          | 878.6 | 2      |
| IV                  | Laceration, complex, into cervix or peritoneum               | 868.7 | 3      |
| V                   | Injury into adjacent organs (anus, rectum, urethra, bladder) | 878.7 | 3      |

\*Advance one grade for multiple injuries up to grade III  
From Moore et al. [5]; with permission

**Table 28**

| Vulva injury scale |  |       |        |
|--------------------|--|-------|--------|
| Grade*             | Description of injury  | ICD-9 | AIS-90 |
| I                  | Contusion or hematoma  | 922.4 | 1      |
| II                 | Laceration, superficial (skin only)                          | 878.4 | 1      |
| III                | Laceration, deep (into fat or muscle)                        | 878.4 | 2      |
| IV                 | Avulsion; skin, fat or muscle                                | 878.5 | 3      |
| V                  | Injury into adjacent organs (anus, rectum, urethra, bladder) | 878.5 | 3      |

\*Advance one grade for multiple injuries up to grade III  
From Moore et al. [5]; with permission

**Table 29**

| Testis injury scale |   |             |        |
|---------------------|---|-------------|--------|
| Grade*              | Description of injury   | ICD-9       | AIS-90 |
| I                   | Contusion/hematoma  | 911.0/922.4 | 1      |
| II                  | Subclinical laceration of tunica albuginea                            | 922.4       | 1      |
| III                 | Laceration of tunica albuginea with <50% parenchymal loss             | 878.2       | 2      |
| IV                  | Major laceration of tunica albuginea with $\geq$ 50% parenchymal loss | 878.3       | 2      |
| V                   | Total testicular destruction or avulsion                              | 878.3       | 2      |

\*Advance one grade for bilateral lesions up to grade V  
From Moore et al [1]; with permission

**Table 30**

| Scrotum injury scale |   |       |        |
|----------------------|---|-------|--------|
| Grade                | Description of injury                     | ICD-9 | AIS-90 |
| I                    | Contusion                                 | 922.4 | 1      |
| II                   | Laceration <25% of scrotal diameter       | 878.2 | 1      |
| III                  | Laceration $\geq$ 25% of scrotal diameter | 878.3 | 2      |
| IV                   | Avulsion <50%                             | 878.3 | 2      |
| V                    | Avulsion $\geq$ 50%                       | 878.3 | 2      |

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**Table 31**

| Penis injury scale |   |             |        |
|--------------------|---|-------------|--------|
| Grade*             | Description of injury                                     | ICD-9       | AIS-90 |
| I                  | Cutaneous laceration/contusion                            | 911.0-922.4 | 1      |
| II                 | Buck's fascia (cavernosum) laceration without tissue loss | 878.0       | 1      |
| III                | Cutaneous avulsion  | 878.1       | 3      |
|                    | Laceration through glans/meatus                           |             |        |
| IV                 | Cavemosal or urethral defect <2cm                         |             |        |
|                    | Partial penectomy   | 878.1       | 3      |
| V                  | Cavarnosal or urethral defect $\geq$ 2 cm                 |             |        |
|                    | Total penectomy   | 876.1       | 3      |

\*Advance one grade for multiple injuries up to grade III  
From Moore et al. [1]; with permission

**Table 32**

| Peripheral vascular organ injury scale |                                    |               |        |
|--|------------------------------------|---------------|--------|
| Grade*                                 | Description of injury              | ICD-9         | AIS-90 |
| I                                      | Digital artery/vein                | 903.5         | 1-3    |
|  | Palmar artery/vein                 | 903.4         | 1-3    |
|  | Deep palmar artery/vein            | 904.6         | 1-3    |
|  | Dorsal/plantar artery              | 904.7         | 1-3    |
|  | Plantar artery/vein                | 904.5         | 1-3    |
|  | Non-named arterial/venous branches | 903.8/904.7   | 1-3    |
| II                                     | Basilic/cephalic vein              | 903.8         | 1-3    |
|  | Saphenous vein                     | 904.3         | 1-3    |
|  | Radial artery                      | 903.2         | 1-3    |
|  | Ulnar artery                       | 903.3         | 1-3    |
| III                                    | Axillary vein                      | 903.02        | 2-3    |
|  | Superficial/deep femoral vein      | 903.02        | 2-3    |
|  | Popliteal vein                     | 904.42        | 2-3    |
|  | Brachial artery                    | 903.1         | 2-3    |
|  | Anterior tibial artery             | 904.51/904.52 | 1-3    |
|  | Posterior tibial artery            | 904.53/904.54 | 1-3    |
|  | Peroneal artery                    | 904.7         | 1-3    |
|  | Tibioperoneal trunk                | 904.7         | 2-3    |
| IV                                     | Superficial/deep femoral artery    | 904.1/904.7   | 3-4    |
|  | Popliteal artery                   | 904.41        | 2-3    |
| V                                      | Axillary artery                    | 903.01        | 2-3    |
|  | Common femoral artery              | 904.0         | 3-4    |

\*Increase one grade for multiple grade III or IV injuries involving >50% vessel circumference. Decrease one grade for < 25% vessel circumference disruption for grades IV or V

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