

Table 103. Discharges with at least one procedure in nonfederal short-stay hospitals, by sex, age, and selected procedures: United States, selected years 1990 through 2008-2009

(Data are based on a sample of hospital records)

Age and procedure (any listed)	Both sexes			Male			Female		
	1990	2000	2008-2009 <sup>1</sup>	1990	2000	2008-2009 <sup>1</sup>	1990	2000	2008-2009 <sup>1</sup>
18 years and over	Percent								
Hospital discharges with at least one procedure, crude <sup>2</sup> .	67.4	62.1	63.2	65.2	59.2	59.9	68.7	63.9	65.4
Hospital discharges with at least one procedure, age-adjusted <sup>2,3</sup> .....	1,020.1	859.9	907.5	882.2	701.4	728.5	1,176.4	1,026.2	1,100.2
Hospital discharges with at least one procedure, crude <sup>2</sup> .	1,006.4	856.8	917.0	788.1	648.4	708.5	1,205.9	1,049.8	1,113.7
Operations on vessels of heart.....	28.3	41.2	36.5	41.9	56.9	50.9	15.8	26.7	22.9
Coronary angioplasty or arthrectomy.....	14.0	26.2	26.0	20.5	34.9	35.2	8.0	18.1	17.4
Coronary artery stent insertion.....	...	21.7	22.7	...	28.7	30.5	...	15.3	15.3
Drug-eluting stent insertion.....	...	...	15.6	...	...	21.0	...	...	10.5
Coronary artery bypass graft (CABG).....	14.1	15.0	10.5	21.2	21.8	16.0	7.7	8.7	5.4
Cardiac catheterization.....	52.1	57.8	47.0	68.3	72.1	56.4	37.4	44.6	38.2
Pacemaker.....	8.6	8.5	9.2	10.1	8.5	9.5	7.1	8.5	9.0
Carotid (neck arteries) endarterectomy.....	3.6	5.9	4.6	4.1	6.6	5.3	3.1	5.3	3.9
Endoscopy of small intestine.....	40.8	42.5	45.4	38.6	39.1	42.4	42.8	45.6	48.2
Endoscopy of large intestine.....	27.9	25.0	22.0	22.5	20.2	18.8	32.8	29.4	25.1
Gall bladder removal.....	27.9	19.6	18.5	16.5	13.3	14.2	38.2	25.5	22.5
Laparoscopic gall bladder removal.....	...	14.8	14.8	...	9.2	10.4	...	20.1	18.9
Treatment of intra-abdominal scar tissue.....	17.0	14.4	15.0	6.5	5.7	8.0	26.6	22.4	21.6
Reduction of fracture.....	27.6	24.9	24.4	27.3	22.0	22.7	27.8	27.7	26.0
Excision of intervertebral disc and spinal fusion.....	18.7	18.2	22.2	22.3	20.0	22.3	15.4	16.4	22.1
Total hip replacement.....	6.4	7.3	12.6	5.4	6.8	12.2	7.3	7.7	13.0
Partial hip replacement.....	4.8	5.0	13.0	2.0	2.3	10.8	7.3	7.6	15.1
Total knee replacement.....	6.7	13.8	27.3	4.9	11.0	20.4	8.4	16.4	33.8
CAT scan.....	68.4	29.2	18.3	68.6	27.4	17.4	68.2	30.9	19.3
Arteriography and angiocardiology with contrast.....	59.7	63.0	57.1	75.6	76.2	65.8	45.2	50.7	49.0
Diagnostic ultrasound.....	72.3	36.9	34.7	62.1	33.1	34.0	81.7	40.4	35.3
Magnetic resonance imaging.....	9.5	9.2	9.6	9.4	8.2	8.9	9.6	10.2	10.3
Mechanical ventilation.....	17.6	23.0	32.5	18.8	23.9	35.1	16.4	22.1	30.0
18-44 years	Percent								
Hospital discharges with at least one procedure <sup>2</sup> .....	73.0	71.7	72.3	62.6	55.9	54.0	77.0	77.4	78.6
	Number per 10,000 population								
Hospital discharges with at least one procedure <sup>2</sup> .....	749.3	609.1	640.7	362.8	251.6	241.6	1,130.6	965.9	1,047.9
Operations on vessels of heart.....	3.0	3.9	3.2	4.9	5.5	4.4	*1.2	2.3	*1.9
Coronary angioplasty or arthrectomy.....	1.9	3.0	2.6	3.0	4.3	3.7	*0.8	1.6	*1.4
Coronary artery stent insertion.....	...	2.5	2.4	...	3.6	3.4	...	1.4	*1.4
Drug-eluting stent insertion.....	...	...	*1.7	...	...	*2.3	...	...	*1.0
Coronary artery bypass graft (CABG).....	1.0	0.9	*0.6	*1.8	1.1	*0.9	*	*0.7	*
Cardiac catheterization.....	9.0	8.5	7.1	12.5	11.0	8.6	5.5	5.9	5.5
Endoscopy of small intestine.....	13.1	10.3	15.2	13.2	10.4	12.9	13.0	10.2	17.6
Endoscopy of large intestine.....	6.9	5.5	6.5	5.6	4.7	5.4	8.1	6.3	7.6
Gall bladder removal.....	18.7	11.9	12.9	6.2	4.3	5.7	31.0	19.4	20.3
Laparoscopic gall bladder removal.....	...	9.9	11.2	...	3.0	4.2	...	16.8	18.3
Treatment of intra-abdominal scar tissue.....	14.1	10.8	10.5	2.0	1.5	*2.8	26.0	20.1	18.3
Hysterectomy.....	...	...	...	...	...	...	63.3	55.7	41.2
Abdominal hysterectomy.....	...	...	...	...	...	...	47.1	34.6	24.1
Vaginal hysterectomy.....	...	...	...	...	...	...	15.8	19.1	11.7
Forceps, vacuum, and breech delivery.....	...	...	...	...	...	...	77.5	59.9	44.7
Episiotomy.....	...	...	...	...	...	...	293.3	160.8	59.6
Other procedures inducing or assisting delivery.....	...	...	...	...	...	...	387.9	384.2	427.3
Medical induction of labor.....	...	...	...	...	...	...	41.1	77.7	123.9
Cesarean section.....	...	...	...	...	...	...	167.1	149.5	235.6
Reduction of fracture.....	19.1	13.7	14.0	27.9	19.0	20.0	10.4	8.4	7.9
Excision of intervertebral disc and spinal fusion.....	17.0	14.1	12.5	21.5	16.2	12.1	12.6	12.1	12.8
CAT scan.....	27.5	10.6	6.9	32.3	11.0	7.0	22.7	10.3	6.7
Arteriography and angiocardiology with contrast.....	12.5	10.3	10.4	17.4	12.9	11.0	7.6	7.7	9.8

Diagnostic ultrasound.....	34.2	11.6	10.3	19.3	8.3	8.6	48.9	14.9	12.0
Magnetic resonance imaging.....	4.9	3.8	*3.8	4.9	3.6	*3.1	4.9	*4.0	*4.6
Mechanical ventilation.....	4.6	7.0	10.6	5.4	8.2	12.6	3.8	5.8	8.6

45-64 years

Percent

Hospital discharges with at least one procedure <sup>2</sup> .....	68.2	62.3	63.1	68.9	63.4	63.4	67.6	61.3	62.9
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Number per 10,000 population

Hospital discharges with at least one procedure <sup>2</sup> .....	924.2	694.6	763.7	965.9	714.4	776.7	885.4	675.9	751.3
Operations on vessels of heart.....	53.0	57.7	45.1	83.2	88.5	67.9	24.8	28.4	23.4
Coronary angioplasty or arthrectomy.....	29.4	37.5	32.8	45.3	55.9	48.2	14.5	20.0	18.2
Coronary artery stent insertion.....	...	31.1	28.4	...	46.5	42.1	...	16.5	15.3
Drug-eluting stent insertion.....	...	...	19.7	...	...	29.5	...	...	10.3
Coronary artery bypass graft (CABG).....	23.4	20.3	12.2	37.5	32.5	19.6	10.3	8.6	5.2
Cardiac catheterization.....	98.2	83.0	59.1	136.8	113.9	78.6	62.3	53.7	40.5
Pacemaker.....	7.8	4.0	3.3	10.9	5.2	4.6	*4.9	2.8	*2.1
Carotid (neck arteries) endarterectomy.....	4.0	5.2	3.5	5.2	5.2	*3.8	3.0	*5.2	*3.3
Endoscopy of small intestine.....	45.0	36.4	42.3	46.3	40.7	43.7	43.8	32.3	41.0
Endoscopy of large intestine.....	28.5	19.3	19.0	25.4	18.1	15.8	31.4	20.4	22.0
Gall bladder removal.....	36.4	20.6	17.9	22.3	16.3	14.9	49.5	24.6	20.8
Laparoscopic gall bladder removal.....	...	15.3	13.9	...	12.1	11.0	...	18.5	16.6
Treatment of intra-abdominal scar tissue.....	17.1	15.0	15.4	9.5	7.0	9.0	24.2	22.6	21.4
Removal of prostate.....	...	...	...	35.8	15.6	17.0	...	...	...
Transurethral prostatectomy.....	...	...	...	30.4	7.0	*2.6	...	...	...
Hysterectomy.....	...	...	...	...	...	...	76.4	78.2	61.7
Abdominal hysterectomy.....	...	...	...	...	...	...	58.4	53.2	36.5
Vaginal hysterectomy.....	...	...	...	...	...	...	17.6	21.6	17.6
Reduction of fracture.....	20.3	18.5	17.8	19.5	17.6	18.3	21.0	19.3	17.4
Excision of intervertebral disc and spinal fusion.....	26.1	25.7	30.0	29.4	27.1	29.5	23.1	24.4	30.4
Total hip replacement.....	6.2	8.1	16.1	5.7	9.1	17.1	6.5	7.2	15.2
Partial hip replacement.....	*	*1.3	*13.4	*	*0.8	*12.3	*	*1.7	*14.4
Total knee replacement.....	6.7	12.7	33.6	5.8	8.7	25.8	*7.4	16.4	41.1
Mastectomy.....	...	...	...	...	...	...	21.2	10.6	7.7
CAT scan.....	65.4	25.2	17.5	69.9	25.9	18.3	61.2	24.5	16.7
Arteriography and angiocardiology with contrast.....	105.4	85.3	66.5	138.5	111.4	85.7	74.6	60.7	48.3
Diagnostic ultrasound.....	69.5	34.3	32.2	73.8	38.0	35.9	65.5	30.9	28.7
Magnetic resonance imaging.....	10.9	8.9	9.0	10.7	9.4	9.4	11.0	8.4	8.6
Mechanical ventilation.....	17.6	21.2	32.2	18.6	22.9	35.2	16.7	19.6	29.3

65-74 years

Percent

Hospital discharges with at least one procedure <sup>2</sup> .....	66.5	61.3	63.5	69.3	63.9	64.6	63.8	58.9	62.4
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Number per 10,000 population

Hospital discharges with at least one procedure <sup>2</sup> .....	1,739.4	1,559.8	1,614.1	1,994.1	1,692.3	1,705.7	1,539.4	1,450.6	1,535.9
Operations on vessels of heart.....	97.0	139.8	116.7	148.9	195.3	165.2	56.3	94.1	75.2
Coronary angioplasty or arthrectomy.....	44.1	86.3	80.8	64.9	116.0	108.6	27.8	61.9	57.1
Coronary artery stent insertion.....	...	71.7	70.0	...	94.9	91.5	...	52.5	51.7
Drug-eluting stent insertion.....	...	...	50.4	...	...	64.0	...	...	38.7
Coronary artery bypass graft (CABG).....	52.1	53.9	36.6	83.1	79.7	58.1	27.7	32.6	18.2
Cardiac catheterization.....	164.0	174.2	131.0	213.8	222.7	158.6	124.9	134.2	107.3
Pacemaker.....	24.6	22.5	20.7	32.1	22.8	22.6	18.7	22.3	19.1
Carotid (neck arteries) endarterectomy.....	14.6	24.1	18.5	18.0	29.5	24.1	11.9	19.6	*13.6
Endoscopy of small intestine.....	92.8	106.6	97.7	91.5	102.4	103.5	93.7	110.0	92.7
Endoscopy of large intestine.....	70.3	64.8	46.3	62.5	59.7	44.1	76.5	69.0	48.1
Gall bladder removal.....	45.0	42.1	33.5	42.0	37.9	37.5	47.4	45.5	30.1
Laparoscopic gall bladder removal.....	...	29.5	24.3	...	24.4	24.8	...	33.7	23.8
Treatment of intra-abdominal scar tissue.....	23.1	21.4	25.2	17.1	14.5	19.4	27.7	27.1	30.2
Removal of prostate.....	...	...	...	201.1	83.7	57.0	...	...	...
Transurethral prostatectomy.....	...	...	...	180.9	59.4	26.9	...	...	...
Hysterectomy.....	...	...	...	...	...	...	37.4	35.9	27.2
Abdominal hysterectomy.....	...	...	...	...	...	...	20.8	20.5	12.9
Vaginal hysterectomy.....	...	...	...	...	...	...	16.5	14.7	*12.7
Reduction of fracture.....	36.2	36.4	34.9	24.3	26.2	21.3	45.5	44.8	46.5
Excision of intervertebral disc and spinal fusion.....	16.3	21.1	42.7	14.2	22.5	*47.3	18.0	20.0	38.7
Total hip replacement.....	24.0	25.4	36.3	23.0	26.4	34.5	24.9	24.5	37.8
Partial hip replacement.....	8.9	7.6	*24.1	*4.0	*	*22.2	*12.7	10.5	*25.7
Total knee replacement.....	33.2	65.4	104.7	26.4	64.5	82.6	38.6	66.0	123.6

Mastectomy.....	...	...	...	...	...	...	30.7	22.7	15.5
CAT scan.....	153.7	64.3	*32.3	163.4	65.7	*31.3	146.1	63.1	*33.2
Arteriography and angiocardiology with contrast .....	184.5	186.2	153.7	239.0	231.9	188.4	141.7	148.5	124.1
Diagnostic ultrasound.....	155.2	92.7	81.4	165.2	94.1	86.5	147.4	91.6	77.1
Magnetic resonance imaging.....	20.6	17.2	*19.4	19.2	19.2	*14.6	*19.7	*19.3	*19.1
Mechanical ventilation.....	48.6	60.0	76.2	58.7	70.3	85.1	40.6	51.6	68.5

75-84 years

Percent

Hospital discharges with at least one procedure <sup>2</sup> .....	59.0	53.6	56.6	61.7	56.3	59.0	57.0	51.8	54.6
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Number per 10,000 population

Hospital discharges with at least one procedure <sup>2</sup> .....	2,332.9	2,212.3	2,341.3	2,723.9	2,416.5	2,579.6	2,096.7	2,078.8	2,174.3
Operations on vessels of heart.....	69.1	143.2	133.8	107.6	202.5	196.7	45.8	104.5	89.8
Coronary angioplasty or arthrectomy.....	22.4	84.7	88.3	33.7	109.3	124.1	15.7	68.7	63.2
Coronary artery stent insertion.....	...	69.8	77.2	...	86.5	109.3	...	58.8	54.6
Drug-eluting stent insertion.....	...	...	51.0	...	...	73.2	...	...	35.5
Coronary artery bypass graft (CABG).....	47.0	57.7	45.1	74.7	90.5	73.0	30.3	36.2	*25.6
Cardiac catheterization.....	116.6	190.2	166.4	166.0	236.9	191.9	86.8	159.6	148.6
Pacemaker.....	50.8	58.1	58.4	70.6	72.2	75.6	38.8	48.9	46.4
Carotid (neck arteries) endarterectomy.....	19.8	32.8	26.0	24.2	45.5	34.4	*17.1	24.5	*20.0
Endoscopy of small intestine.....	171.4	189.7	169.6	188.9	193.8	178.6	160.8	187.0	163.2
Endoscopy of large intestine.....	131.1	123.7	101.5	126.1	113.8	103.0	134.1	130.1	100.5
Gall bladder removal.....	51.8	43.4	41.4	64.4	46.7	52.9	44.2	41.3	33.3
Laparoscopic gall bladder removal.....	...	28.9	34.4	...	29.6	42.0	...	28.5	29.1
Treatment of intra-abdominal scar tissue.....	34.0	28.6	30.4	28.2	26.3	32.8	37.5	30.2	28.6
Removal of prostate.....	...	...	...	273.5	98.0	41.2	...	...	...
Transurethral prostatectomy.....	...	...	...	257.5	89.0	37.2	...	...	...
Hysterectomy.....	...	...	...	...	...	...	28.5	25.5	23.1
Abdominal hysterectomy.....	...	...	...	...	...	...	18.8	16.2	15.2
Vaginal hysterectomy.....	...	...	...	...	...	...	*9.4	8.1	*6.9
Reduction of fracture.....	86.2	80.1	69.0	43.4	57.2	46.6	112.1	95.0	84.6
Excision of intervertebral disc and spinal fusion.....	12.0	17.4	34.1	*13.2	*20.4	*41.3	11.3	15.3	29.1
Total hip replacement.....	30.7	26.3	46.5	*26.9	*21.3	42.6	33.1	29.6	49.3
Partial hip replacement.....	43.6	36.6	36.0	*14.3	20.0	*27.3	61.2	47.5	42.1
Total knee replacement.....	28.4	59.3	94.8	*19.5	48.7	85.8	33.9	66.3	101.1
Mastectomy.....	...	...	...	...	...	...	29.2	22.0	10.4
CAT scan.....	279.7	119.2	*63.7	307.2	127.9	*66.1	263.0	113.5	*61.9
Arteriography and angiocardiology with contrast .....	141.0	219.2	210.2	192.3	287.9	241.1	109.9	174.3	188.5
Diagnostic ultrasound.....	273.5	134.1	119.4	315.7	142.8	139.8	248.0	128.4	105.1
Magnetic resonance imaging.....	30.5	*37.3	35.1	43.0	*33.6	*39.8	*23.0	*39.8	*31.7
Mechanical ventilation.....	79.8	91.1	104.5	110.3	106.5	129.5	61.3	80.9	87.0

85 years and over

Percent

Hospital discharges with at least one procedure <sup>2</sup> .....	49.3	44.6	46.6	52.4	45.4	49.8	47.8	44.3	44.9
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Number per 10,000 population

Hospital discharges with at least one procedure <sup>2</sup> .....	2,762.1	2,700.5	2,707.2	3,367.3	2,797.9	3,095.1	2,526.8	2,660.6	2,523.7
Operations on vessels of heart.....	*14.0	51.1	63.5	*	83.0	115.5	*	38.0	39.0
Coronary angioplasty or arthrectomy.....	*	36.3	53.5	*	*52.9	*94.5	*	29.5	34.1
Coronary artery stent insertion.....	...	31.6	48.4	...	*48.9	...	...	*24.4	32.1
Drug-eluting stent insertion.....	...	...	29.1	...	...	*48.6	...	...	*19.8
Coronary artery bypass graft (CABG).....	*	*15.1	*10.0	*	*30.1	*20.7	*	*9.0	*5.0
Cardiac catheterization.....	*23.7	87.7	92.4	*	122.8	147.3	*19.0	73.2	66.5
Pacemaker.....	79.5	82.9	104.8	120.4	104.3	126.1	63.5	74.2	94.7
Carotid (neck arteries) endarterectomy.....	*	*12.0	*10.8	*	*	*	*	*4.8	*
Endoscopy of small intestine.....	228.8	262.4	210.2	288.7	245.1	215.0	205.5	269.5	207.9
Endoscopy of large intestine.....	180.8	158.1	99.8	188.0	133.3	115.7	178.0	168.3	92.2
Gall bladder removal.....	46.4	40.9	29.4	*68.4	*42.9	*29.7	37.8	*40.1	*29.3
Laparoscopic gall bladder removal.....	...	*30.4	18.7	...	*	*23.5	...	*30.5	*16.4
Treatment of intra-abdominal scar tissue.....	29.6	24.3	26.7	*	*16.4	*17.6	33.7	*27.5	31.0
Removal of prostate.....	...	...	...	257.2	*113.0	*54.1	...	...	...
Transurethral prostatectomy.....	...	...	...	247.1	*110.0	*50.8	...	...	...
Hysterectomy.....	...	...	...	...	...	...	*	*	*
Abdominal hysterectomy.....	...	...	...	...	...	...	*	*	*
Vaginal hysterectomy.....	...	...	...	...	...	...	*	*	*
Reduction of fracture.....	196.2	200.5	179.6	150.6	93.8	134.6	213.9	244.3	200.9
Excision of intervertebral disc and spinal fusion.....	*	*2.3	*5.4	*	*	*	*	*	*

Total hip replacement.....	*27.8	*20.7	27.2	*	*	*33.2	*23.2	*26.3	*24.4
Partial hip replacement.....	67.4	82.2	80.3	*52.9	*44.1	71.7	73.1	97.9	84.4
Total knee replacement.....	*12.4	*22.9	31.8	*	*	*	*	*16.2	38.3
Mastectomy.....	...	...	...	...	...	...	*28.9	*15.7	*
CAT scan.....	378.4	158.7	*102.4	401.2	141.4	*	369.5	165.9	*102.5
Arteriography and angiocardiology with contrast .....	50.6	120.8	149.3	*87.6	164.4	196.3	36.2	102.8	127.0
Diagnostic ultrasound.....	327.7	208.5	187.9	394.5	181.4	199.1	301.7	219.6	182.7
Magnetic resonance imaging.....	*18.5	*40.4	*38.2	*	*	*30.5	*16.2	*	*41.9
Mechanical ventilation.....	91.5	106.0	146.5	97.9	116.5	197.3	89.1	101.7	122.5

... Category not applicable.

\*Estimates are considered unreliable. Data preceded by an asterisk have a relative standard error (RSE) of 20%-30%. Data not shown have an RSE of greater than 30%.

<sup>1</sup>Starting with 2008 data, the sample of nonfederal short-stay hospitals was cut in half.

This smaller sample size has increased standard errors. Therefore, caution should be exercised in interpreting trends in these data. See Appendix I, National Hospital Discharge Survey (NHDS).

<sup>2</sup>Includes discharges for procedures not shown separately.

<sup>3</sup>Estimates are age-adjusted to the year 2000 standard population using five age groups: 18-44 years, 45-54 years, 55-64 years, 65-74 years, and 75 years and over. See Appendix II, Age adjustment.

NOTES: Up to four procedures were coded for each hospital discharge.

If more than one procedure with the same code (e.g., a coronary artery bypass graft) was performed during the hospital stay, it was counted only once (any listed). Procedure categories are based on the *International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM)*. See Appendix II,

*International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM); Procedure;*

Table XI for ICD-9-CM codes. Rates are based on the civilian population as of July 1.

Starting with *Health, United States, 2003*, rates for 2000 and beyond are based on the 2000 census.

Rates for 1990-1999 use population

estimates based on the 1990 census adjusted for net underenumeration using the 1990 National Population Adjustment

Matrix from the U.S. Census Bureau. Rates for 1990-1999 are not strictly comparable with rates for 2000 and beyond

because population estimates for 1990-1999 have not been revised to reflect the 2000 census. See Appendix I, National

Hospital Discharge Survey (NHDS); Population Census and Population Estimates.

Data for additional years are available. See Appendix III.

SOURCE: CDC/NCHS,

National Hospital Discharge Survey.

See Appendix I, National Hospital Discharge Survey (NHDS).