

Iatrogenic Pneumothorax Rate

Technical Specifications

Patient Safety Indicators 22 (PSI 22)
AHRQ Quality Indicators™, Version 4.5a, July 2014
Area-Level Indicator
Type of Score: Rate

Description

Iatrogenic pneumothorax cases per 100,000 population, ages 18 years and older. Excludes obstetric cases and cases with chest trauma, pleural effusion, thoracic surgery, lung or pleural biopsy, diaphragmatic surgery repair, or cardiac procedures.

[NOTE: The software provides the rate per population. However, common practice reports the measure as per 100,000 population. The user must multiply the rate obtained from the software by 100,000 to report events per 100,000 population.]

Numerator

Surgical and medical discharges, for patients ages 18 years and older, with any-listed ICD-9-CM diagnosis codes for iatrogenic pneumothorax. Surgical and medical discharges are defined by specific DRG or MS-DRG codes.

ICD-9-CM Iatrogenic pneumothorax diagnosis code:

5121 IATROGENIC PNEUMOTHORAX

See *Patient Safety Indicators Appendices*:

- Appendix B – Medical Discharge DRGs
- Appendix C – Medical Discharge MS-DRGs
- Appendix D – Surgical Discharge DRGs
- Appendix E – Surgical Discharge MS-DRGs

Exclude cases:

- with any-listed ICD-9-CM diagnosis codes for chest trauma
- with any-listed ICD-9-CM diagnosis codes for pleural effusion
- with any-listed ICD-9-CM procedure codes for thoracic surgery
- with any-listed ICD-9-CM procedure codes for lung or pleural biopsy
- with any-listed ICD-9-CM procedure codes for diaphragmatic surgery repair
- with any-listed ICD-9-CM procedure codes for cardiac procedure
- MDC 14 (pregnancy, childbirth, and puerperium)

- with missing gender (SEX=missing), age (AGE=missing), quarter (DQTR=missing), year (YEAR=missing) principal diagnosis (DX1=missing), or county (PSTCO=missing)

ICD-9-CM Chest trauma diagnosis codes¹:

80700	FRACTURE RIB NOS-CLOSED	8621	DIAPHRAGM INJURY-OPEN
80701	FRACTURE ONE RIB-CLOSED	86221	BRONCHUS INJURY-CLOSED
80702	FRACTURE TWO RIBS-CLOSED	86222	ESOPHAGUS INJURY-CLOSED
80703	FRACTURE THREE RIBS-CLOS	86229	INTRATHORACIC INJ NEC-CL
80704	FRACTURE FOUR RIBS-CLOSE	86231	BRONCHUS INJURY-OPEN
80705	FRACTURE FIVE RIBS-CLOSE	86232	ESOPHAGUS INJURY-OPEN
80706	FRACTURE SIX RIBS-CLOSED	86239	INTRATHORAC INJ NEC-OPEN
80707	FRACTURE SEVEN RIBS-CLOS	8628	INTRATHORACIC INJ NOS-CL
80708	FX EIGHT/MORE RIB-CLOSED	8629	INTRATHORAC INJ NOS-OPEN
80709	FX MULT RIBS NOS-CLOSED	8750	OPEN WOUND OF CHEST
80710	FRACTURE RIB NOS-OPEN	8751	OPEN WOUND CHEST-COMPL
80711	FRACTURE ONE RIB-OPEN	8760	OPEN WOUND OF BACK
80712	FRACTURE TWO RIBS-OPEN	8761	OPEN WOUND BACK-COMPL
80713	FRACTURE THREE RIBS-OPEN	9010	INJURY THORACIC AORTA
80714	FRACTURE FOUR RIBS-OPEN	9011	INJ INNOMIN/SUBCLAV ART
80715	FRACTURE FIVE RIBS-OPEN	9012	INJ SUPERIOR VENA CAVA
80716	FRACTURE SIX RIBS-OPEN	9013	INJ INNOMIN/SUBCLAV VEIN
80717	FRACTURE SEVEN RIBS-OPEN	90140	INJ PULMONARY VESSEL NOS
80718	FX EIGHT/MORE RIBS-OPEN	90141	INJURY PULMONARY ARTERY
80719	FX MULT RIBS NOS-OPEN	90142	INJURY PULMONARY VEIN
8072	FRACTURE OF STERNUM-CLOS	90181	INJ INTERCOSTAL ART/VEIN
8073	FRACTURE OF STERNUM-OPEN	90182	INJ INT MAMMARY ART/VEIN
8074	FLAIL CHEST	90183	INJ MULT THORACIC VESSEL
8075	FX LARYNX/TRACHEA-CLOSED	90189	INJ THORACIC VESSEL NEC
8076	FX LARYNX/TRACHEA-OPEN	9019	INJ THORACIC VESSEL NOS
8090	FRACTURE TRUNK BONE-CLOS	9110	ABRASION TRUNK
8091	FRACTURE TRUNK BONE-OPEN	9111	ABRASION TRUNK-INFECTED
8600	TRAUM PNEUMOTHORAX-CLOSE	9118	SUPERFIC INJ TRUNK NEC
8601	TRAUM PNEUMOTHORAX-OPEN	9119	SUPERFIC INJ TRUNK NEC-INF
8602	TRAUM HEMOTHORAX-CLOSED	9220	CONTUSION OF BREAST
8603	TRAUM HEMOTHORAX-OPEN	9221	CONTUSION OF CHEST WALL
8604	TRAUM PNEUMOHMOTHOR-CL	9223	<i>BACK CONTUSION (end 1996)</i>
8605	TRAUM PNEUMOHMOTHOR-OPN	92231	BACK CONTUSION
86100	HEART INJURY NOS-CLOSED	92233	INTERSCPLR REG CONTUSION
86101	HEART CONTUSION-CLOSED	9228	MULIPLE CONTUSION TRUNK
86102	HEART LACERATION-CLOSED	9229	CONTUSION TRUNK NOS
86103	HEART CHAMBER LACERAT-CL	92611	CRUSHING INJURY BACK
86110	HEART INJURY NOS-OPEN	92619	CRUSHING INJ TRUNK NEC
86111	HEART CONTUSION-OPEN	9268	MULT CRUSHING INJ TRUNK
86112	HEART LACERATION-OPEN	9269	CRUSHING INJ TRUNK NOS
86113	HEART CHAMBER LACER-OPN	9290	CRUSH INJ MULT SITE NEC
86120	LUNG INJURY NOS-CLOSED	9299	CRUSHING INJURY NOS
86121	LUNG CONTUSION-CLOSED	9541	INJ SYMPATH NERVE NEC
86122	LUNG LACERATION-CLOSED	9548	INJURY TRUNK NERVE NEC
86130	LUNG INJURY NOS-OPEN	9549	INJURY TRUNK NERVE NOS
86131	LUNG CONTUSION-OPEN	95911	INJURY OF CHEST WALL NEC
86132	LUNG LACERATION-OPEN	95919	TRUNK INJURY-SITES NEC
8620	DIAPHRAGM INJURY-CLOSED	9599	INJURY-SITE NOS

¹ The procedure or diagnosis codes are continuously updated. The current list of ICD-9-CM codes is valid for October 2012 through September 2013. Italicized codes are not active in Fiscal Year 2013.

ICD-9-CM Pleural effusion diagnosis codes¹:

0101	PRIMARY TB PLEURISY (<i>invalid 4-digit code</i>)	01176	TB PNEUMOTHORAX-OTH TEST
01010	PRIM TB PLEURISY-UNSPEC	0120	TUBERCULOUS PLEURISY (<i>invalid 4-digit code</i>)
01011	PRIM TB PLEURISY-NO EXAM	01200	TB PLEURISY-UNSPEC
01012	PRIM TB PLEUR-EXAM UNKN	01201	TB PLEURISY-NO EXAM
01013	PRIM TB PLEURIS-MICRO DX	01202	TB PLEURISY-EXAM UNKN
01014	PRIM TB-PLEURISY-CULT DX	01203	TB PLEURISY-MICRO DX
01015	PRIM TB PLEURIS-HISTO DX	01204	TB PLEURISY-CULT DX
01016	PRIM TB PLEURIS-OTH TEST	01205	TB PLEURISY-HISTOLOG DX
0117	TUBERCULOUS PNEUMOTHORAX (<i>invalid 4-digit code</i>)	01206	TB PLEURISY-OTH TEST
01170	TB PNEUMOTHORAX-UNSPEC	1972	SECOND MALIG NEO PLEURA
01171	TB PNEUMOTHORAX-NO EXAM	5111	BACT PLEUR/EFFUS NOT TB
01172	TB PNEUMOTHORAX-EXAM UNKN	5118	PLEURAL EFFUS NEC NOT TB (<i>end 2008</i>)
01173	TB PNEUMOTHORAX-MICRO DX	51181	MALIGNANT PLEURAL EFFUSN
01174	TB PNEUMOTHORAX-CULT DX	51189	EFFUSION NEC EXC TB
01175	TB PNEUMOTHORAX-HISTO DX	5119	PLEURAL EFFUSION NOS

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ICD-9-CM Thoracic surgery procedure codes¹:

0522	CERVICAL SYMPATHECTOMY	329	OTHER EXCISION OF LUNG
0523	LUMBAR SYMPATHECTOMY	330	INCISION OF BRONCHUS
0529	OTHER SYMPATHECTOMY	331	INCISION OF LUNG
0780	THYMECTOMY NOS	3320	THORACOSCOPC LUNG BIOPSY
0781	OTH PART EXCISION THYMUS	3325	OPEN BRONCHIAL BIOPSY
0782	OTH TOTL EXCISION THYMUS	3326	BLOSED LUNG BIOPSY
0783	THORAC PART EXISN THYMUS	3327	CLOS ENDOSCOPIC LUNG BX
0784	THORAC TOTAL EXC THYMUS	3328	OPEN LUNG BIOPSY
3121	MEDIASTINAL TRACHEOSTOMY	3329	BRONCH/LUNG DX PROC NEC
3145	OPN BX LARYNX OR TRACHEA	3331	DESTR PHRENUNG COLLAPS
3173	TRACHEA FUSTYLA CLOS NEC	3332	PNEUMOTHORAX-LUNG COLLAPS
3179	OTHER TRACHEAL REPAIR	3333	PNEUMOPERIT-LUNG COLLAPS
3199	OTHER TRACHEAL OPERATION	3334	PNEUMOPERIT-LUNG COLLAPS
3209	OTHER DESTRUC BRONC LES	3339	SURG COLLAPS OF LUNG NEC
321	OTHER BRONCHIAL EXCISION	<hr/>	
3220	THORAC EXC LUNG LESION (<i>begin 2007</i>)	Repair and plastic operation on lung and bronchus	
<hr/>		3341	BRONCHIAL LACERAT SUTURE
Local excision or destruction of lesion or tissue of lung		3342	BRONCHIAL FISTULA CLOS
3221	EMPHYSEMA BLEB PPLICATION	3343	LUNG LACERATION CLOSURE
3222	LUNG VOL REDUCTION SURG	3348	BRONCHIAL REPAIR NEC
3223	OPEN ABLTN LUNG LES/TISS	3349	LUNG REPAIR NEC
3224	PERC ABLTN LUNG LES/TISS	<hr/>	
3225	THOR ABLTN LUNG LES/TISS	Lung transplant	
3226	ABLTN LUNG TISS NEC/NOS	335	LUNG TRANSPLANTATION (<i>end 1995</i>)
3227	BRNC THRMPSTY,ABLT MSCL	3350	LUNG TRANSPLANT NOS (<i>begin 1995</i>)
3228	ENDOSC DESTRUC LUNG LES	3351	UNILAT LUNG TRANSPLANT(<i>begin 1995</i>)
3229	DESTROY LOC LUNG LES NEC	3352	BILAT LUNG TRANSPLANT(<i>begin 1995</i>)
323	SEGMENTAL RESECTION OF LUNG (<i>end 2007</i>)	336	COMB HEART/LUNG TRANSPLA
3230	THORAC SEG LUNG RESECT(<i>begin 2007</i>)	3392	BRONCHIAL LIGATION
3239	OTH SEG LUNG RESECT NOS (<i>begin 2007</i>)	3393	PUNCTURE OF LUNG
324	LOBECTOMY OF LUNG (<i>end 2007</i>)	3398	BRONCHIAL OPERATION NEC
3241	THORAC LOBECTOMY LUNG (<i>begin 2007</i>)	3399	LUNG OPERATION NEC
3249	LOBECTOMY OF LUNG NEC (<i>begin 2007</i>)	3401	INCISION OF CHEST WALL
325	COMPLETE PNEUMONECTOMY (<i>end 2007</i>)	3402	EXPLORATORY THORACOTOMY
3250	THORACOSPC PNEUMONECTOMY (<i>begin 2007</i>)	3403	REOPEN THORACOTOMY SITE
3259	OTHER PNEUMONECTOMY NOS (<i>begin 2007</i>)	3405	PIEUOPERITONEAL SHUNT
326	RAD DISSEC THORAC STRUCT	3409	OTHER PLEURAL INCISION
		341	INCISION OF MEDIASTINUM
		<hr/>	
		Diagnostic procedures on chest wall, pleura, mediastinum, and diaphragm	
		3420	THORACOSCOPIC PLEURAL BX

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3421	TRANSPLEURA THORACOSOCOPY	4221	ESOPHAGOSCOPY BY INCIS
3422	MEDIASTINOSCOPY	4225	OPEN BIOPSY OF ESOPHAGUS
3423	CHEST WALL BIOPSY	4231	LOC EXCIS ESOPH DIVERTIC
3424	PLEURAL BIOPSY NEC	4232	LOCAL EXCIS ESOPHAG NEC
3425	CLOS MEDIASTINAL BIOPSY	<hr/>	
3426	OPEN MEDIASTINAL BIOPSY	Excision of esophagus	
3427	BIOPSY OF DIAPHRAGM	4239	DESTRUCT ESOPHAG LES NEC
3428	DX PROCEDURE THORAX NEC	4240	ESOPHAGECTOMY NOS
3429	DX PROC MEDIASTINUM NEC	4241	PARTIAL ESOPHAGECTOMY
343	DESTRUCT MEDASTIN LES	4242	TOTAL ESOPHAGECTOMY
344	DESTRUCT CHEST WALL LES	<hr/>	
3451	DECORTICATION OF LUNG	Intrathoracic anastomosis of exophagus	
3452	THORACOSCOPC DECORT LUNG	4251	THORAC ESOPHAGUESOPHAGOS
3459	OTHER PLEURAL EXCISION	4252	THROAC ESOPHAGOGASTROST
<hr/>		4253	THORAC SM BOWEL INTERPOS
Repair of chest wall		4254	THORAC ESOPHAGOENTER NEC
3471	SUTURE CEHST WALL LACER	4255	THORAC LG BOWEL INTERPOS
3472	THORACOSTOMY CLOSURE	4256	THROAC ESOPHAGOCOLOS NEC
3473	CLOS THORACIC FISTUL NEC	4258	THORAC INTERPOSITION NEC
3474	PECTUS DEFORMITY REPAIR	4259	THORAC ESOPHAG ANAST NEC
3479	OTHER CEHST WALL REPAIR	<hr/>	
<hr/>		Antesternal anastomosis	
Operations on diaphragm		4261	STERN ESOPHAGUESOPHAGOST
3481	EXCISE DIAPHRAGM LESION	4262	STERN ESOPHAGOGASTREOSTOM
3482	SUTURE DIAPHRAGM LACERAT	4263	STERN SM BOWEL INTERPOS
3483	CLOSE DIAPHRAGM FISTULA	4264	STERN ESOPHAGOENTER NEC
3484	OTHER DIAPHRAGM REPAIR	4265	STERN LG BOWEL INTERPOS
3485	IMPLANT DIAPHRA PACEMAKE	4266	STERN ESOPHAGOCOLOS NEC
3489	DIAPHRAGM OPERATION NEC	4268	STERN INTERPOSITION NEC
3493	REPAIR OF PLEURA	4269	STERN ESOPHAG ANAST NEC
3499	THORACIC OPERATION NEC	<hr/>	
<hr/>		Other repair of esophagus	
Operations on thoracic duct		427	ESOPHAGOMYOTOMY
4061	THORAC DUCT CANNULATION	4281	INSERT PERM TUBE ESOPHAG
4062	THORACIC DUCT FISTULIZAT	4282	SUTURE ESOPHAGEAL LACER
4063	CLOSE THORACIC DUCT FIST	4283	ESOPHAGOSTOMY CLOSURE
4064	LIGATE THORACIC DUCT	4284	ESOPH FISTULA REPAIR NEC
4069	THROACIC DUCT OP NEC	4285	ESOPHAG STRICTURE REPAIR
<hr/>		4286	PROD SUBQ TUNNEL NO ANAS
Esophagotomy		4287	ESOPHAGEAL GRAFT NEC
4201	ESOPHAGEAL WEB INCISION	4289	ESOPHAGEAL REPAIR NEC
4209	ESOPHAGEAL INCISION NEC	4465	ESOPHAGOGASTROPLASTY
4210	ESOPHAGOSTOMY NOS	4466	CREAT ESOPHAGASTR SPHINB
4211	CERVIAL ESOPHAGOSTOMY	8104	DRSL/DRSLUMB DUS ANT/ANT
4212	ESOPH POUCH EXTERIORIZAT	8134	REFUS DRS/DRSLM ANT/ANT
4219	EXT FISTULIZAT ESOPH NEC		

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ICD-9-CM Lung or pleural biopsy procedure codes:

3326	CLOSED LUNG BIOPSY	3424	PLEURAL BIOPSY NEC
3328	OPEN LUNG BIOPSY		

ICD-9-CM Diaphragmatic surgery repair procedure codes¹:

537	<i>ABD REPAIR-DIAPHR HERNIA (end 2008)</i>	5381	DIAPHRAGMATIC PPLICATION
5371	LAP ABD REP-DIAPHR HERN	5382	PARASTERN HERNIA REPAIR
5372	OPN ABD DIAPHRM HERN NEC	5383	LAP THORC APP-DIAPH HERN
5375	ABD REP-HAPHR HERN NOS	5384	OPN THORC DIAPH HERN NEC
5380	THOR REP-DIAH HERN NOS		

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ICD-9-CM Cardiac procedure codes:

3506	TRNSAPCL REP AORTC VALVE	3613	AORTOCOR BYPAS-3 COR ART
3508	TRNSAPCL REP PULM VALVE	3614	AORTCOR BYPAS-4+ COR ART
3510	OPEN VALVULOPLASTY NOS	3615	1 INT MAM-COR ART BYPASS
3511	OPN AORTIC VALVULOPLASTY	3616	2 INTO MAM-COR ART BYPASS
3512	OPN MITRAL VALVULOPLASTY	3617	ABD-CORON ARTERY BYPASS
3513	OPN PULMON VALVULOPLASTY	3619	HRT REVAS BYPS ANAS NEC
3514	OPN TRICUS VALVULOPLASTY	362	ARTERIAL IMPLANT REVASC
3520	OPN/OTH REP HRT VLV NOS	3631	OPEN CHEST TRANS REVASC
3521	OPN/OTH REP AORT VLV-TIS	3632	OTH TRANSMYO REVASCULAR
3522	OPN/OTH REP AORTIC VALVE	3639	OTH HEART REVASCULAR
3523	OPN/OTH REP MTRL VLV-TIS	3691	CORON VESS ANEURYSM REP
3524	OPN/OTH REP MITRAL VALVE	3699	HEART VESSEL OP NEC
3525	OPN/OTH REP PULM VLV0TIS	370	PERICARDIOCENTESIS
3526	OPN/OTH REPL PUL VALVE	3710	INCISION OF HEART NOS
3527	OPN/OTH REP TCSPD VLV-TS	3711	CARDIOTOMY
3528	OPN/OTH REPL TCSPD VALVE	3712	PERICARDIOTOMY
3531	PAPILLARY MUSCLE OPS	3731	PERICARDIECTOMY
3532	CHORDAE TENDINEAE OPS	3732	HEART ANEURYSM EXCISION
3533	ANNULOPLASTY	3733	EXC/DEST HRT LESION OPEN
3534	INFUNDIBULECTOMY	3735	PARTIAL VENTRICULECTOMY
3535	TRABECUL CARNEAE CORD OP	3736	EXC,DESTRCT,EXCLUS LAA
3539	TISS ADH TO VALV OPS NEC	3737	EXC/DEST HRT LEC, THRSPC
3550	PROSTH REP HRT SEPTA NOS	3741	IMPL CARDIAC SUPPORT DEV
3551	PROS REP ATRIAL DEF-OPN	3749	HEART/PERICARD REPR NEC
3553	PROS REP VENTRIC DEF-OPN	3751	HEART TRANSPLANTATION
3554	PROS REP ENDOCAR CUSHION	3752	IMP TOT INT BI HT RP SYS
3560	GRFT REPAIR HRT SEPT NOS	3753	REPL/REP THR UNT TOT HRT
3561	GRAFT REPAIR VENTRIC DEF	3754	REPL/REP OTH TOT HRT SYS
3562	GRAFT REPAIR VENTRIC DEF	3755	REM INT BIVENT HRT SYS
3563	GRFT REP ENDOCAR CUSION	3760	IMP BIVN EXT HRT AST SYS
3570	HEART SEPTA REPAIR NOS	3761	PULSATION BALLOON IMPLAN
3571	ATRIA SEPTA DEF REP NEC	3762	INSRT NON-IMPL CIRC DEV
3572	VENTR SEPTA DEF REP NEC	3763	REPAIR HEART ASSIST SYS
3573	ENDOCAR CUSION REP NEC	3764	REMV EXT HRT ASSIST SYS
3581	TOT REPAIR TETRAL FALLOW	3765	IMP VENT EXT HRT AST SYS
3582	TOTAL REPAIR OF TAPVC	3766	IMPLANTABLE HRT ASSIST
3583	TOT REP TRUNCUS ARTERIOS	3767	IMP CARDIOMYOSTIMUL SYS
3584	TOT COR TRASNPOS GRT VES	3791	OPEN CHEST CARDIAC MASSAG
3591	INTERAT VEN RETRN TRANSP	3804	INCISION OF AORTA
3592	CONDUIT RT VENT-PUL ART	3805	THORACIC VESSEL INC NEC
3593	CONDUIT LEFT VENTR-AORTA	3844	RESECT ABDM AORTA W REPL
3594	CONDUIT ARTIUM-PULM ART	3845	RESECT THORAC VES W REPL
3595	HEART REPAIR REVISION	3864	EXCISION OF AORTA
3597	PERC MTRL VLV REPR W IMP	3865	THORACIC VESSEL EXCISION
3598	OTHER HEART SEPTA OPS	3884	OCCLUDE AORTA NEC
3599	OTHER HEART VALVE OPS	3885	OCCLUDE THORACIC VES NEC
3603	OPEN CORONRY ANGIOPLASTY	390	SYSTEMIC-PULM ART SHUNT
3610	AORTOCORONARY BYPASS NOS	3921	CAVAL-PULMON ART ANASTOM
3611	AOROTOCO BYPAS-1 COR ART	3922	AORTA-SUBCLV-CAROT BYPAS
3612	AORTOCOR BYPAS-2 COR ART	3923	INTRATHORACIC SHUNT NEC

Denominator

Population ages 18 years and older in metropolitan area[†] or county. Discharges in the numerator are assigned to the denominator based on the metropolitan area or county of the patient residence, not the metropolitan area or county of the hospital where the discharge occurred.

[†] The term “metropolitan area” (MA) was adopted by the U.S. Census in 1990 and referred collectively to metropolitan statistical areas (MSAs), consolidated metropolitan statistical areas (CMSAs) and primary metropolitan statistical areas (PMSAs). In addition, “area” could refer to either 1) FIPS county, 2) modified FIPS county, 3) 1999 OMB Metropolitan Statistical Area or 4) 2003 OMB Metropolitan Statistical Area. Metropolitan Statistical Areas are not used in the QI software.