*Epidemiology and Infection*

**Antibiotic prescribing across age groups in the Kaiser Permanente Northern California population in association with different diagnoses, and with influenza incidence, 2010-2018**

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**Supplementary Material**

***Section S1: Weekly rates of all antibiotic prescriptions per 100,000 individuals and model fits in select age groups***

Figure S1 presents weekly rates of all antibiotic prescriptions per 100,000 individuals in select age groups of children and adults + model fits during our study period.

***Weekly rates of prescribing of all antibiotics per 100,000 individuals in select age groups (black) and model fits (red)***

**![Timeline

Description automatically generated]()**

**Figure S1**: Weekly rates of all antibiotic prescriptions per 100,000 individuals in select age groups (black) + model fits (red), Sep. 2010-Aug. 2018

Figure S2 presents weekly rates of all antibiotic prescriptions per 100,000 individuals in additional select age groups of children and adults + model fits during our study period.

***Weekly rates of prescribing of all antibiotics per 100,000 individuals in select age groups (black) and model fits (red)***



**Figure S2**: Weekly rates of all antibiotic prescriptions per 100,000 individuals in select age groups (black) + model fits (red), Sep. 2010-Aug. 2018

***Section S2: Diagnoses related to ear infections***

Table S1 lists diagnoses related to ear infections used in the main body of the text.

|  |  |
| --- | --- |
| ACUTE NONSUPPURATIVE OTITIS MEDIA, UNSPECIFIED | ACUTE SUPPURATIVE OTITIS MEDIA WITH SPONTANEOUS RUPTURE OF EAR DRUM, RECURRENT, BILATERAL |
| ACUTE SEROUS OTITIS MEDIA | ACUTE SUPPURATIVE OTITIS MEDIA WITH SPONTANEOUS RUPTURE OF EAR DRUM, RECURRENT, UNSPECIFIED EAR |
| AC MUCOID OTITIS MEDIA | ACUTE SUPPURATIVE OTITIS MEDIA WITH SPONTANEOUS RUPTURE OF EAR DRUM, UNSPECIFIED EAR |
| AC SANGUIN OTITIS MEDIA | CHRONIC TUBOTYMPANIC SUPPURATIVE OTITIS MEDIA, UNSPECIFIED |
| ACUTE ALLERGIC SOM | CHRONIC TUBOTYMPANIC SUPPURATIVE OTITIS MEDIA, RIGHT EAR |
| CHRONIC SOM SIMPLE/NOS | CHRONIC ATTICOANTRAL SUPPURATIVE OTITIS MEDIA, LEFT EAR |
| CHRONIC SOM NEC | OTHER CHRONIC SUPPURATIVE OTITIS MEDIA, RIGHT EAR |
| CHR MUCOID OMED SMPL/NOS | OTHER CHRONIC SUPPURATIVE OTITIS MEDIA, LEFT EAR |
| OTHER AND UNSPECIFIED CHRONIC NONSUPPURATIVE OTITIS MEDIA | OTHER CHRONIC SUPPURATIVE OTITIS MEDIA, BILATERAL |
| NONSUPPURATIVE OTITIS MEDIA, NOT SPECIFIED AS ACUTE OR CHRONIC | OTHER CHRONIC SUPPURATIVE OTITIS MEDIA, UNSPECIFIED EAR |
| EUSTACHIAN SALPING NOS | SUPPURATIVE OTITIS MEDIA, UNSPECIFIED, UNSPECIFIED EAR |
| AC EUSTACHIAN SALPING | SUPPURATIVE OTITIS MEDIA, UNSPECIFIED, RIGHT EAR |
| CHR EUSTACHIAN SALPING | SUPPURATIVE OTITIS MEDIA, UNSPECIFIED, LEFT EAR |
| ACUTE SUPPURATIVE OTITIS MEDIA WITHOUT SPONTANEOUS RUPTURE OF EARDRUM | SUPPURATIVE OTITIS MEDIA, UNSPECIFIED, BILATERAL |
| AC SOM W EARDRUM RUPT | OTITIS MEDIA, UNSPECIFIED, UNSPECIFIED EAR |
| ACUTE SOM IN DCE | OTITIS MEDIA, UNSPECIFIED, RIGHT EAR |
| CHRONIC TUBOTYMPANIC SOM | OTITIS MEDIA, UNSPECIFIED, LEFT EAR |
| CHRONIC ATTICOANTRAL SOM | OTITIS MEDIA, UNSPECIFIED, BILATERAL |
| UNSPECIFIED CHRONIC SUPPURATIVE OTITIS MEDIA | UNSPECIFIED EUSTACHIAN SALPINGITIS, RIGHT EAR |
| UNSPECIFIED SUPPURATIVE OTITIS MEDIA | UNSPECIFIED EUSTACHIAN SALPINGITIS, LEFT EAR |
| UNSPECIFIED OTITIS MEDIA | UNSPECIFIED EUSTACHIAN SALPINGITIS, UNSPECIFIED EAR |
| ACUTE MYRINGITIS, UNSPECIFIED | ACUTE EUSTACHIAN SALPINGITIS, RIGHT EAR |
| BULLOUS MYRINGITIS | ACUTE EUSTACHIAN SALPINGITIS, BILATERAL |
| ACUTE SEROUS OTITIS MEDIA, UNSPECIFIED EAR | CHRONIC EUSTACHIAN SALPINGITIS, LEFT EAR |
| ACUTE SEROUS OTITIS MEDIA, RIGHT EAR | CHRONIC EUSTACHIAN SALPINGITIS, BILATERAL |
| ACUTE SEROUS OTITIS MEDIA, LEFT EAR | ACUTE MYRINGITIS, RIGHT EAR |
| ACUTE SEROUS OTITIS MEDIA, BILATERAL | ACUTE MYRINGITIS, LEFT EAR |
| ACUTE SEROUS OTITIS MEDIA, RECURRENT, RIGHT EAR | ACUTE MYRINGITIS, BILATERAL |
| ACUTE SEROUS OTITIS MEDIA, RECURRENT, LEFT EAR | ACUTE MYRINGITIS, UNSPECIFIED EAR |
| ACUTE SEROUS OTITIS MEDIA, RECURRENT, BILATERAL | BULLOUS MYRINGITIS, RIGHT EAR |
| ACUTE SEROUS OTITIS MEDIA, RECURRENT, UNSPECIFIED EAR | BULLOUS MYRINGITIS, LEFT EAR |
| ACUTE AND SUBACUTE ALLERGIC OTITIS MEDIA (MUCOID) (SANGUINOUS) (SEROUS), RIGHT EAR | BULLOUS MYRINGITIS, BILATERAL |
| ACUTE AND SUBACUTE ALLERGIC OTITIS MEDIA (MUCOID) (SANGUINOUS) (SEROUS), LEFT EAR | BULLOUS MYRINGITIS, UNSPECIFIED EAR |
| ACUTE AND SUBACUTE ALLERGIC OTITIS MEDIA (MUCOID) (SANGUINOUS) (SEROUS), BILATERAL | ACUTE NOM |
| ACUTE AND SUBACUTE ALLERGIC OTITIS MEDIA (MUCOID) (SANGUINOUS) (SEROUS), RECURRENT, LEFT EAR | AC ALLERGIC MUCOID OMED |
| ACUTE AND SUBACUTE ALLERGIC OTITIS MEDIA (MUCOID) (SANGUINOUS) (SEROUS), RECURRENT, BILATERAL | AC ALL SANGUINOUS OMED |
| ACUTE AND SUBACUTE ALLERGIC OTITIS MEDIA (MUCOID) (SANGUINOUS) (SEROUS), UNSPECIFIED EAR | CHRONIC SOM |
| OTHER ACUTE NONSUPPURATIVE OTITIS MEDIA, RIGHT EAR | CHR MUCOID OTITIS MEDIA |
| OTHER ACUTE NONSUPPURATIVE OTITIS MEDIA, LEFT EAR | CHRONIC MUCOID OMED NEC |
| OTHER ACUTE NONSUPPURATIVE OTITIS MEDIA, BILATERAL | EUSTACHIAN SALPINGITIS |
| OTHER ACUTE NONSUPPURATIVE OTITIS MEDIA, UNSPECIFIED EAR | ACUTE MYRINGITIS |
| CHRONIC SEROUS OTITIS MEDIA, UNSPECIFIED EAR | ACUTE MYRINGITIS NEC |
| CHRONIC SEROUS OTITIS MEDIA, RIGHT EAR | ACUTE AND SUBACUTE ALLERGIC OTITIS MEDIA (MUCOID) (SANGUINOUS) (SEROUS), RECURRENT, RIGHT EAR |
| CHRONIC SEROUS OTITIS MEDIA, LEFT EAR | ACUTE AND SUBACUTE ALLERGIC OTITIS MEDIA (MUCOID) (SANGUINOUS) (SEROUS), RECURRENT, UNSPECIFIED EAR |
| CHRONIC SEROUS OTITIS MEDIA, BILATERAL | OTHER ACUTE NONSUPPURATIVE OTITIS MEDIA, RECURRENT, RIGHT EAR |
| CHRONIC MUCOID OTITIS MEDIA, UNSPECIFIED EAR | OTHER ACUTE NONSUPPURATIVE OTITIS MEDIA, RECURRENT, LEFT EAR |
| CHRONIC MUCOID OTITIS MEDIA, RIGHT EAR | OTHER ACUTE NONSUPPURATIVE OTITIS MEDIA, RECURRENT, BILATERAL |
| CHRONIC MUCOID OTITIS MEDIA, LEFT EAR | OTHER ACUTE NONSUPPURATIVE OTITIS MEDIA RECURRENT, UNSPECIFIED EAR |
| CHRONIC MUCOID OTITIS MEDIA, BILATERAL | CHRONIC ALLERGIC OTITIS MEDIA, RIGHT EAR |
| OTHER CHRONIC NONSUPPURATIVE OTITIS MEDIA, RIGHT EAR | CHRONIC ALLERGIC OTITIS MEDIA, LEFT EAR |
| OTHER CHRONIC NONSUPPURATIVE OTITIS MEDIA, LEFT EAR | CHRONIC ALLERGIC OTITIS MEDIA, BILATERAL |
| OTHER CHRONIC NONSUPPURATIVE OTITIS MEDIA, BILATERAL | CHRONIC ALLERGIC OTITIS MEDIA, UNSPECIFIED EAR |
| OTHER CHRONIC NONSUPPURATIVE OTITIS MEDIA, UNSPECIFIED EAR | CHRONIC TUBOTYMPANIC SUPPURATIVE OTITIS MEDIA, LEFT EAR |
| UNSPECIFIED NONSUPPURATIVE OTITIS MEDIA, UNSPECIFIED EAR | CHRONIC TUBOTYMPANIC SUPPURATIVE OTITIS MEDIA, BILATERAL |
| UNSPECIFIED NONSUPPURATIVE OTITIS MEDIA, RIGHT EAR | CHRONIC ATTICOANTRAL SUPPURATIVE OTITIS MEDIA, UNSPECIFIED EAR |
| UNSPECIFIED NONSUPPURATIVE OTITIS MEDIA, LEFT EAR | CHRONIC ATTICOANTRAL SUPPURATIVE OTITIS MEDIA, RIGHT EAR |
| UNSPECIFIED NONSUPPURATIVE OTITIS MEDIA, BILATERAL | CHRONIC ATTICOANTRAL SUPPURATIVE OTITIS MEDIA, BILATERAL |
| ACUTE SUPPURATIVE OTITIS MEDIA WITHOUT SPONTANEOUS RUPTURE OF EAR DRUM, RIGHT EAR | OTITIS MEDIA IN DISEASES CLASSIFIED ELSEWHERE, RIGHT EAR |
| ACUTE SUPPURATIVE OTITIS MEDIA WITHOUT SPONTANEOUS RUPTURE OF EAR DRUM, LEFT EAR | OTITIS MEDIA IN DISEASES CLASSIFIED ELSEWHERE, LEFT EAR |
| ACUTE SUPPURATIVE OTITIS MEDIA WITHOUT SPONTANEOUS RUPTURE OF EAR DRUM, BILATERAL | OTITIS MEDIA IN DISEASES CLASSIFIED ELSEWHERE, BILATERAL |
| ACUTE SUPPURATIVE OTITIS MEDIA WITHOUT SPONTANEOUS RUPTURE OF EAR DRUM, RECURRENT, RIGHT EAR | OTITIS MEDIA IN DISEASES CLASSIFIED ELSEWHERE, UNSPECIFIED EAR |
| ACUTE SUPPURATIVE OTITIS MEDIA WITHOUT SPONTANEOUS RUPTURE OF EAR DRUM, RECURRENT, LEFT EAR | UNSPECIFIED EUSTACHIAN SALPINGITIS, BILATERAL |
| ACUTE SUPPURATIVE OTITIS MEDIA WITHOUT SPONTANEOUS RUPTURE OF EAR DRUM, RECURRENT, BILATERAL | ACUTE EUSTACHIAN SALPINGITIS, LEFT EAR |
| ACUTE SUPPURATIVE OTITIS MEDIA WITHOUT SPONTANEOUS RUPTURE OF EAR DRUM, RECURRENT, UNSPECIFIED EAR | ACUTE EUSTACHIAN SALPINGITIS, UNSPECIFIED EAR |
| ACUTE SUPPURATIVE OTITIS MEDIA WITHOUT SPONTANEOUS RUPTURE OF EAR DRUM, UNSPECIFIED EAR | CHRONIC EUSTACHIAN SALPINGITIS, RIGHT EAR |
| ACUTE SUPPURATIVE OTITIS MEDIA WITH SPONTANEOUS RUPTURE OF EAR DRUM, RIGHT EAR | CHRONIC EUSTACHIAN SALPINGITIS, UNSPECIFIED EAR |
| ACUTE SUPPURATIVE OTITIS MEDIA WITH SPONTANEOUS RUPTURE OF EAR DRUM, LEFT EAR | OTHER ACUTE MYRINGITIS, RIGHT EAR |
| ACUTE SUPPURATIVE OTITIS MEDIA WITH SPONTANEOUS RUPTURE OF EAR DRUM, BILATERAL | OTHER ACUTE MYRINGITIS, LEFT EAR |
| ACUTE SUPPURATIVE OTITIS MEDIA WITH SPONTANEOUS RUPTURE OF EAR DRUM, RECURRENT, RIGHT EAR | OTHER ACUTE MYRINGITIS, BILATERAL |
| ACUTE SUPPURATIVE OTITIS MEDIA WITH SPONTANEOUS RUPTURE OF EAR DRUM, RECURRENT, LEFT EAR | OTHER ACUTE MYRINGITIS, UNSPECIFIED EAR |

**Table S1**: Diagnoses related to ear infections

***Section S3: Respiratory diagnoses without a bacterial indication***

Table S2 lists respiratory diagnoses without an indication of a bacterial infection used in the main body of the text.

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| ACUTE NASOPHARYNGITIS [COMMON COLD] | ABSCESS, FURUNCLE AND CARBUNCLE OF NOSE |
| AC MAXILLARY SINUSITIS | CYST AND MUCOCELE OF NOSE AND NASAL SINUS |
| AC FRONTAL SINUSITIS | DEVIATED NASAL SEPTUM |
| AC ETHMOIDAL SINUSITIS | HYPERTROPHY OF NASAL TURBINATES |
| ACUTE SPHENOIDAL SINUSITIS | NASAL MUCOSITIS (ULCERATIVE) |
| OTHER ACUTE SINUSITIS | OTHER SPECIFIED DISORDERS OF NOSE AND NASAL SINUSES |
| ACUTE SINUSITIS, UNSPECIFIED | UNSPECIFIED DISORDER OF NOSE AND NASAL SINUSES |
| ACUTE PHARYNGITIS | CHRONIC TONSILLITIS |
| ACUTE TONSILLITIS | CHRONIC ADENOIDITIS |
| ACUTE LARYNGITIS WITHOUT MENTION OF OBSTRUCTION | CHRONIC TONSILLITIS AND ADENOIDITIS |
| AC LARYNGITIS W OBSTR | HYPERTROPHY OF TONSILS |
| AC TRACHEITIS W/O OBSTR | HYPERTROPHY OF ADENOIDS |
| AC TRACHEITIS W OBSTR | HYPERTROPHY OF TONSILS WITH HYPERTROPHY OF ADENOIDS |
| AC LARYNGOTRACH S OBSTR | OTHER CHRONIC DISEASES OF TONSILS AND ADENOIDS |
| AC EPIGLOTTITIS S OBSTR | CHRONIC DISEASE OF TONSILS AND ADENOIDS, UNSPECIFIED |
| AC EPIGLOTTITIS W OBSTR | PERITONSILLAR ABSCESS |
| SUPRAGLOTTITIS W/O OBSTR | CHRONIC LARYNGITIS |
| SUPRAGLOTTITIS W OBSTR | CHRONIC LARYNGOTRACHEITIS |
| ACUTE LARYNGOPHARYNGITIS | PARALYSIS OF VOCAL CORDS AND LARYNX, UNSPECIFIED |
| ACUTE UPPER RESPIRATORY INFECTIONS OF UNSPECIFIED SITE | PARALYSIS OF VOCAL CORDS AND LARYNX, UNILATERAL |
| ACUTE BRONCHITIS | PARALYSIS OF VOCAL CORDS AND LARYNX, BILATERAL |
| AC BRONCHIOLITIS D/T RSV | POLYP OF VOCAL CORD AND LARYNX |
| ACUTE BRONCHIOLITIS DUE TO OTHER INFECTIOUS ORGANISMS | NODULES OF VOCAL CORDS |
| DEVIATED NASAL SEPTUM | OTHER DISEASES OF VOCAL CORDS |
| NASAL CAVITY POLYP | EDEMA OF LARYNX |
| NASAL SINUS POLYP NEC | LARYNGEAL SPASM |
| NASAL POLYP NOS | STENOSIS OF LARYNX |
| CHRONIC RHINITIS | OTHER DISEASES OF LARYNX |
| CHRONIC PHARYNGITIS | RETROPHARYNGEAL AND PARAPHARYNGEAL ABSCESS |
| CHRONIC NASOPHARYNGITIS | OTHER ABSCESS OF PHARYNX |
| CHRONIC MAXILLARY SINUSITIS | OTHER DISEASES OF PHARYNX |
| CHR FRONTAL SINUSITIS | UPPER RESPIRATORY TRACT HYPERSENSITIVITY REACTION, SITE UNSPECIFIED |
| CHR ETHMOIDAL SINUSITIS | OTHER SPECIFIED DISEASES OF UPPER RESPIRATORY TRACT |
| CHR SPHENOIDAL SINUSITIS | DISEASE OF UPPER RESPIRATORY TRACT, UNSPECIFIED |
| CHRONIC SINUSITIS NEC | BRONCHITIS, NOT SPECIFIED AS ACUTE OR CHRONIC |
| UNSPECIFIED SINUSITIS (CHRONIC) | SIMPLE CHRONIC BRONCHITIS |
| CHRONIC TONSILLITIS | MUCOPURULENT CHRONIC BRONCHITIS |
| CHRONIC ADENOIDITIS | UNSPECIFIED CHRONIC BRONCHITIS |
| CHR TONSILLITIS&ADENOID | CENTRILOBULAR EMPHYSEMA |
| HYPERTROPHY OF TONSIL WITH ADENOIDS | EMPHYSEMA, UNSPECIFIED |
| HYPERTROPHY TONSILS | CHRONIC OBSTRUCTIVE PULMONARY DISEASE WITH ACUTE LOWER RESPIRATORY INFECTION |
| HYPERTROPHY OF ADENOIDS ALONE | CHRONIC OBSTRUCTIVE PULMONARY DISEASE WITH (ACUTE) EXACERBATION |
| OTHER CHRONIC DISEASE OF TONSILS AND ADENOIDS | CHRONIC OBSTRUCTIVE PULMONARY DISEASE, UNSPECIFIED |
| CHR T & A DISEASE NOS | MILD INTERMITTENT ASTHMA, UNCOMPLICATED |
| PERITONSILLAR ABSCESS | MILD INTERMITTENT ASTHMA WITH (ACUTE) EXACERBATION |
| CHRONIC LARYNGITIS | MILD INTERMITTENT ASTHMA WITH STATUS ASTHMATICUS |
| CHRONIC LARYNGOTRACHEITIS | MILD PERSISTENT ASTHMA, UNCOMPLICATED |
| RHINITIS DUE TO POLLEN | MILD PERSISTENT ASTHMA WITH (ACUTE) EXACERBATION |
| ALLERGIC RHINITIS DUE TO ANIMAL (CAT) (DOG) HAIR AND DANDER | MODERATE PERSISTENT ASTHMA, UNCOMPLICATED |
| ALLERGIC RHINITIS DUE TO OTHER ALLERGEN | MODERATE PERSISTENT ASTHMA WITH (ACUTE) EXACERBATION |
| ALLERGIC RHINITIS, CAUSE UNSPECIFIED | MODERATE PERSISTENT ASTHMA WITH STATUS ASTHMATICUS |
| HYPERTROPHY OF NASAL TURBINATES | SEVERE PERSISTENT ASTHMA, UNCOMPLICATED |
| OTH NASAL & SINUS DIS | SEVERE PERSISTENT ASTHMA WITH (ACUTE) EXACERBATION |
| NASAL MUCOSITIS | SEVERE PERSISTENT ASTHMA WITH STATUS ASTHMATICUS |
| OTHER DISEASE OF NASAL CAVITY AND SINUSES | UNSPECIFIED ASTHMA WITH (ACUTE) EXACERBATION |
| UNSPECIFIED DISEASE OF PHARYNX | UNSPECIFIED ASTHMA WITH STATUS ASTHMATICUS |
| PHARYNGEAL CELLULITIS | UNSPECIFIED ASTHMA, UNCOMPLICATED |
| PARAPHARYNGEAL ABSCESS | EXERCISE INDUCED BRONCHOSPASM |
| RETROPHARYNGEAL ABSCESS | COUGH VARIANT ASTHMA |
| PHAR/NASOPHARYNX EDEMA | OTHER ASTHMA |
| PHARYNX/NASOPHARYNX CYST | BRONCHIECTASIS WITH ACUTE LOWER RESPIRATORY INFECTION |
| OTHER DISEASES OF PHARYNX, NOT ELSEWHERE CLASSIFIED | BRONCHIECTASIS WITH (ACUTE) EXACERBATION |
| VOCAL CORD PARALYSIS NOS | BRONCHIECTASIS, UNCOMPLICATED |
| UNILAT PART PARAL V/C | ACUTE RESPIRATORY DISTRESS SYNDROME |
| UNILAT COMPL PARAL V/C | ACUTE PULMONARY EDEMA |
| BILAT PART PARAL V/C | CHRONIC PULMONARY EDEMA |
| BILAT COMPL PARAL V/C | PULMONARY EOSINOPHILIA, NOT ELSEWHERE CLASSIFIED |
| POLYP OF VOCAL CORD OR LARYNX | ALVEOLAR PROTEINOSIS |
| VOCAL CORD DISEASE NEC | IDIOPATHIC PULMONARY HEMOSIDEROSIS |
| EDEMA OF LARYNX | PULMONARY FIBROSIS, UNSPECIFIED |
| UNSPECIFIED DISEASE OF LARYNX | IDIOPATHIC INTERSTITIAL PNEUMONIA, NOT OTHERWISE SPECIFIED |
| STENOSIS OF LARYNX | IDIOPATHIC PULMONARY FIBROSIS |
| LARYNGEAL SPASM | IDIOPATHIC NON-SPECIFIC INTERSTITIAL PNEUMONITIS |
| OTHER DISEASES OF LARYNX, NOT ELSEWHERE CLASSIFIED | ACUTE INTERSTITIAL PNEUMONITIS |
| URT HYPERSENSIT RXN NOS | RESPIRATORY BRONCHIOLITIS INTERSTITIAL LUNG DISEASE |
| UPPER RESP DIS NEC & NOS | CRYPTOGENIC ORGANIZING PNEUMONIA |
| ADENOVIRAL PNEUMONIA | DESQUAMATIVE INTERSTITIAL PNEUMONIA |
| RSV PNEUMONIA | LYMPHOID INTERSTITIAL PNEUMONIA |
| PARAINFLUENZA VIR PNEUM | LYMPHANGIOLEIOMYOMATOSIS |
| VIRAL PNEUMONIA NEC | ADULT PULMONARY LANGERHANS CELL HISTIOCYTOSIS |
| VIRAL PNEUMONIA, UNSPECIFIED | SURFACTANT MUTATIONS OF THE LUNG |
| PNEUMONIA IN CMV DISEASE | OTHER INTERSTITIAL LUNG DISEASES OF CHILDHOOD |
| PNEUM IN ASPERGILLOSIS | OTHER SPECIFIED INTERSTITIAL PULMONARY DISEASES |
| PNEUMONIA IN OTHER SYSTEMIC MYCOSES | INTERSTITIAL PULMONARY DISEASE, UNSPECIFIED |
| PNEUM IN INFECT DIS NEC | GANGRENE AND NECROSIS OF LUNG |
| PNEUMONIA, ORGANISM UNSPECIFIED | ABSCESS OF LUNG WITH PNEUMONIA |
| INFLUENZA W PNEUMONIA | ABSCESS OF LUNG WITHOUT PNEUMONIA |
| INFLUENZA WITH OTHER RESPIRATORY MANIFESTATIONS | ABSCESS OF MEDIASTINUM |
| INFLUENZA WITH OTHER MANIFESTATIONS | PYOTHORAX WITH FISTULA |
| FLU D/T CERTAIN VIRUSES | PYOTHORAX WITHOUT FISTULA |
| INFLUENZA D/T AIV | PLEURAL EFFUSION, NOT ELSEWHERE CLASSIFIED |
| FLU D/T AIV W PNEUMONIA | MALIGNANT PLEURAL EFFUSION |
| FLU D/T AIV W RESP NEC | PLEURAL EFFUSION IN OTHER CONDITIONS CLASSIFIED ELSEWHERE |
| INFLUENZA D/T 2009 H1N1 | PLEURAL PLAQUE WITH PRESENCE OF ASBESTOS |
| FLU 2009 H1N1 W RESP NEC | PLEURAL PLAQUE WITHOUT ASBESTOS |
| FLU NOV INFL A W PNEUM | SPONTANEOUS TENSION PNEUMOTHORAX |
| FLU NOV INFL A-RESP NEC | OTHER PNEUMOTHORAX |
| FLU NOV INFL A-MAN NEC | PNEUMOTHORAX, UNSPECIFIED |
| BRONCHITIS, NOT SPECIFIED AS ACUTE OR CHRONIC | FIBROTHORAX |
| SIMPLE CHR BRONCHITIS | HEMOTHORAX |
| MUCOPURULENT CHRONIC BRONCHITIS | OTHER SPECIFIED PLEURAL CONDITIONS |
| OCB W/O EXACERBATION | PLEURAL CONDITION, UNSPECIFIED |
| OBSTRUCTIVE CHRONIC BRONCHITIS WITH (ACUTE) EXACERBATION | ACUTE RESPIRATORY FAILURE, UNSPECIFIED WHETHER WITH HYPOXIA OR HYPERCAPNIA |
| OBSTRUCTIVE CHRONIC BRONCHITIS WITH ACUTE BRONCHITIS | ACUTE RESPIRATORY FAILURE WITH HYPOXIA |
| CHRONIC BRONCHITIS NEC | ACUTE RESPIRATORY FAILURE WITH HYPERCAPNIA |
| UNSPECIFIED CHRONIC BRONCHITIS | CHRONIC RESPIRATORY FAILURE, UNSPECIFIED WHETHER WITH HYPOXIA OR HYPERCAPNIA |
| EMPHYSEMATOUS BLEB | CHRONIC RESPIRATORY FAILURE WITH HYPOXIA |
| OTHER EMPHYSEMA | CHRONIC RESPIRATORY FAILURE WITH HYPERCAPNIA |
| EXTRINSIC ASTHMA, UNSPECIFIED | ACUTE AND CHRONIC RESPIRATORY FAILURE, UNSPECIFIED WHETHER WITH HYPOXIA OR HYPERCAPNIA |
| EXTR ASTHMA W EXACER | ACUTE AND CHRONIC RESPIRATORY FAILURE WITH HYPOXIA |
| INTRINSIC ASTHMA, UNSPECIFIED | ACUTE AND CHRONIC RESPIRATORY FAILURE WITH HYPERCAPNIA |
| INTR ASTHMA W EXACER | RESPIRATORY FAILURE, UNSPECIFIED, UNSPECIFIED WHETHER WITH HYPOXIA OR HYPERCAPNIA |
| CHRONIC OBSTRUCTIVE ASTHMA, UNSPECIFIED | RESPIRATORY FAILURE, UNSPECIFIED WITH HYPOXIA |
| CHR OBSTR ASTH W EXACER | RESPIRATORY FAILURE, UNSPECIFIED WITH HYPERCAPNIA |
| EXERCISE INDUCED BRONCHOSPASM | ACUTE BRONCHOSPASM |
| COUGH VARIANT ASTHMA | OTHER DISEASES OF BRONCHUS, NOT ELSEWHERE CLASSIFIED |
| ASTHMA, UNSPECIFIED TYPE, UNSPECIFIED | ATELECTASIS |
| ASTHMA, UNSPECIFIED TYPE, WITH STATUS ASTHMATICUS | INTERSTITIAL EMPHYSEMA |
| ASTHMA, UNSPECIFIED TYPE, WITH (ACUTE) EXACERBATION | OTHER DISORDERS OF LUNG |
| BRONCHIECT W/O AC EXACER | DISEASES OF MEDIASTINUM, NOT ELSEWHERE CLASSIFIED |
| BRONCHIECTASIS WITH ACUTE EXACERBATION | MEDIASTINITIS |
| FARMERS' LUNG | MEDIASTINAL MASS |
| ALL ALVEOLITIS/PNEUM NOS | DISORDERS OF DIAPHRAGM |
| CHRONIC AIRWAY OBSTR NEC | OTHER SPECIFIED RESPIRATORY DISORDERS |
| EMPYEMA W FISTULA | RESPIRATORY DISORDER, UNSPECIFIED |
| EMPYEMA WITHOUT MENTION OF FISTULA | RESPIRATORY DISORDERS IN DISEASES CLASSIFIED ELSEWHERE |
| PLEURISY WITHOUT MENTION OF EFFUSION OR CURRENT TUBERCULOSIS | ACUTE SINUSITIS |
| PLEURISY WITH EFFUSION, WITH MENTION OF A BACTERIAL CAUSE OTHER THAN TUBERCULOSIS | AC LARYNGITIS/TRACHEITIS |
| MALIGNANT PLEURAL EFFUSION | ACUTE TRACHEITIS |
| OTH PLEURAL EFFUS NOT TB | ACUTE LARYNGOTRACHEITIS |
| UNSPECIFIED PLEURAL EFFUSION | AC LARYNGOTRACH W OBSTR |
| SPONT TENS PNEUMOTHORAX | ACUTE EPIGLOTTITIS |
| IATROGENIC PNEUMOTHORAX | SUPRAGLOTTITIS NOS |
| PNEUMOTHORAX NEC | AC URI MULT SITES/NOS |
| ABSCESS OF LUNG | ACUTE URI MULT SITES NEC |
| MEDIASTINUM ABSCESS | AC BRONCHITIS/BRONCHIOL |
| PULMONARY CONGESTION AND HYPOSTASIS | NASAL POLYPS |
| POSTINFLAMMATORY PULMONARY FIBROSIS | POLYPOID SINUS DEGEN |
| PULMON ALVEO PROTEINOSIS | CHR PHARYN/NASOPHARYNG |
| IPH | CHRONIC SINUSITIS |
| IDIO INTERST PNEUM NOS | CHR T & A DISEASE |
| IDIOPATHIC PULM FIBROSIS | T & A HYPERTROPHY |
| IDIO NONSP INTERST PNEUM | ADENOID VEGETATIONS |
| ACUTE INTERST PNEUM | CHR LARYNG/LARYNGOTRACH |
| RESP BRONCHIOL ILD | ALLERGIC RHINITIS |
| CRYPTOGEN ORGANIZ PNEUM | RHINITIS DUE TO FOOD |
| DESQUAM INTERST PNEUM | OTH UP RESPIRATORY DIS |
| LYMPHANGIOLEIOMYOMATOSIS | DISEASE OF PHARYNX NEC |
| ADULT PLCH | OTHER DISEASE OF LARYNX |
| LUNG SURFACT MUTATIONS | LARYNGEAL CELLULITIS |
| ILD OF CHILDHOOD NEC | VIRAL PNEUMONIA |
| OTHER SPECIFIED ALVEOLAR AND PARIETOALVEOLAR PNEUMONOPATHIES | SARS PNEUMONIA |
| SYST SCLEROSIS LUNG DIS | PNEUMONIA ORGANISM NEC |
| ACUTE CHEST SYNDROME | PNEUMONIA D/T ORG NEC |
| LUNG INVOLVEMENT IN OTHER DISEASES CLASSIFIED ELSEWHERE | PNEUM IN OTH INF DIS |
| PULMONARY COLLAPSE | INFLUENZA |
| INTERSTITIAL EMPHYSEMA | FLU D/T AIV W MANIF NEC |
| PULMONARY EOSINOPHILIA | FLU 2009 H1N1 W PNEUM |
| ACUTE LUNG EDEMA NOS | FLU 2009 H1N1 W MAN NEC |
| ALLERGIC BRONCHOPULMONARY ASPERGILLOSIS | FLU D/T NOV INFLUENZA A |
| ACUTE RESPIRATORY FAILURE | EXTRINSIC ASTHMA |
| OTHER PULMONARY INSUFF | EXTRINSIC ASTHMA WITH STATUS ASTHMATICUS |
| CHR RESPIRATORY FAILURE | INTRINSIC ASTHMA |
| AC & CHR RESP FAILURE | INTRINSIC ASTHMA WITH STATUS ASTHMATICUS |
| OTHER DISEASES OF LUNG, NOT ELSEWHERE CLASSIFIED | CHR OBSTRUCTIVE ASTHMA |
| ACUTE BRONCHOSPASM | CHR OBSTR ASTH W STATUS |
| OTHER DISEASES OF TRACHEA AND BRONCHUS | OTHER FORMS ASTHMA |
| MEDIASTINITIS | UNSPECIFIED ASTHMA |
| DISORDERS OF DIAPHRAGM | EXTR ALLERGIC ALVEOLITIS |
| OTHER DISEASES OF RESPIRATORY SYSTEM, NOT ELSEWHERE CLASSIFIED | BAGASSOSIS |
| UNSPECIFIED DISEASE OF RESPIRATORY SYSTEM | BIRD-FANCIERS' LUNG |
| ACUTE NASOPHARYNGITIS /COMMON COLD | SUBEROSIS |
| ACUTE MAXILLARY SINUSITIS, UNSPECIFIED | MALT WORKERS' LUNG |
| ACUTE RECURRENT MAXILLARY SINUSITIS | MUSHROOM WORKERS' LUNG |
| ACUTE FRONTAL SINUSITIS, UNSPECIFIED | MAPLE BARK-STRIPPER LUNG |
| ACUTE RECURRENT FRONTAL SINUSITIS | "VENTILATION" PNEUMONIT |
| ACUTE ETHMOIDAL SINUSITIS, UNSPECIFIED | ALL ALVEOLITIS/PNEUM NEC |
| ACUTE RECURRENT ETHMOIDAL SINUSITIS | EMPYEMA |
| ACUTE SPHENOIDAL SINUSITIS, UNSPECIFIED | PLEURISY |
| ACUTE RECURRENT SPHENOIDAL SINUSITIS | POSTOP AIR LEAK |
| ACUTE PANSINUSITIS, UNSPECIFIED | PRIM SPON PNEUMOTHORAX |
| ACUTE RECURRENT PANSINUSITIS | 2ND SPON PNEUMOTHORAX |
| ACUTE SINUSITIS, UNSPECIFIED | CHRONIC PNEUMOTHORAX |
| ACUTE RECURRENT SINUSITIS, UNSPECIFIED | AIR LEAK NEC |
| STREPTOCOCCAL PHARYNGITIS | LUNG/MEDIASTINUM ABSCESS |
| ACUTE PHARYNGITIS, UNSPECIFIED | OTH ALVEO PNEUMONOPATHY |
| ACUTE STREPTOCOCCAL TONSILLITIS, UNSPECIFIED | PULMON ALVEO MICROLITH |
| ACUTE RECURRENT STREPTOCOCCAL TONSILLITIS | IDIO LYMPH INTERST PNEUM |
| ACUTE TONSILLITIS, UNSPECIFIED | OTHER ILD OF CHILDHOOD |
| ACUTE RECURRENT TONSILLITIS, UNSPECIFIED | NCH OF INFANCY |
| ACUTE LARYNGITIS | PUL INTERST GLYCOGENOSIS |
| ACUTE TRACHEITIS WITHOUT OBSTRUCTION | ALV CAPILL DYSP W VN MIS |
| ACUTE TRACHEITIS WITH OBSTRUCTION | ALVEO PNEUMONOPATHY NOS |
| ACUTE LARYNGOTRACHEITIS | LUNG INVOLV IN DCE |
| SUPRAGLOTTITIS, UNSPECIFIED, WITHOUT OBSTRUCTION | RHEUMATIC PNEUMONIA |
| SUPRAGLOTTITIS, UNSPECIFIED, WITH OBSTRUCTION | OTHER LUNG DISEASES |
| ACUTE OBSTRUCTIVE LARYNGITIS / CROUP | COMPENSATORY EMPHYSEMA |
| ACUTE EPIGLOTTITIS WITHOUT OBSTRUCTION | LUNG DISEASE NEC |
| ACUTE EPIGLOTTITIS WITH OBSTRUCTION | MEDIASTINUM DISEASE NEC |
| ACUTE LARYNGOPHARYNGITIS | OTHER ACUTE SINUSITIS |
| ACUTE UPPER RESPIRATORY INFECTION, UNSPECIFIED | OTHER ACUTE RECURRENT SINUSITIS |
| INFLUENZA DUE TO IDENTIFIED NOVEL INFLUENZA A VIRUS WITH PNEUMONIA | ACUTE PHARYNGITIS DUE TO OTHER SPECIFIED ORGANISMS |
| INFLUENZA DUE TO IDENTIFIED NOVEL INFLUENZA A VIRUS WITH OTHER RESPIRATORY MANIFESTATIONS | ACUTE TONSILLITIS DUE TO OTHER SPECIFIED ORGANISMS |
| INFLUENZA DUE TO IDENTIFIED NOVEL INFLUENZA A VIRUS WITH OTHER MANIFESTATIONS | ACUTE RECURRENT TONSILLITIS DUE TO OTHER SPECIFIED ORGANISMS |
| INFLUENZA DUE TO OTHER IDENTIFIED INFLUENZA VIRUS WITH OTHER RESPIRATORY MANIFESTATIONS | INFLUENZA DUE TO IDENTIFIED NOVEL INFLUENZA A VIRUS WITH GASTROINTESTINAL MANIFESTATIONS |
| INFLUENZA DUE TO UNIDENTIFIED INFLUENZA VIRUS WITH UNSPECIFIED TYPE OF PNEUMONIA | INFLUENZA DUE TO OTHER IDENTIFIED INFLUENZA VIRUS WITH UNSPECIFIED TYPE OF PNEUMONIA |
| INFLUENZA DUE TO UNIDENTIFIED INFLUENZA VIRUS WITH SPECIFIED PNEUMONIA | INFLUENZA DUE TO OTHER IDENTIFIED INFLUENZA VIRUS WITH THE SAME OTHER IDENTIFIED INFLUENZA VIRUS PNE |
| INFLUENZA DUE TO UNIDENTIFIED INFLUENZA VIRUS WITH OTHER RESPIRATORY MANIFESTATIONS | INFLUENZA DUE TO OTHER IDENTIFIED INFLUENZA VIRUS WITH OTHER SPECIFIED PNEUMONIA |
| INFLUENZA DUE TO UNIDENTIFIED INFLUENZA VIRUS WITH GASTROINTESTINAL MANIFESTATIONS | INFLUENZA DUE TO OTHER IDENTIFIED INFLUENZA VIRUS WITH GASTROINTESTINAL MANIFESTATIONS |
| INFLUENZA DUE TO UNIDENTIFIED INFLUENZA VIRUS WITH OTITIS MEDIA | INFLUENZA DUE TO OTHER IDENTIFIED INFLUENZA VIRUS WITH ENCEPHALOPATHY |
| ADENOVIRAL PNEUMONIA | INFLUENZA DUE TO OTHER IDENTIFIED INFLUENZA VIRUS WITH MYOCARDITIS |
| RESPIRATORY SYNCYTIAL VIRUS PNEUMONIA | INFLUENZA DUE TO OTHER IDENTIFIED INFLUENZA VIRUS WITH OTITIS MEDIA |
| PARAINFLUENZA VIRUS PNEUMONIA | INFLUENZA DUE TO OTHER IDENTIFIED INFLUENZA VIRUS WITH OTHER MANIFESTATIONS |
| HUMAN METAPNEUMOVIRUS PNEUMONIA | INFLUENZA DUE TO UNIDENTIFIED INFLUENZA VIRUS WITH ENCEPHALOPATHY |
| OTHER VIRAL PNEUMONIA | INFLUENZA DUE TO UNIDENTIFIED INFLUENZA VIRUS WITH MYOCARDITIS |
| VIRAL PNEUMONIA, UNSPECIFIED | INFLUENZA DUE TO UNIDENTIFIED INFLUENZA VIRUS WITH OTHER MANIFESTATIONS |
| BRONCHOPNEUMONIA, UNSPECIFIED ORGANISM | PNEUMONIA DUE TO SARS-ASSOCIATED CORONAVIRUS |
| LOBAR PNEUMONIA, UNSPECIFIED ORGANISM | PNEUMONIA IN DISEASES CLASSIFIED ELSEWHERE |
| PNEUMONIA, UNSPECIFIED ORGANISM | HYPOSTATIC PNEUMONIA, UNSPECIFIED ORGANISM |
| ACUTE BRONCHITIS DUE TO HEMOPHILUS INFLUENZAE | OTHER PNEUMONIA, UNSPECIFIED ORGANISM |
| ACUTE BRONCHITIS DUE TO PARAINFLUENZA VIRUS | ACUTE BRONCHITIS DUE TO COXSACKIEVIRUS |
| ACUTE BRONCHITIS DUE TO RESPIRATORY SYNCYTIAL VIRUS | ACUTE BRONCHITIS DUE TO ECHOVIRUS |
| ACUTE BRONCHITIS DUE TO RHINOVIRUS | ACUTE BRONCHIOLITIS DUE TO HUMAN METAPNEUMOVIRUS |
| ACUTE BRONCHITIS DUE TO OTHER SPECIFIED ORGANISMS | ACUTE BRONCHIOLITIS DUE TO OTHER SPECIFIED ORGANISMS |
| ACUTE BRONCHITIS, UNSPECIFIED | ALLERGIC RHINITIS DUE TO FOOD |
| ACUTE BRONCHIOLITIS DUE TO RESPIRATORY SYNCYTIAL VIRUS | OTHER CHRONIC SINUSITIS |
| ACUTE BRONCHIOLITIS, UNSPECIFIED | POLYPOID SINUS DEGENERATION |
| UNSPECIFIED ACUTE LOWER RESPIRATORY INFECTION | MIXED SIMPLE AND MUCOPURULENT CHRONIC BRONCHITIS |
| VASOMOTOR RHINITIS | UNILATERAL PULMONARY EMPHYSEMA /MACLEOD'S SYNDROME |
| ALLERGIC RHINITIS DUE TO POLLEN | PANLOBULAR EMPHYSEMA |
| OTHER SEASONAL ALLERGIC RHINITIS | OTHER EMPHYSEMA |
| ALLERGIC RHINITIS DUE TO ANIMAL (CAT) (DOG) HAIR AND DANDER | MILD PERSISTENT ASTHMA WITH STATUS ASTHMATICUS |
| OTHER ALLERGIC RHINITIS | PULMONARY ALVEOLAR MICROLITHIASIS |
| ALLERGIC RHINITIS, UNSPECIFIED | OTHER ALVEOLAR AND PARIETO-ALVEOLAR CONDITIONS |
| CHRONIC RHINITIS | OTHER INTERSTITIAL PULMONARY DISEASES WITH FIBROSIS IN DISEASES CLASSIFIED ELSEWHERE |
| CHRONIC NASOPHARYNGITIS | NEUROENDOCRINE CELL HYPERPLASIA OF INFANCY |
| CHRONIC PHARYNGITIS | PULMONARY INTERSTITIAL GLYCOGENOSIS |
| CHRONIC MAXILLARY SINUSITIS | ALVEOLAR CAPILLARY DYSPLASIA WITH VEIN MISALIGNMENT |
| CHRONIC FRONTAL SINUSITIS | PRIMARY SPONTANEOUS PNEUMOTHORAX |
| CHRONIC ETHMOIDAL SINUSITIS | SECONDARY SPONTANEOUS PNEUMOTHORAX |
| CHRONIC SPHENOIDAL SINUSITIS | CHRONIC PNEUMOTHORAX |
| CHRONIC PANSINUSITIS | OTHER AIR LEAK |
| CHRONIC SINUSITIS, UNSPECIFIED | CHYLOUS EFFUSION |
| POLYP OF NASAL CAVITY | OTHER PULMONARY COLLAPSE |
| OTHER POLYP OF SINUS | COMPENSATORY EMPHYSEMA |
| NASAL POLYP, UNSPECIFIED |  |

**Table S2**: Respiratory diagnoses without an indication of a bacterial infection.