

Table 107. Discharges with at least one procedure in nonfederal short-stay hospitals, by sex, age, and selected procedures: United States, selected years 1990 through 2009-2010

(Data are based on a sample of hospital records)

Age and procedure (any listed)	Both sexes		Male			Female			
	1990	2000	2009-2010 ¹	1990	2000	2009-2010 ¹	1990	2000	2009-2010 ¹
	Percent								
18 years and over	Percent								
Hospital discharges with at least one procedure, crude ²	67.4	62.1	63.2	65.2	59.2	59.9	68.7	63.9	65.3
Number per 10,000 population									
Hospital discharges with at least one procedure, age-adjusted ³	1,020.1	859.9	887.0	882.2	701.4	709.4	1,176.4	1,026.2	1,078.1
Hospital discharges with at least one procedure, crude ²	1,006.4	856.8	900.0	788.1	648.4	697.8	1,205.9	1,049.8	1,091.3
Operations on vessels of heart	28.3	41.2	31.1	41.9	56.9	46.7	15.8	26.7	20.2
Coronary angioplasty or arthroectomy	14.0	26.2	23.2	20.5	34.9	31.7	8.0	18.1	15.1
Coronary artery stent insertion	...	21.7	20.5	...	28.7	28.0	...	15.3	13.5
Drug-eluting stent insertion	...	...	15.0	...	...	20.4	...	...	9.9
Coronary artery bypass graft (CABG)	14.1	15.0	9.9	21.2	21.8	15.0	7.7	8.7	5.1
Cardiac catheterization	52.1	57.8	43.1	68.3	72.1	53.0	37.4	44.6	33.7
Pacemaker	8.6	8.5	8.7	10.1	8.5	9.0	7.1	8.5	8.4
Carotid (neck arteries) endarterectomy	3.6	5.9	4.1	4.1	6.6	4.7	3.1	5.3	3.5
Endoscopy of small intestine	40.8	42.5	44.6	38.6	39.1	40.7	42.8	45.6	48.3
Endoscopy of large intestine	27.9	25.0	20.6	22.5	20.2	18.0	32.8	29.4	23.1
Gall bladder removal	18.7	19.6	18.2	16.5	13.3	13.1	38.2	25.5	23.0
Laparoscopic gall bladder removal	...	14.8	14.8	...	9.2	9.6	...	20.1	19.7
Treatment of intra-abdominal scar tissue	17.0	14.4	14.7	6.5	5.7	7.8	26.6	22.4	21.3
Reduction of fracture	27.6	24.9	23.2	27.3	22.0	20.0	27.8	27.7	26.3
Excision of intervertebral disc and spinal fusion	18.7	18.2	21.8	22.3	20.0	21.4	15.4	16.4	22.1
Total hip replacement	6.4	7.3	13.9	5.4	6.8	13.6	7.3	7.7	14.1
Partial hip replacement	4.8	5.0	13.1	2.0	2.3	10.9	7.3	7.6	15.1
Total knee replacement	6.7	13.8	28.8	4.9	11.0	21.6	8.4	16.4	35.6
CT scan	68.4	29.2	*17.0	68.6	27.4	15.7	68.2	30.9	*18.2
Arteriography and angiocardiology with contrast	59.7	63.0	53.8	75.6	76.2	63.4	45.2	50.7	44.8
Diagnostic ultrasound	72.3	36.9	34.9	62.1	33.1	33.9	81.7	40.4	35.9
Magnetic resonance imaging	9.5	9.2	9.8	9.4	8.2	9.0	9.6	10.2	*10.6
Mechanical ventilation	17.6	23.0	32.4	18.8	23.9	34.0	16.4	22.1	30.9
18-44 years	Percent								
Hospital discharges with at least one procedure ²	73.0	71.7	72.4	62.6	55.9	53.7	77.0	77.4	78.7
Number per 10,000 population									
Hospital discharges with at least one procedure ²	749.3	609.1	627.6	362.8	251.6	233.3	1,130.6	965.9	1,030.6
Operations on vessels of heart	3.0	3.0	2.8	4.9	5.5	4.1	*1.2	2.3	*1.5
Coronary angioplasty or arthroectomy	1.9	3.9	*2.3	3.0	4.3	3.4	*0.8	1.6	*1.2
Coronary artery stent insertion	...	2.5	*2.0	...	3.6	*2.0	...	1.4	*1.1
Drug-eluting stent insertion	...	...	*1.5	...	...	*2.1	...	...	...
Coronary artery bypass graft (CABG)	1.0	0.9	*0.5	*1.8	1.1	*0.8	*	*0.7	*
Cardiac catheterization	9.0	8.5	6.3	13.5	11.0	8.3	5.5	5.9	4.3
Endoscopy of small intestine	13.1	10.3	14.7	12.2	10.4	11.4	13.0	10.2	18.0
Endoscopy of large intestine	6.9	5.5	6.9	6.2	5.2	8.1	6.3	7.0	...
Gall bladder removal	18.7	11.9	12.8	6.2	4.3	5.1	31.0	19.4	20.7
Laparoscopic gall bladder removal	...	9.9	11.0	...	3.0	3.7	...	16.8	18.4
Treatment of intra-abdominal scar tissue	14.1	10.8	10.5	2.0	1.5	*2.5	26.0	20.1	18.6
Hysterectomy	...	...	...	...	...	...	63.3	56.7	38.0
Abdominal hysterectomy	...	...	...	...	...	...	47.1	34.6	21.3
Vaginal hysterectomy	...	...	...	...	...	...	15.8	19.1	*12.3
Forceps, vacuum, and breech delivery	...	...	...	...	...	...	77.5	59.9	*43.9
Episiotomy	...	...	...	...	...	...	293.3	160.8	53.6
Other procedures inducing or assisting delivery	...	...	...	...	...	...	387.9	384.2	422.6
Medical induction of labor	...	...	...	...	...	...	41.1	77.7	125.9
Cesarean section	...	...	...	...	...	...	167.1	149.5	233.5
Reduction of fracture	19.1	13.7	11.6	27.9	19.0	15.3	10.4	8.4	7.9
Excision of intervertebral disc and spinal fusion	17.0	14.1	10.7	21.5	12.6	12.1	12.1	11.0	11.0
CT scan	27.5	27.6	*6.6	65.3	11.0	*6.3	22.7	10.3	*7.1
Arteriography and angiocardiology with contrast	12.5	10.3	9.1	17.4	12.9	9.9	7.6	7.7	8.2
Diagnostic ultrasound	34.2	11.6	10.0	19.3	8.3	7.2	48.9	14.9	12.8
Magnetic resonance imaging	4.9	3.8	*4.1	4.9	3.6	*2.9	4.9	*4.0	*5.4
Mechanical ventilation	4.6	7.0	9.9	5.4	8.2	11.2	3.8	5.8	8.6
45-64 years	Percent								
Hospital discharges with at least one procedure ²	68.2	62.3	63.0	68.9	63.4	63.3	67.6	61.3	62.8
Number per 10,000 population									
Hospital discharges with at least one procedure ²	924.2	694.6	756.7	965.9	714.4	766.2	885.4	675.9	747.7
Operations on vessels of heart	53.0	57.7	40.0	83.2	88.5	59.5	28.4	28.4	21.4
Coronary angioplasty or arthroectomy	37.5	37.9	45.3	47.3	51.9	42.7	14.5	20.8	20.8
Coronary artery stent insertion	...	31.1	25.4	...	46.5	37.5	...	16.5	13.8
Drug-eluting stent insertion	...	...	18.7	...	...	27.5	...	...	10.2
Coronary artery bypass graft (CABG)	23.4	20.3	11.1	37.5	32.5	16.9	10.3	8.6	*5.5
Cardiac catheterization	98.2	83.0	54.4	135.9	113.9	72.3	62.3	57.2	37.2
Pacemaker	7.8	4.0	3.2	10.9	5.2	4.2	*4.9	2.8	*2.3
Carotid (neck arteries) endarterectomy	4.0	5.2	3.1	5.2	5.2	3.0	*5.2	*2.7	...
Endoscopy of small intestine	45.0	36.4	43.2	26.3	40.7	42.2	43.8	32.3	44.2
Endoscopy of large intestine	28.5	19.3	18.0	45.4	18.1	15.9	31.4	20.4	20.0
Gall bladder removal	26.4	26.6	18.0	29.3	16.3	13.8	49.3	24.6	21.9
Laparoscopic gall bladder removal	...	15.3	14.6	...	12.1	10.6	...	18.5	18.5
Treatment of intra-abdominal scar tissue	17.1	15.0	13.8	9.5	7.0	8.2	24.2	22.6	19.1
Removal of prostate	...	...	...	35.8	15.6	16.9	...	...	...
Transurethral prostatectomy	...	...	...	30.4	7.0	3.3	...	...	...
Hysterectomy	...	...	...	...	...	...	76.4	78.2	54.1
Abdominal hysterectomy	...	...	...	...	...	...	58.4	53.2	32.1
Vaginal hysterectomy	...	...	...	...	...	...	17.6	21.6	15.4
Reduction of fracture	20.3	18.5	18.2	19.5	17.6	18.1	21.0	19.3	18.3
Excision of intervertebral disc and spinal fusion	26.1	25.7	20.8	27.1	21.3	21.3	23.1	24.3	20.2
Total hip replacement	6.2	8.1	18.0	5.7	9.1	19.0	6.5	7.2	17.1
Partial hip replacement	...	*1.3	*13.8	...	*0.8	*13.7	...	*1.7	*13.8
Total knee replacement	6.7	12.7	37.1	5.8	8.7	27.8	*7.4	16.4	46.0
Mastectomy	...	...	...	...	...	...	21.2	10.6	9.3
CT scan	65.4	25.2	*17.1	69.9	25.9	17.4	61.2	24.5	*16.9
Arteriography and angiocardiology with contrast	105.4	85.3	64.3	138.5	111.4	83.3	74.6	60.7	46.3
Diagnostic ultrasound	69.5	34.3	31.8	73.8	38.0	36.3	65.5	30.9	27.5
Magnetic resonance imaging	10.9	8.9	9.2	10.7	9.4	9.2	11.0	8.4	9.2
Mechanical ventilation	17.6	21.2	32.9	18.6	22.9	34.4	16.7	19.6	31.5
65-74 years	Percent								
Hospital discharges with at least one procedure ²	66.5	61.3	63.2	69.3	63.9	64.6	63.8	58.9	62.0
Number per 10,000 population									
Hospital discharges with at least one procedure ²	1,739.4	1,559.8	1,573.0	1,994.1	1,692.3	1,678.0	1,539.4	1,450.6	1,482.5
Operations on vessels of heart	97.0	139.8	104.2	148.9	195.3	152.6	56.3	94.1	62.4
Coronary angioplasty or arthroectomy	44.1	86.3	62.4	64.9	116.0	96.6	27.8	45.9	45.9
Coronary artery stent insertion	...	71.7	61.1	...	94.9	83.3	...	52.5	42.0
Drug-eluting stent insertion	...	...	46.1	...	...	62.5	...	...	32.1
Coronary artery bypass graft (CABG)	52.1	53.9	34.7	83.1	79.7	55.9	27.7	32.6	16.5
Cardiac catheterization	164.0	174.2	120.4	213.8	222.7	153.7	124.9	134.2	91.7
Pacemaker	24.6	22.5	18.6	32.1	22.9	18.3	18.7	22.3	19.0
Carotid (neck arteries) endarterectomy	14.6	24.1	15.6	18.0	29.5	21.8	11.9	19.6	*10.3
Endoscopy of small intestine	92.8	106.6	93.2	91.5	102.4	99.0	93.7	110.0	88.2
Endoscopy of large intestine	70.3	64.8	44.3	62.5	59.7	41.6	76.5	69.0	46.7
Gall bladder removal	45.0	42.1	30.0	42.0	37.9	31.9	47.4	45.5	28.3
Laparoscopic gall bladder removal	...	29.5	22.0	...	21.2	21.2	...	22.9	22.9
Treatment of intra-abdominal scar tissue	23.1	21.4	29.0	17.1	14.5	24.3	27.7	27.1	33.0
Removal of prostate	...	...	...	201.1	83.7	50.8	...	...	...
Transurethral prostatectomy	...	...	...	180.9	59.4	24.1	...	...	...
Hysterectomy	...	...	...	...	...	...	37.4	35.9	30.2
Abdominal hysterectomy	...	...	...	...	...	...	20.8	20.5	15.0
Vaginal hysterectomy	...	...	...	...	...	...	16.5	14.7	*14.1
Reduction of fracture	36.2	36.4	32.9	24.3	26.2	45.5	44.8	44.8	45.5
Excision of intervertebral disc and spinal fusion	16.3	21.1	42.1	14.2	22.5	39.2	18.0	20.0	*44.5
Total hip replacement	24.0	25.4	29.3	23.0	26.4	24.9	24.9	24.5	41.2
Partial hip replacement	8.9	7.6	*25.3	*4.0	*	*19.1	*12.7	10.5	*30.7
Total knee replacement	33.2	65.4	108.3	26.4	64.5	84.0	38.6	66.0	129.3
Mastectomy	...	...	...	...	...	...	30.7	22.7	*12.9
CT scan	146.3	64.3	*29.4	164.7	61.7	*31.1	146.1	63.1	*27.9
Arteriography and angiocardiology with contrast	184.5	186.2	146.5	239.0	231.9	186.7	141.7	148.5	111.9
Diagnostic ultrasound	155.2	92.7	79.8	165.2	94.1	85.6	147.4	91.6	74.8
Magnetic resonance imaging	20.6	17.2	*18.3	19.2	*14.6	18.9			

75-84 years		Percent								
Hospital discharges with at least one procedure ²		59.0	53.6	56.4	61.7	56.3	59.0	57.0	51.8	54.5
Number per 10,000 population										
Hospital discharges with at least one procedure ²	2,332.9	2,212.3	2,247.8	2,723.9	2,416.5	2,441.4	2,096.7	2,078.8	2,108.7	2,108.7
Operations on vessels of heart.....	69.1	143.2	126.0	107.6	202.5	189.8	45.8	104.5	80.2	80.2
Coronary angioplasty or arthroectomy.....	22.4	84.7	82.7	33.7	109.3	116.8	15.7	68.7	58.2	58.2
Coronary artery stent insertion.....	...	69.8	75.3	...	86.5	107.5	...	58.8	52.2	52.2
Drug-eluting stent insertion.....	...	...	54.7	...	...	77.5	...	...	38.2	38.2
Coronary artery bypass graft (CABG).....	171.4	47.0	42.7	74.7	90.5	*72.3	30.3	36.2	*21.5	*21.5
Cardiac catheterization.....	116.6	190.2	149.3	166.0	236.9	179.9	86.8	159.6	127.4	127.4
Pacemaker.....	50.8	58.1	60.0	70.6	72.2	84.9	38.8	48.9	42.1	42.1
Carotid (neck arteries) endarterectomy.....	19.8	32.8	23.7	24.2	45.5	29.6	*17.1	24.5	19.5	19.5
Endoscopy of small intestine.....	171.4	189.7	166.0	188.9	193.8	164.2	160.8	187.0	167.3	167.3
Endoscopy of large intestine.....	131.1	123.7	87.9	126.1	113.8	83.9	134.1	130.1	90.7	90.7
Gall bladder removal.....	51.8	43.4	43.6	64.4	46.7	50.5	44.2	41.3	38.7	38.7
Laparoscopic gall bladder removal.....	...	28.9	35.9	...	29.6	39.2	...	28.5	33.6	33.6
Treatment of intra-abdominal scar tissue.....	34.0	28.6	30.2	28.2	26.3	28.7	37.5	30.2	31.3	31.3
Removal of prostate.....	...	...	...	273.5	98.0	41.2	...	...	...	...
Transurethral prostatectomy.....	...	...	...	257.5	89.0	36.6	...	...	...	...
Hysterectomy.....	...	...	...	...	...	...	28.5	25.5	18.5	18.5
Abdominal hysterectomy.....	...	...	...	...	...	...	18.8	16.2	*11.1	*11.1
Vaginal hysterectomy.....	...	...	...	...	...	...	*9.4	8.1	*5.6	*5.6
Reduction of fracture.....	86.2	80.1	68.1	43.4	57.2	46.0	112.1	95.0	84.0	84.0
Excision of intervertebral disc and spinal fusion.....	12.0	17.4	36.5	*13.2	*20.4	*39.9	11.3	15.3	34.0	34.0
Total hip replacement.....	30.7	26.3	49.4	*26.9	*21.3	47.2	47.2	29.6	51.1	51.1
Partial hip replacement.....	43.6	36.6	37.9	*14.3	20.0	*29.9	61.2	47.5	43.7	43.7
Total knee replacement.....	28.4	59.3	86.2	*19.5	48.7	80.4	33.9	66.3	90.4	90.4
Mastectomy.....	...	...	...	...	...	...	29.2	22.0	*11.3	*11.3
CT scan.....	279.7	119.2	*55.2	307.2	127.9	*51.0	263.0	113.5	*58.3	*58.3
Arteriography and angiocardigraphy with contrast.....	141.0	219.2	187.8	192.3	287.9	223.3	109.9	174.3	162.2	162.2
Diagnostic ultrasound.....	273.5	134.1	122.0	315.7	142.8	137.7	248.0	128.4	110.8	110.8
Magnetic resonance imaging.....	30.5	*37.3	*37.6	43.0	*33.6	*44.0	*23.0	*39.8	*33.0	*33.0
Mechanical ventilation.....	79.8	91.1	102.0	110.3	106.5	119.5	61.3	80.9	89.5	89.5

85 years and over		Percent								
Hospital discharges with at least one procedure ²		49.3	44.6	46.8	52.4	45.4	50.5	47.8	44.3	44.7
Number per 10,000 population										
Hospital discharges with at least one procedure ²	2,762.1	2,700.5	2,650.6	3,367.3	2,797.9	3,125.0	2,526.8	2,660.6	2,423.0	2,423.0
Operations on vessels of heart.....	*14.0	51.1	55.5	...	83.0	98.6	...	38.0	34.8	34.8
Coronary angioplasty or arthroectomy.....	...	36.3	44.6	...	*52.9	74.6	...	29.5	*30.2	*30.2
Coronary artery stent insertion.....	...	31.6	40.0	...	*48.9	66.6	...	*24.4	*27.2	*27.2
Drug-eluting stent insertion.....	...	...	22.7	...	...	*36.9	...	...	*15.8	*15.8
Coronary artery bypass graft (CABG).....	...	*15.1	*10.1	...	*30.1	*22.5	...	*9.0	*4.2	*4.2
Cardiac catheterization.....	*23.7	87.7	78.5	...	122.8	111.7	*19.0	73.2	62.6	62.6
Pacemaker.....	79.5	82.9	89.3	120.4	104.3	100.6	63.5	74.2	84.0	84.0
Carotid (neck arteries) endarterectomy.....	...	*12.0	...	...	...	*7.1	...	*4.8	...	...
Endoscopy of small intestine.....	228.8	262.4	192.2	288.7	245.1	228.5	205.5	269.5	174.7	174.7
Endoscopy of large intestine.....	180.8	158.1	98.1	188.0	133.3	128.9	178.0	158.3	83.4	83.4
Gall bladder removal.....	46.4	40.9	23.0	*68.4	*42.9	*30.2	37.8	*40.1	*19.5	*19.5
Laparoscopic gall bladder removal.....	...	*30.4	15.4	...	...	...	...	*30.5	*14.0	*14.0
Treatment of intra-abdominal scar tissue.....	29.6	24.3	23.0	...	*16.4	*13.9	33.7	*27.5	*27.4	*27.4
Removal of prostate.....	...	...	...	257.2	*113.0	42.7	...	...	...	...
Transurethral prostatectomy.....	...	...	...	247.1	*110.0	41.8	...	...	...	...
Hysterectomy.....	...	...	...	...	...	...	...	...	...	...
Abdominal hysterectomy.....	...	...	...	...	...	...	...	...	...	...
Vaginal hysterectomy.....	...	...	...	...	...	...	...	...	...	...
Reduction of fracture.....	196.2	200.5	180.3	150.6	93.8	132.8	213.9	244.3	203.0	203.0
Excision of intervertebral disc and spinal fusion.....	...	*2.3	*6.2	...	...	...	...	...	...	...
Total hip replacement.....	*27.8	*20.7	*25.5	...	...	...	*23.2	*26.3	*21.6	*21.6
Partial hip replacement.....	67.4	82.2	77.1	*52.9	*44.1	66.2	73.1	97.9	82.3	82.3
Total knee replacement.....	*12.4	*22.9	34.0	...	...	*31.3	...	*16.2	35.3	35.3
Mastectomy.....	...	...	...	...	...	...	...	...	...	...
CT scan.....	378.4	158.7	*84.9	401.2	141.4	...	*28.9	*15.7	*85.0	*85.0
Arteriography and angiocardigraphy with contrast.....	50.6	120.8	135.6	*87.6	164.4	161.9	36.2	102.8	123.0	123.0
Diagnostic ultrasound.....	327.7	208.5	200.6	394.5	181.4	216.3	301.7	219.6	193.1	193.1
Magnetic resonance imaging.....	*18.5	*40.4	*35.7	...	...	...	*35.9	*16.2	...	...
Mechanical ventilation.....	91.5	106.0	130.3	97.9	116.5	172.2	89.1	101.7	110.2	110.2

... 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%.

²Starting 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).

³Includes discharges for procedures not shown separately.

⁴Estimates 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. Starting with 2010 data, up to eight procedure codes were available on the file. In order to maintain comparability with previous years, the number of procedure codes for the 2010 data was limited to four codes. 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, 9th Revision, Clinical Modification* (ICD-9-CM). See Appendix II, *International Classification of Diseases, 9th 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).