**Table 3.1.1:** Prevalence of Spinal Deformity Disorders by Gender, United States, Summary Years 2008-2011

	Preva	lence (in 000s)		% of To	tal
	Total	Male	Female	Male	Femal
Hospital Discharges, 2011 [1]	Total Number of Ho	spital Discharges fo	r Spinal		
Curvature of spine	Deformity Disorders 229.1	61.3	167.6	27%	739
Idiopathic	155.9	38.8	116.9	25%	759
Acquired	66.0	20.6	45.4	31%	699
Secondary	10.5	*	7.7	27%	739
Spondylolisthesis	146.1	53.9	92.2	37%	639
Spinal fractures	334.3	137.8	196.3	41%	599
Vertebral compression fractures	324.1	130.6	193.4	40%	609
Traumatic fractures	12.4	8.6	3.7	69%	309
Spinal infection	91.9	48.1	43.7 *	52% *	489
Tuberculosis of spine Unspecified tuberculosis	0.0	*	*	*	
Intraspinal abscess	16.6	10.0	6.6	60%	409
Acute osteomylitis	8.3	4.6	*	55%	459
Chronic osteomylitis	11.4	6.6	4.8	58%	429
Discitis	64.8	32.8	32.0	51%	499
Complications of surgery	58.7	28.0	30.6	48%	529
Spondylopathies	350.8	171.3	179.2	49%	519
All Spinal Deformity Disorders (3)	1,141.7	474.5	666.4	42%	589
Rate Per 100 Patient Visits	3.0	2.9	3.0		
Diagnoses Per 100 U.S. Population [4]	0.4	0.3	0.4		
mergency Department Visits, 2010 [2]	Total Number of Em for Spinal Deformity		nt Visits		
Curvature of spine	247.2	65.2	182.0	26%	74
Idiopathic	199.8	52.2	147.6	26%	74
Acquired	41.1	11.4	29.7	28%	72
Secondary	8.1	2.0	6.1	25%	75
Spondylolisthesis	39.3	14.1	25.2	36%	64
Spinal fractures	461.0	198.0	262.9	43%	57
Vertebral compression fractures	448.8	189.7	259.0	42%	58
Traumatic fractures Spinal infection	14.7 93.1	10.0 45.8	4.6 47.3	68% 49%	31 <sup>1</sup>
Tuberculosis of spine	0.6	0.2	0.4	33%	67
Unspecified tuberculosis	*	*	*	*	07
Intraspinal abscess	9.3	5.7	3.6	61%	39
Acute osteomylitis	5.0	2.7	2.3	54%	46
Chronic osteomylitis	7.5	4.6	2.9	61%	39
Discitis	75.2	35.4	39.8	47%	53
Complications of surgery	47.6	24.2	23.4	51%	49
Spondylopathies	1,638.0	674.4	963.5	41%	59
All Spinal Deformity Disorders (3)	2,476.5	1,003.0	1,473.3	41%	59
Rate Per 100 Patient Visits Diagnoses Per 100 U.S. Population [4]	1.9 0.8	1.7 0.7	2.1 0.9		
Diagnoses Fer 100 0.5.1 Optilation [4]	0.0	0.7	0.5		
lospital Outpatient Visits, Annual Average 2008-2010 [3]	Total Number of O for Spinal D	utpatient Departm Deformity Disorders			
Curvature of spine	214.4	54.0	160.4	25%	75
Idiopathic	186.7	49.5	137.2	27%	73
Acquired	17.1	*	*	*	
Secondary	*	*	*	*	
Spondylolisthesis	42.5	*	*	*	
Spinal fractures	76.0	35.3	40.7	46%	54
Vertebral compression fractures	76.0 *	35.3	40.6 *	46% *	53
Traumatic fractures					42
Spinal infection  Tuberculosis of spine	93.9	53.4	40.6 *	57% *	43
Unspecified tuberculosis	0.0	*	*	*	
Intraspinal abscess	0.0	*	*	*	
Acute osteomylitis	*	*	*	*	
Chronic osteomylitis	7.6	*	*	*	
Discitis	81.5	45.4	36.1	56%	44
Complications of surgery	10.5	*	*	*	
Spondylopathies	578.5	224.6	353.9	39%	61
Il Spinal Deformity Disorders (5)	795.7	330.1	465.6	41%	59
		0.0	0.0		
Rate Per 100 Patient Visits Diagnoses Per 100 U.S. Population [6]	0.8 0.3	0.8 0.2	0.8		

	Preva	lence (in 000s)		% of To	
	<u>Total</u>	Male	Female	Male	Femal
hysician Office Visits, Annual Average 2008-2010 [4]	Total Number of Physician Visits for Spinal Deformity Disorders				
Curvature of spine	1,582.8	415.3	1,167.5	26%	749
Idiopathic	1,268.9	*	950.7	25%	75
Acquired	*	*	*	26%	74
Secondary	*	*	*	35%	65
Spondylolisthesis	550.8	*	*	29%	71
Spinal fractures	*	*	*	29%	71
Vertebral compression fractures	*	*	*	13%	87
Traumatic fractures	*	*	*	76%	24
Spinal infection	1,592.6	717.0	875.7	45%	55
Tuberculosis of spine	0.0	0.0	0.0	0%	0
Unspecified tuberculosis	0.0	0.0	0.0	0%	0
Intraspinal abscess	0.0	0.0	0.0	0%	Ċ
Acute osteomylitis	*	*	*	0%	100
Chronic osteomylitis	*	*	*	71%	28
Discitis	1,558.1	698.9	859.2	45%	55
Complications of surgery	*	*	*	50%	50
Spondylopathies	8,422.8	3,392.4	5,030.4	40%	60
Spinal Deformity Disorders (5)	12,178.5	4,731.1	7,447.3	39%	61
Spirial Deformity Districts (3)	12,170.5	4,/31.1	7,447.3	39%	0.
	1.3	1.1	1.2		
Rate Per 100 Patient Visits Diagnoses Per 100 U.S. Population [6]	1.2 3.9	1.1 3.1	1.3 4.7		
Rate Per 100 Patient Visits Diagnoses Per 100 U.S. Population [6]	3.9 Total Number of	3.1 Health Care Visits f	4.7 for Spinal		
Rate Per 100 Patient Visits Diagnoses Per 100 U.S. Population [6] otal Health Care Visits for Spinal Deformity Disorders	3.9 Total Number of Deformity	3.1 Health Care Visits f Disorders (in 000s	4.7 for Spinal	260	7.
Rate Per 100 Patient Visits Diagnoses Per 100 U.S. Population [6]  otal Health Care Visits for Spinal Deformity Disorders  Curvature of spine	Total Number of Deformity 2,273.5	3.1 Health Care Visits f Disorders (in 000s 595.8	4.7 for Spinal ) 1,677.5	26%	
Rate Per 100 Patient Visits Diagnoses Per 100 U.S. Population [6]  otal Health Care Visits for Spinal Deformity Disorders  Curvature of spine Idiopathic	3.9  Total Number of Deformity 2,273.5 1,811.3	3.1 Health Care Visits f Disorders (in 000s 595.8 458.7	4.7  for Spinal )  1,677.5 1,352.4	25%	75
Rate Per 100 Patient Visits Diagnoses Per 100 U.S. Population [6]  Ital Health Care Visits for Spinal Deformity Disorders  Curvature of spine Idiopathic Acquired	3.9  Total Number of Deformity 2,273.5 1,811.3 419.0	3.1  Health Care Visits f Disorders (in 000s 595.8 458.7 114.3	4.7  for Spinal ) 1,677.5 1,352.4 304.7	25% 27%	75 73
Rate Per 100 Patient Visits Diagnoses Per 100 U.S. Population [6]  otal Health Care Visits for Spinal Deformity Disorders  Curvature of spine Idiopathic Acquired Secondary	3.9  Total Number of Deformity 2,273.5 1,811.3 419.0 83.8	3.1  Health Care Visits f Disorders (in 000s 595.8 458.7 114.3 24.1	4.7  or Spinal )  1,677.5 1,352.4 304.7 59.7	25% 27% 29%	75 73 71
Rate Per 100 Patient Visits Diagnoses Per 100 U.S. Population [6]  otal Health Care Visits for Spinal Deformity Disorders  Curvature of spine Idiopathic Acquired Secondary Spondylolisthesis	3.9  Total Number of Deformity  2,273.5  1,811.3  419.0  83.8  778.7	3.1  Health Care Visits f Disorders (in 000s  595.8  458.7  114.3  24.1  242.9	4.7  or Spinal )  1,677.5 1,352.4 304.7 59.7 535.8	25% 27% 29% 31%	75 73 71 69
Rate Per 100 Patient Visits Diagnoses Per 100 U.S. Population [6]  otal Health Care Visits for Spinal Deformity Disorders  Curvature of spine Idiopathic Acquired Secondary Spondylolisthesis Spinal fractures	3.9  Total Number of Deformity 2,273.5 1,811.3 419.0 83.8 778.7 933.0	3.1  Health Care Visits f Disorders (in 000s 595.8 458.7 114.3 24.1 242.9 388.7	4.7  or Spinal )  1,677.5 1,352.4 304.7 59.7 535.8 544.0	25% 27% 29% 31% 42%	75 73 71 69 58
Rate Per 100 Patient Visits Diagnoses Per 100 U.S. Population [6]  otal Health Care Visits for Spinal Deformity Disorders  Curvature of spine Idiopathic Acquired Secondary Spondylolisthesis Spinal fractures Vertebral compression fractures	3.9  Total Number of Deformity 2,273.5 1,811.3 419.0 83.8 778.7 933.0 895.4	3.1  Health Care Visits f Disorders (in 000s  595.8 458.7 114.3 24.1 242.9 388.7 361.6	4.7  or Spinal )  1,677.5 1,352.4 304.7 59.7 535.8 544.0 533.5	25% 27% 29% 31% 42% 40%	75 73 71 69 58
Rate Per 100 Patient Visits Diagnoses Per 100 U.S. Population [6]  Otal Health Care Visits for Spinal Deformity Disorders  Curvature of spine Idiopathic Acquired Secondary Spondylolisthesis Spinal fractures Vertebral compression fractures Traumatic fractures	3.9  Total Number of Deformity  2,273.5 1,811.3 419.0 83.8 778.7 933.0 895.4 42.4	3.1  Health Care Visits f Disorders (in 000s  595.8 458.7 114.3 24.1 242.9 388.7 361.6 30.2	4.7  1,677.5 1,352.4 304.7 59.7 535.8 544.0 533.5 12.0	25% 27% 29% 31% 42% 40% 71%	75 73 71 69 58 60 28
Rate Per 100 Patient Visits Diagnoses Per 100 U.S. Population [6]  Otal Health Care Visits for Spinal Deformity Disorders  Curvature of spine Idiopathic Acquired Secondary Spondylolisthesis Spinal fractures Vertebral compression fractures Traumatic fractures Spinal infection	3.9  Total Number of Deformity  2,273.5 1,811.3 419.0 83.8 778.7 933.0 895.4 42.4 1,871.5	3.1  Health Care Visits f Disorders (in 000s  595.8  458.7  114.3  24.1  242.9  388.7  361.6  30.2  864.3	4.7  1,677.5 1,352.4 304.7 59.7 535.8 544.0 533.5 12.0 1,007.3	25% 27% 29% 31% 42% 40% 71% 46%	75 73 71 69 58 60 28
Rate Per 100 Patient Visits Diagnoses Per 100 U.S. Population [6]  Otal Health Care Visits for Spinal Deformity Disorders  Curvature of spine Idiopathic Acquired Secondary Spondylolisthesis Spinal fractures Vertebral compression fractures Traumatic fractures Spinal infection Tuberculosis of spine	3.9  Total Number of Deformity 2,273.5 1,811.3 419.0 83.8 778.7 933.0 895.4 42.4 1,871.5 4.7	3.1  Health Care Visits f Disorders (in 000s  595.8  458.7  114.3  24.1  242.9  388.7  361.6  30.2  864.3  3.8	4.7  1,677.5 1,352.4 304.7 59.7 535.8 544.0 533.5 12.0 1,007.3 1.0	25% 27% 29% 31% 42% 40% 71% 46% 81%	75 73 71 69 58 60 28
Rate Per 100 Patient Visits Diagnoses Per 100 U.S. Population [6]  Otal Health Care Visits for Spinal Deformity Disorders  Curvature of spine Idiopathic Acquired Secondary Spondylolisthesis Spinal fractures Vertebral compression fractures Traumatic fractures Spinal infection Tuberculosis of spine Unspecified tuberculosis	3.9  Total Number of Deformity 2,273.5 1,811.3 419.0 83.8 778.7 933.0 895.4 42.4 1,871.5 4.7 0.0	3.1  Health Care Visits f Disorders (in 000s  595.8  458.7  114.3  24.1  242.9  388.7  361.6  30.2  864.3  3.8  0.0	4.7  1,677.5 1,352.4 304.7 59.7 535.8 544.0 533.5 12.0 1,007.3 0.0	25% 27% 29% 31% 42% 40% 71% 46% 81%	75 73 71 69 58 60 28 54 21
Rate Per 100 Patient Visits Diagnoses Per 100 U.S. Population [6]  Stal Health Care Visits for Spinal Deformity Disorders  Curvature of spine Idiopathic Acquired Secondary Spondylolisthesis Spinal fractures Vertebral compression fractures Traumatic fractures Spinal infection Tuberculosis of spine Unspecified tuberculosis Intraspinal abscess	3.9  Total Number of Deformity 2,273.5 1,811.3 419.0 83.8 778.7 933.0 895.4 42.4 1,871.5 4.7 0.0 25.9	3.1  Health Care Visits f Disorders (in 000s  595.8  458.7  114.3  24.1  242.9  388.7  361.6  30.2  864.3  3.8  0.0  15.7	4.7  1,677.5 1,352.4 304.7 59.7 535.8 544.0 533.5 12.0 1,007.3 1.0 0.0 10.2	25% 27% 29% 31% 42% 40% 71% 46% 81% *	75 73 71 69 58 60 28 54 21
Rate Per 100 Patient Visits Diagnoses Per 100 U.S. Population [6]  Stal Health Care Visits for Spinal Deformity Disorders  Curvature of spine Idiopathic Acquired Secondary Spondylolisthesis Spinal fractures Vertebral compression fractures Traumatic fractures Spinal infection Tuberculosis of spine Unspecified tuberculosis Intraspinal abscess Acute osteomylitis	3.9  Total Number of Deformity 2,273.5 1,811.3 419.0 83.8 778.7 933.0 895.4 42.4 1,871.5 4.7 0.0 25.9 23.9	3.1  Health Care Visits f Disorders (in 000s  595.8  458.7  114.3  24.1  242.9  388.7  361.6  30.2  864.3  3.8  0.0  15.7  8.1	4.7  1,677.5 1,352.4 304.7 59.7 535.8 544.0 533.5 12.0 1,007.3 1.0 0.0 10.2 15.8	25% 27% 29% 31% 42% 40% 71% 46% 81% * 61% 34%	75 73 71 69 58 60 28 54 21
Rate Per 100 Patient Visits Diagnoses Per 100 U.S. Population [6]  Intal Health Care Visits for Spinal Deformity Disorders  Curvature of spine Idiopathic Acquired Secondary Spondylolisthesis Spinal fractures Vertebral compression fractures Traumatic fractures Spinal infection Tuberculosis of spine Unspecified tuberculosis Intraspinal abscess Acute osteomylitis Chronic osteomylitis	3.9  Total Number of Deformity 2,273.5 1,811.3 419.0 83.8 778.7 933.0 895.4 42.4 1,871.5 4.7 0.0 25.9 23.9 51.8	3.1  Health Care Visits for Disorders (in 000s)  595.8  458.7  114.3  24.1  242.9  388.7  361.6  30.2  864.3  3.8  0.0  15.7  8.1  33.1	4.7  1,677.5 1,352.4 304.7 59.7 535.8 544.0 533.5 12.0 1,007.3 1.0 0.0 10.2	25% 27% 29% 31% 42% 40% 71% 46% 81% *	75 73 71 69 58 60 28 54 21
Rate Per 100 Patient Visits Diagnoses Per 100 U.S. Population [6]  Otal Health Care Visits for Spinal Deformity Disorders  Curvature of spine Idiopathic Acquired Secondary Spondylolisthesis Spinal fractures Vertebral compression fractures Traumatic fractures Spinal infection Tuberculosis of spine Unspecified tuberculosis Intraspinal abscess Acute osteomylitis	3.9  Total Number of Deformity 2,273.5 1,811.3 419.0 83.8 778.7 933.0 895.4 42.4 1,871.5 4.7 0.0 25.9 23.9	3.1  Health Care Visits for Disorders (in 000s)  595.8  458.7  114.3  24.1  242.9  388.7  361.6  30.2  864.3  3.8  0.0  15.7  8.1  33.1  812.5	4.7  1,677.5 1,352.4 304.7 59.7 535.8 544.0 533.5 12.0 1,007.3 1.0 0.0 10.2 15.8	25% 27% 29% 31% 42% 40% 71% 46% 81% * 61% 34% 64% 46%	75 73 71 69 58 60 28 54 21 39 66 36
Rate Per 100 Patient Visits Diagnoses Per 100 U.S. Population [6]  otal Health Care Visits for Spinal Deformity Disorders  Curvature of spine Idiopathic Acquired Secondary Spondylolisthesis Spinal fractures Vertebral compression fractures Traumatic fractures Spinal infection Tuberculosis of spine Unspecified tuberculosis Intraspinal abscess Acute osteomylitis Chronic osteomylitis	3.9  Total Number of Deformity 2,273.5 1,811.3 419.0 83.8 778.7 933.0 895.4 42.4 1,871.5 4.7 0.0 25.9 23.9 51.8	3.1  Health Care Visits for Disorders (in 000s)  595.8  458.7  114.3  24.1  242.9  388.7  361.6  30.2  864.3  3.8  0.0  15.7  8.1  33.1	4.7  1,677.5 1,352.4 304.7 59.7 535.8 544.0 533.5 12.0 1,007.3 1.0 0.0 10.2 15.8 18.6	25% 27% 29% 31% 42% 40% 71% 46% 81% * 61% 34% 64%	75 73 71 69 58 60 28 54 21 39 66 36 54
Rate Per 100 Patient Visits Diagnoses Per 100 U.S. Population [6]  Otal Health Care Visits for Spinal Deformity Disorders  Curvature of spine Idiopathic Acquired Secondary Spondylolisthesis Spinal fractures Vertebral compression fractures Traumatic fractures Spinal infection Tuberculosis of spine Unspecified tuberculosis Intraspinal abscess Acute osteomylitis Chronic osteomylitis Discitis	3.9  Total Number of Deformity 2,273.5 1,811.3 419.0 83.8 778.7 933.0 895.4 42.4 1,871.5 4.7 0.0 25.9 23.9 51.8 1,779.6	3.1  Health Care Visits for Disorders (in 000s)  595.8  458.7  114.3  24.1  242.9  388.7  361.6  30.2  864.3  3.8  0.0  15.7  8.1  33.1  812.5	4.7  1,677.5 1,352.4 304.7 59.7 535.8 544.0 533.5 12.0 1,007.3 1.0 0.0 10.2 15.8 18.6 967.1	25% 27% 29% 31% 42% 40% 71% 46% 81% * 61% 34% 64% 46%	75 73 71 69 58 60 28 54 21 39 66 36 54
Rate Per 100 Patient Visits Diagnoses Per 100 U.S. Population [6]  Otal Health Care Visits for Spinal Deformity Disorders  Curvature of spine Idiopathic Acquired Secondary Spondylolisthesis Spinal fractures Vertebral compression fractures Traumatic fractures Spinal infection Tuberculosis of spine Unspecified tuberculosis Intraspinal abscess Acute osteomylitis Chronic osteomylitis Discitis  Complications of surgery Spondylopathies	3.9  Total Number of Deformity  2,273.5  1,811.3  419.0  83.8  778.7  933.0  895.4  42.4  1,871.5  4.7  0.0  25.9  23.9  51.8  1,779.6  261.9	3.1  Health Care Visits f Disorders (in 000s  595.8  458.7  114.3  24.1  242.9  388.7  361.6  30.2  864.3  3.8  0.0  15.7  8.1  33.1  812.5  130.2	4.7  or Spinal  1,677.5  1,352.4  304.7  59.7  535.8  544.0  533.5  12.0  1,007.3  1.0  0.0  10.2  15.8  18.6  967.1  131.6	25% 27% 29% 31% 42% 40% 71% 46% 81% * 61% 34% 64% 46% 50%	75 73 71 69 58 60 28 54 21 39 66 36 54 50
Rate Per 100 Patient Visits Diagnoses Per 100 U.S. Population [6]  otal Health Care Visits for Spinal Deformity Disorders  Curvature of spine Idiopathic Acquired Secondary Spondylolisthesis Spinal fractures Vertebral compression fractures Traumatic fractures Spinal infection Tuberculosis of spine Unspecified tuberculosis Intraspinal abscess Acute osteomylitis Chronic osteomylitis Discitis Complications of surgery	3.9  Total Number of Deformity  2,273.5  1,811.3  419.0  83.8  778.7  933.0  895.4  42.4  1,871.5  4.7  0.0  25.9  23.9  51.8  1,779.6  261.9  10,990.1	3.1  Health Care Visits f Disorders (in 000s  595.8  458.7  114.3  24.1  242.9  388.7  361.6  30.2  864.3  3.8  0.0  15.7  8.1  33.1  812.5  130.2  4,462.7	4.7  or Spinal )  1,677.5 1,352.4 304.7 59.7 535.8 544.0 533.5 12.0 1,007.3 1.0 0.0 10.2 15.8 18.6 967.1 131.6 6,527.0	25% 27% 29% 31% 42% 40% 71% 46% 81% 461% 34% 64% 46% 50% 41%	74 75 73 71 69 58 60 28 54 21 39 66 36 54 50 59

<sup>\*</sup> Estimate does not meet standards for reliability.

<sup>[1]</sup> Source: HCUP Nationwide Inpatient Sample (NIS). Healthcare Cost and Utilization Project (HCUP). 2011. Agency for Healthcare Research and Quality, Rockville, MD. <a href="https://www.hcup-us.ahrq.gov/nisoverview.jsp">www.hcup-us.ahrq.gov/nisoverview.jsp</a>

<sup>[2]</sup> Source: HCUP Nationwide Emergency Department Sample (NEDS). Healthcare Cost and Utilization Project (HCUP). 2010. Agency for Healthcare Research and Quality, Rockville, MD. <a href="https://www.hcup-us.ahrq.gov/nedsoverview.jsp">www.hcup-us.ahrq.gov/nedsoverview.jsp</a>

<sup>[3]</sup> Source: National Hospital Ambulatory Medical Care Survey\_Outpatient Department (NHAMCS\_OP), 2008, 2009, 2010. <a href="https://www.cdc.gov/nchs/ahcd/ahcd\_questionnaires.htm">www.cdc.gov/nchs/ahcd/ahcd\_questionnaires.htm</a> April 23, 2013.

<sup>[4]</sup> Source: National Ambulatory Medical Care Survey (NAMCS), 2008, 2009, 2010. <a href="https://www.cdc.gov/nchs/ahcd/ahcd\_questionnaires.htm">www.cdc.gov/nchs/ahcd/ahcd\_questionnaires.htm</a> April 23, 2013.

<sup>[5]</sup> Total visits may be lower than sum of diagnoses due to multiple diagnoses per patient.

<sup>[6]</sup> Adjusted to 2010 U.S. Census Population Estimates. There is the potential for multiple diagnoses per person which is not accounted for.