

Postoperative Respiratory Failure Rate Technical Specifications

Patient Safety Indicators 11 (PSI 11)

AHRQ Quality Indicators™, Version 4.5a, July 2014

Provider-Level Indicator

Type of Score: Rate

Description

Postoperative respiratory failure (secondary diagnosis), mechanical ventilation, or reintubation cases per 1,000 elective surgical discharges for patients ages 18 years and older. Excludes cases with principal diagnosis for acute respiratory failure; cases with secondary diagnosis for acute respiratory failure present on admission; cases in which tracheostomy is the only operating room procedure or in which tracheostomy occurs before the first operating room procedure; cases with neuromuscular disorders, laryngeal or pharyngeal surgery, craniofacial anomalies that had a procedure for the face, esophageal resection, lung cancer, or degenerative neurological disorders; cases with a procedure on the nose, mouth, or pharynx; cases with respiratory or circulatory diseases; and obstetric discharges.

[NOTE: The software provides the rate per hospital discharge. However, common practice reports the measure as per 1,000 discharges. The user must multiply the rate obtained from the software by 1,000 to report events per 1,000 hospital discharges.]

Numerator

Discharges, among cases meeting the inclusion and exclusion rules for the denominator, with either:

- any secondary ICD-9-CM diagnosis code for acute respiratory failure; or
- any-listed ICD-9-CM procedure codes for a mechanical ventilation for 96 consecutive hours or more that occurs zero or more days after the first major operating room procedure code (based on days from admission to procedure); or
- any-listed ICD-9-CM procedure codes for a mechanical ventilation for less than 96 consecutive hours (or undetermined) that occurs two or more days after the first major operating room procedure code (based on days from admission to procedure); or
- any-listed ICD-9-CM procedure codes for a reintubation that occurs one or more days after the first major operating room procedure code (based on days from admission to procedure)

ICD-9-CM Acute respiratory failure diagnosis codes¹:

51851	AC RESP FLR FOL TRMA/SRG (begin 2011)	51853	AC/CHR RSP FLR FOL TR/SG (begin 2011)
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51881 ACUTE RESPIRATORY FAILURE (drop
2011)

51884 ACUTE & CHRONIC RESP FAIL (drop
2011)

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 either not active in Fiscal Year 2013 or no longer used in the algorithm beginning with ICD-9-CM version 29 (FY 2012 or October 1, 2011).

ICD-9-CM Mechanical ventilation for 96 consecutive hours or more procedure code:

9672 CONT INV MEC CEN 96+ HRS

ICD-9-CM Mechanical ventilation for less than 96 consecutive hours (or undetermined) procedure codes:

9670 CONV INV MEC VEN-UNSP DUR

9671 CONT INV MEC VEN <96 HRS

ICD-9-CM Reintubation procedure code:

9604 INSERT ENDOTRACHEAL TUBE

Denominator

Elective surgical discharges, for patients ages 18 years and older, with any-listed ICD-9-CM procedure codes for an operating room procedure. Elective surgical discharges are defined by specific DRG or MS-DRG codes with admission type recorded as elective (SID ATYPE=3).

See *Patient Safety Indicators Appendices*:

- Appendix A – Operating Room Procedure Codes
- Appendix D – Surgical Discharge DRGs
- Appendix E – Surgical Discharge MS-DRGs

Exclude cases:

- with a principal ICD-9-CM diagnosis code (or secondary diagnosis present on admission) for acute respiratory failure (see above)
- where the only operating room procedure is tracheostomy
- where a procedure for tracheostomy occurs before the first operating room procedure[†]
- with any-listed ICD-9-CM diagnosis codes for neuromuscular disorder
- with any-listed ICD-9-CM procedure codes for laryngeal or pharyngeal surgery
- with any-listed ICD-9-CM procedure codes for the face and any-listed ICD-9-CM diagnosis codes for craniofacial anomalies
- with any-listed ICD-9-CM procedure codes for esophageal resection
- with any-listed ICD-9-CM procedure codes for lung cancer
- with any-listed ICD-9-CM procedure codes for procedure on the nose, mouth and pharynx
- any-listed ICD-9-CM diagnosis codes for degenerative neurological disorder
- MDC 4 (diseases/disorders of respiratory system)
- MDC 5 (diseases/disorders of circulatory system)
- MDC 14 (pregnancy, childbirth, and puerperium)
- with missing gender (SEX=missing), age (AGE=missing), quarter (DQTR=missing), year

[†] If day of procedure is not available in the input data file, the rate may be slightly lower than if the information was available

(YEAR=missing), or principal diagnosis (DX1=missing)

ICD-9-CM Tracheostomy procedure codes:

3121	MEDIASTINAL TRACHEOSTOMY	3174	REVISION OF TRACHEOSTOMY
3129	OTHER PERM TRACHEOSTOMY		

ICD-9-CM Neuromuscular disorder diagnosis codes¹:

3570	AC INFECT POLYNEURITIS	35921	MYOTONIC MUSCULAR DYSTRPHY
35800	MYSTHNA GRVS W/O AC EXAC	35922	MYOTONIA CONGENITA
35801	MYASTHNA GRAVS W AC EXAC	35923	MYOTONIC CHONDRODYSTRPHY
3581	MYASTHENIA IN OTH DIS	35929	OTHER MYOTONIC DISORDER
3582	TOXIC MYONEURAL DISORDER	3593	PERIODIC PARALYSIS
35830	LAMBERT-EATON SYND NOS	3594	TOXIC MYOPATHY
35831	LAMBERT-EATON SYND NEOPL	3595	MYOPATHY IN ENDOCRIN DIS
35839	LAMBERT-EATON SYN OT DIS	3596	INFL MYOPATHY IN OTH DIS
3588	MYONEURAL DISORDERS NEC	35971	INCLUSION BODY MYOSITIS
3589	MYONEURAL DISORDERS NOS	35979	INFLM/IMMUNE MYOPATH NEC
3590	CONG HERED MUSC DYSTRPHY	35981	CRITICAL ILLNESS MYOPATHY
3591	HERED PROG MUSC DYSTRPHY	35989	MYOPATHIES NEC
3592	<i>MYOTONIC DISORDERS (end 2007)</i>	3599	MYOPATHY NOS

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ICD-9-CM Laryngeal or pharyngeal surgery procedure codes:

253	COMPLETE GLOSSECTOMY	3022	VOCAL CORDECTOMY
254	RADICAL GLOSSECTOMY	3029	OTHER PART LARYNGECTOMY
2731	LOC EXC BONY PALATE LES	303	COMPLETE LARYNGECTOMY
290	PHARYNGOTOMY	304	RADICAL LARYNGECTOMY
2933	PHARYNGECTOMY	313	INCIS LARYNX TRACHEA NEC
2939	EXCIS/DESTR LES PHAR NEC	315	LOCAL DESTRUC TRACH LES
294	PLASTIC OP ON PHARYNX	3169	OTHER LARYNGEAL REPAIR
2953	CLOS PHARYNX FISTULA NEC	3173	TRACHEA FISTULA CLOS NEC
2959	PHARYNGEAL REPAIR NEC	3175	TRACHEAL RECONSTRUCTION
2991	PHARYNGEAL DILATION	3179	OTHER TRACHEAL REPAIR
3009	DESTRUCT LARYNX LES NEC	3198	OTH LARYNGEAL OPERATION
3021	EPIGLOTTIDECTOMY	3199	OTHER TRACHEAL OPERATION

ICD-9-CM Face procedure codes:

252	PARTIAL GLOSSECTOMY	2931	CRICOPHARYNGEAL MYOTOMY
2559	REPAIR OF TONGUE NEC	7646	FACIAL BONE RECONSTR NEC
2732	WIDE EXC BONY PALATE LES	7665	SEG OSTEOPLASTY MAXILLA
2762	CLEFT PALATE CORRECTION	7666	TOT OSTEOPLASTY MAXILLA
2763	REVIS CLEFT PALAT REPAIR	7669	FACIAL BONE REPAIR NEC
2769	OTH PLASTIC REPAIR PALAT	7691	BONE GRAFT TO FACE BONE

ICD-9-CM Craniofacial anomalies diagnosis codes:

74483	MACROSTOMIA	7483	LARYNGOTRACH ANOMALY NEC
74484	MICROSTOMIA	7560	ANOMAL SKULL/FACE BONES
7449	CONG FACE/NECK ANOM NOS		

ICD-9-CM Esophageal resection procedure codes¹:

424	<i>ESOPHAGECTOMY (invalid 3-digit code)</i>	4253	THORAC SM BOWEL INTERPOS
4240	ESOPHAGECTOMY NOS	4254	THORAC ESOPHAGOENTER NEC
4241	PARTIAL ESOPHAGECTOMY	4255	THORAC LG BOWEL INTERPOS
4242	TOTAL ESOPHAGECTOMY	4256	THORAC ESOPHAGOCOLOS NEC
425	<i>THORAC ESOPHAG ANAST (invalid 3-digit code)</i>	4258	THORAC INTERPOSITION NEC
4251	THORAC ESOPHAGUESOPHAGOS	4259	THORAC ESOPHAG ANAST NEC
4252	THORAC ESOPHAGOGASTROST	426	<i>STERN ESOPHAG ANAST (invalid 3-digit code)</i>

**AHRQ QI™ Version 4.5, Patient Safety Indicators 11, Technical Specifications,
Postoperative Respiratory Failure Rate
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4261	STERN ESOPHAGUESOPHAGOST	4266	STERN ESOPHAGOCOLOS NEC
4262	STERN ESOPHAGOGASTROSTOM	4268	STERN INTERPOSITION NEC
4263	STERN SM BOWEL INTERPOS	4269	STERN ESOPHAG ANAST NEC
4264	STERN ESOPHAGOENTER NEC	4399	TOTAL GASTRECTOMY NEC
4265	STERN LG BOWEL INTERPOS		

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ICD-9-CM Lung cancer procedure codes:

3239	OTH SEG LUNG RESECT NOS	3259	OTHER PNEUMONECTOMY NOS
3249	LOBECTOMY OF LUNG NEC		

ICD-9-CM Procedure on nose, mouth and pharynx procedure codes¹:

214	RESECTION OF NOSE	2742	WIDE EXCISION OF LIP LES
2161	DIATHER/CRYO TURBINECTOM	2743	EXCISION OF LIP LES NEC
2162	TURBINATE FRACTURE	2749	EXCISION OF MOUTH NEC
2169	TURBINECTOMY NEC	2753	CLOSURE OF MOUTH FISTULA
2172	OPEN REDUCTION NASAL FX	2754	REPAIR OF CLEFT LIP
2199	NASAL OPERATION NEC	2755	FULL-THICK GRFT TO MOUTH
2231	RADICAL MAXILLARY ANTROT	2756	SKIN GRAFT TO MOUTH NEC
2239	EXT MAXILLARY ANTROT NEC	2757	PEDICLE ATTACH TO MOUTH
2241	FRONTAL SINUSOTOMY	2759	MOUTH REPAIR NEC
2242	FRONTAL SINUSECTOMY	2761	SUTURE OF PALATE LACERAT
2250	SINUSOTOMY NOS	2762	CLEFT PALATE CORRECTION
2251	ETHMOIDOTOMY	2763	REVIS CLEFT PALAT REPAIR
2252	SPHENOIDOTOMY	2764	INSERT PALATAL IMPLANT
2253	MULTIPLE SINUS INCISION	2769	OTH PLASTIC REPAIR PALAT
2260	SINUSECTOMY NOS	2771	INCISION OF UVULA
2261	C-LUC EXC MAX SINUS LES	2772	EXCISION OF UVULA
2262	EXC MAX SINUS LESION NEC	2773	REPAIR OF UVULA
2263	ETHMOIDECTOMY	2779	OTHER UVULA OPERATIONS
2264	SPHENOIDECTOMY	2792	MOUTH INCISION NOS
2271	NASAL SINUS FISTULA CLOS	2799	ORAL CAVITY OPS NEC
2279	NASAL SINUS REPAIR NEC	280	PERITONSILLAR I & D
229	OTHER NASAL SINUS OPS	284	EXCISION OF TONSIL TAG
242	GINGIVOPLASTY	285	EXCISION LINGUAL TONSIL
251	DESTRUCTION TONGUE LES	2891	INCIS TO REMOV TONSIL FB
252	PARTIAL GLOSSECTOMY	2892	EXCIS TONSIL/ADENOID LES
253	COMPLETE GLOSSECTOMY	2899	TONSIL/ADENOID OPS NEC
254	RADICAL GLOSSECTOMY	290	PHARYNGOTOMY
2559	REPAIR OF TONGUE NEC	292	EXC BRANCHIAL CLEFT CYST
2594	OTHER GLOSSOTOMY	293	<i>DESTRUCT PHARYNGEAL LES (end 1991)</i>
2599	TONGUE OPERATION NEC	2931	CRICOPHARYNGEAL MYOTOMY
2621	SALIVARY CYST MARSUPIAL	2932	PHARYNGEAL DIVERTICULEC
2629	SALIV LESION EXCIS NEC	2933	PHARYNGECTOMY
2630	SIALOADENECTOMY NOS	2939	EXCIS/DESTR LES PHAR NEC
2631	PARTIAL SIALOADENECTOMY	294	PLASTIC OP ON PHARYNX
2632	COMPLETE SIALOADENECTOMY	2951	SUTURE OF PHARYNGEAL LAC
2641	SUTURE OF SALIV GLND LAC	2952	CLOS BRANCH CLEFT FISTUL
2642	SALIVARY FISTULA CLOSURE	2953	CLOS PHARYNX FISTULA NEC
2649	SALIVARY REPAIR NEC	2954	LYSIS PHARYNGEAL ADHES
2699	SALIVARY OPERATION NEC	2959	PHARYNGEAL REPAIR NEC
270	DRAIN FACE & MOUTH FLOOR	2992	DIVIS GLOSSOPHARYNG NERV
271	INCISION OF PALATE	2999	PHARYNGEAL OPERATION NEC
2731	LOC EXC BONY PALATE LES		
2732	WIDE EXC BONY PALATE LES		

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ICD-9-CM Degenerative neurological disorder diagnosis codes¹:

2900	SENILE DEMENTIA UNCOMP	29411	DEMENTIA W BEHAVIOR DIST
29010	PRESENILE DEMENTIA	2948	MENTAL DISOR NEC OTH DIS
29011	PRESENILE DELIRIUM	2949	MENTAL DISOR NOS OTH DIS
29012	PRESENILE DELUSION	3100	FRONTAL LOBE SYNDROME
29013	PRESENILE DEPRESSION	3102	POSTCONCUSSION SYNDROME
29020	SENILE DELUSION	3108	<i>NONPSYCHOT BRAIN SYN NEC (end 2011)</i>
29021	SENILE DEPRESSIVE	31081	PSEUDOBULBAR AFFECT
2903	SENILE DELIRIUM	31089	NONPSYCH MNTL DISORD NEC
29040	VASCULAR DEMENTIA,UNCOMP	3109	NONPSYCHOT BRAIN SYN NOS
29041	VASC DEMENTIA W DELIRIUM	3310	ALZHEIMER'S DISEASE
29042	VASC DEMENTIA W DELUSION	3311	<i>FRONTOTEMPORAL DEMENTIA (end 2003)</i>
29043	VASC DEMENTIA W DEPRESSN	33111	PICK'S DISEASE
2908	SENILE PSYCHOSIS NEC	33119	FRONTOTEMP DEMENTIA NEC
2909	SENILE PSYCHOT COND NOS	3312	SENILE DEGENERAT BRAIN
2930	DELIRIUM D/T OTHER COND	3316	CORTICOBASAL DEGENERATION
2931	SUBACUTE DELIRIUM	33182	DEMENTIA WITH LEWY BODIES
2940	AMNESTIC DISORD OTH DIS	34882	BRAIN DEATH
2941	<i>DEMENTIA IN OTH DISEASES (end 2000)</i>	797	SENILITY W/O PSYCHOSIS
29410	DEMENTIA W/O BEHAV DIST		

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