

Table I. The Borell Injury Diagnosis Matrix based on ICD-9-CM codes for classification by body region and nature of the injury

Body region of injury		International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM) codes	Fracture 800-829	Dislocation 830-839	Sprains and strains 840-848	
Head and neck	Traumatic brain injury	Type 1 TBI	[800,801,803,804](1-4,.6-9,.03-.05,.53-.55), 850(2-4), 851-854, 950(1-3), 995.55	[800,801,803,804](1-4,.6-9,.03-.05,.53-.55)	...	...
		Type 2 TBI	[800,801,803,804](.00,.02,.06,.09,.50,.52,.56,.59), 850(0-1,.5,.9)	[800,801,803,804](.00,.02,.06,.09,.50,.52,.56,.59)	...	...
		Type 3 TBI	[800,801,803,804](.01,.51)	[800,801,803,804](.01,.51)	...	...
	Other head, face, and neck	Other head	873(0-1,.8-9), 941.x6, 951, 959.01	...	...	...
		Face	802, 830, 848(0-1), 872, 873(2-7), 941(x1,.x3-.x5,.x7)	802	830	848(0-1)
		Eye	870-871, 918, 921, 940, 941.x2, 950(0,9)	...	...	...
		Neck	807(5-6), 848.2, 874, 925.2, 941.x8, 953.0, 954.0	807(5-6)	...	848.2
		Head, face, and neck unspecified	900, 910, 920, 925.1, 941(x0,.x9), 947.0, 957.0, 959.09	...	...	...
Spine and back	Spinal cord (SCI)	Cervical SCI	806(0-1), 952.0	806(0-1)	...	...
		Thoracic or dorsal SCI	806(2-3), 952.1	806(2-3)	...	...
		Lumbar SCI	806(4-5), 952.2	806(4-5)	...	...
		Sacrum coccyx SCI	806(6-7), 952(3-4)	806(6-7)	...	...
		Spine and back unspecified SCI	806(8-9), 952(8-9)	806(8-9)	...	...
	Vertebral column (VCI)	Cervical VCI	805(0-1), 839(0-1), 847.0	805(0-1)	839(0-1)	847.0
		Thoracic or dorsal VCI	805(2-3), 839(21,.31), 847.1	805(2-3)	839(21,.31)	847.1
		Lumbar VCI	805(4-5), 839(20,.30), 847.2	805(4-5)	839(20,.30)	847.2
		Sacrum Coccyx VCI	805(6-7), 839(41-42,.51-52), 847(3-4)	805(6-7)	839(41-42,.51-52)	847(3-4)
		Spine and back unspecified VCI	805(8-9), 839(40,.49,.50,.59)	805(8-9)	839(40,.49,.50,.59)	...
Torso	Torso	Chest (thorax)	807(0-4), 839(.61,.71), 848(3-4), 860-862, 875, 879(0-1), 901, 922(0-1,.33), 926.19, 942(x1-x2), 953.1	807(0-4)	839(.61,.71)	848(3-4)
		Abdomen	863-866, 868, 879(2-5), 902(0-4), 922.2, 942.x3, 947.3, 953(2,.5)	...	...	...
		Pelvis and urogenital	808, 839(.69,.79), 846, 848.5, 867, 877-878, 902(5,.81-82), 922.4, 926(0,.12), 942.x5, 947.4, 953.3	808	839(.69,.79)	846, 848.5
		Trunk	809, 879(.6-7), 911, 922(8-9), 926(8-9), 942(x0,.x9), 954(1,.8-9), 959.1	809	...	...
		Back and buttock	847.9, 876, 922(.31-.32), 926.11, 942.x4	...	...	847.9
Extremities	Upper	Shoulder and upper arm	810-812, 831, 840, 880, 887(2-3), 912, 923.0, 927.0, 943(x3-x6), 959.2	810-812	831	840
		Forearm and elbow	813, 832, 841, 881(x0-x1), 887(0-1), 923.1, 927.1, 943(x1-x2)	813	832	841
		Wrist, hand, and fingers	814-817, 833-834, 842, 881.x2, 882, 883, 885-886, 914-915, 923(2-3), 927(2-3), 944, 959(4-5)	814-817	833, 834	842
		Other and unspecified	818, 884, 887(4-7), 903, 913, 923(8-9), 927(8-9), 943(x0,.x9), 953.4, 955, 959.3	818	...	...
	Lower	Hip	820, 835, 843, 924.01, 928.01	820	835	843
		Upper leg and thigh	821, 897(2-3), 924.00, 928.00, 945.x6	821	...	...
		Knee	822, 836, 844(0-3), 924.11, 928.11, 945.x5	822	836	844(0-3)
		Lower leg and ankle	823-824, 837, 845.0, 897(0-1), 924(10,.21), 928(10,.21), 945(x3-x4)	823-824	837	845.0
		Foot and toes	825-826, 838, 845.1, 892-893, 895-896, 917, 924(.3,.20), 928(.3,.20), 945(x1-x2)	825-826	838	845.1
		Other and unspecified	827, 844(8-9), 890-891, 894, 897(4-7), 904(0-8), 916, 924(4-5), 928(8-9), 945(x0,.x9), 959(6-7)	827	...	844(8-9)
Unclassifiable by site	Other and unspecified site	Other or multiple	819, 828, 902(.87,.89), 947(1-2), 953.8, 956	819, 828	...	...
		Unspecified site	829, 839(8-9), 848(8-9), 869, 879(8-9), 902.9, 904.9, 919, 924(8-9), 929, 946, 947(8-9), 948, 949, 953.9, 957(1.1-8-9), 959(8-9)	829	839(8-9)	848(8-9)
	System-wide	System-wide and late effects	905-908, 909(0-2,.4,.9), 930-939, 958, 960-994, 995(.50-.54,.59,.80-.85)			

See footnotes at end of table.

Table I. The Barell Injury Diagnosis Matrix based on ICD-9-CM codes for classification by body region and nature of the injury—Con.

Body region of injury		Internal 850–854,860–869, 952, 995.55	Open Wound 870–884, 890–894	Amputations 885–887, 895–897	Blood vessels 900–904	Contusion or superficial 910–924	Crush 925–929	Burns 940–949	Nerves 950–951, 953–957	Unspecified 959	
Head and neck	Traumatic brain injury	Type 1 TBI 850(.2–.4), 851–854†, 995.55	...	...	...	...	...	...	950(.1–.3)	...
		Type 2 TBI 850(.0–.1,.5,.9)	...	...	...	...	...	...	...	...
		Type 3 TBI ...	...	...	...	...	...	...	...	...
		Other head ...	873(.0–.1,.8–.9)	...	...	...	...	941.x6	951	959.01†
		Face ...	872, 873(.2–.7)	...	...	...	...	941(.x1,.x3–.x5,.x7)	...	...
		Eye ...	870–871	...	...	918, 921	...	940, 941.x2	950(.0,.9)	...
		Neck ...	874	...	...	...	925.2	941.x8	953.0, 954.0	...
		Head, face, and neck unspecified	900	910, 920	925.1	941(.x0,.x9), 947.0	957.0	959.09
Spine and back	Spinal cord (SCI)	Cervical SCI	952.0	...	...	...	...	...	...	...
		Thoracic or dorsal SCI	952.1	...	...	...	...	...	...	...
		Lumbar SCI	952.2	...	...	...	...	...	...	...
		Sacrum coccyx SCI	952(.3–.4)	...	...	...	...	...	...	...
		Spine and back unspecified SCI	952(.8–.9)	...	...	...	...	...	...	...
	Vertebral column (VCI)	Cervical VCI	...	...	...	...	...	...	...	...
		Thoracic or dorsal VCI	...	...	...	...	...	...	...	...
		Lumbar VCI	...	...	...	...	...	...	...	...
Sacrum Coccyx VCI		...	...	...	...	...	...	...	...
	Spine and back unspecified VCI	...	...	...	...	...	...	...	...
Torso	Torso	Chest (thorax)	860–862	875, 879(.0–.1)	...	901	922(.0–.1,.33)	926.19	942(.x1–.x2)	953.1	...
		Abdomen	863–866, 868	879(.2–.5)	...	902(.0–.4)	922.2	...	942.x3, 947.3	953(.2,.5)	...
		Pelvis and urogenital	867	877–878	...	902(.5, .81–.82)	922.4	926(.0, .12)	942.x5, 947.4	953.3	...
		Trunk	...	879(.6–.7)	911, 922(.8–.9)	926(.8–.9)	942.x0, 942.x9	954(.1, .8–.9)	959.1
		Back and buttock	...	876	922(.31–.32)	926.11	942.x4
Extremities	Upper	Shoulder and upper arm	...	880	887(.2–.3)	...	912, 923.0	927.0	943(.x3–.x6)	...	959.2
		Forearm and elbow	...	881(.x0–x1)	887(.0–.1)	...	923.1	927.1	943(.x1–.x2)
		Wrist, hand, and fingers	...	881.x2,882, 883	885–886	...	914–915, 923(.2–.3)	927(.2–.3)	944	...	959(.4–.5)
		Other and unspecified	...	884	887(.4–.7)	903	913,923(.8–.9)	927(.8–.9)	943(.x0,.x9)	953.4, 955	959.3
	Lower	Hip	924.01	928.01
		Upper leg and thigh	897(.2–.3)	...	924.00	928.00	945.x6
		Knee	924.11	928.11	945.x5
		Lower leg and ankle	897(.0–.1)	...	924(.10,.21)	928(.10,.21)	945(.x3–.x4)
		Foot and toes	...	892–893	895–896	...	917, 924(.3,.20)	928(.3,.20)	945(.x1–.x2)
		Other and unspecified	...	890–891,894	897(.4–.7)	904(.0–.8)	916, 924(.4–.5)	928(.8–.9)	945(.x0,.x9)	...	959(.6–.7)
Unclassifiable by site	Other and unspecified	Other or multiple	902(.87,.89)	947(.1–.2)	953.8, 956	...
	Unspecified site	869	879(.8–.9)	...	902.9, 904.9	919, 924(.8–.9)	929	946, 947(.8–.9) 948, 949	953.9, 957(.1,.8–.9)	959(.8–.9)	
System- wide	System-wide and late effects	Foreign body (930–939), Early complications of trauma (958), Poisoning (960–979), Toxic Effects (980–989), Other and unspecified effects of external cause (990–994), Child and adult maltreatment (995(.50–.54, .59, .80–.85)). Late effects of injuries, poisonings, toxic effects and other external causes (905–909) excluding 909(.3, .5)									

... Category not applicable (no code in cell).

†According to the CDC, 959.01 (added to ICD-9-CM in 1997) is not intended to be assigned to TBI cases; however, in the United States, it has been assigned incorrectly to a substantial proportion of cases previously coded 854.

NOTES: When a set of additional digits are required for International Classification of Diseases codes, the additional digits are in parentheses () and apply to the preceding code or preceding range of codes in brackets []. Special diagnostic codes for trauma are Flail Chest (807.4) and Pneumothorax (860). For purposes of classification, head injuries are labeled as "Type 1 TBI" if there is recorded evidence of an intracranial injury or a moderate or prolonged loss of consciousness (LOC), Shaken Infant Syndrome (SIS), or injuries to the optic nerve pathways. Type 2 TBI includes injuries with no recorded evidence of intracranial injury, and LOC of less than one hour, or LOC of unknown duration, or unspecified level of consciousness. Type 3 TBI includes patients with no evidence of intracranial injury and no LOC.

SOURCE: Barell V, Aharonson-Daniel L, Fingerhut LA, Mackenzie EJ, et al. An introduction to the Barell body region by nature of injury diagnosis matrix. *Inj Prev* 8(2):91–6. 2002.