

Supplemental Information

SUPPLEMENTAL TABLE 3 PHIS Database Codebook

Variable	ICD-9 Code	Clinical Transaction Classification Code
Case definition		
CF with pulmonary manifestations and IV OR	277.02	
CF and IV AND 1 of the following:	277.00, 277.03, 277.09	
Acute upper respiratory tract infections of multiple or unspecified sites	465.x	
Acute bronchitis and bronchiolitis	466.x	
Pneumonia	486.x	
Influenza	487.x	
Bronchitis (not specified as acute or chronic)	490.x	
Chronic bronchitis	491.x	
Bronchiectasis	494.x	
Exclusion criteria		
Malignancy flag Clinical Transaction Classification code		Malignancy
History of organ transplant (includes bone marrow, eye, intestine, kidney, liver, lung, and pancreas)	996.8x	
Other postoperative complication:		
Peritoneal adhesions with obstruction	560.81	
Postoperative heterotopic calcification	728.59	
Other postoperative infection (abscess: postoperative, intra-abdominal postoperative, stitch postoperative, subphrenic postoperative, wound postoperative, septicemia postoperative)	998.59	
Persistent postoperative fistula	998.6	
Acute pancreatitis	577.0	
Mechanical complication of:		
Other and unspecified infection due to central venous catheter	999.31	
Bloodstream infection due to central venous catheter	999.32	
Fitting and adjustment of vascular catheter	V58.81	
Mechanical complication of gastrostomy	536.42	
Mechanical complication of colostomy and enterostomy	569.62	
Mechanical complication of other vascular device, implant, and graft	996.1	
Mechanical complication of nervous system device, implant, and graft	996.2	
Due to insulin pump	996.57	
Due to other implant and internal device, not elsewhere specified	996.59	
Demographic variables		
Pancreatic medication use		
Digestive enzymes and/or Lactase enzyme		147758
Liver medication use Ursodiol		142027
Diabetes medication use Insulin		147865
Gastrostomy present		153100
Any respiratory support		541141
Oxygen use		521171
Mechanical ventilation use		521166
Mechanical ventilation use		521161
Chronic medications		
Dornase alfa		183015
Albuterol		181211
Hypertonic saline		188311
Azithromycin		122421
(Chronic if given orally, given >25% of hospital days, given <75% of hospital days)		
Corticosteroids		
Prednisone		154083
Prednisolone		154081
Methylprednisolone		154071

TABLE 3 Continued

Variable	ICD-9 Code	Clinical Transaction Classification Code
Dexamethasone		154035
Lung function testing		
Lung function testing performed (coded as airway measurement, which included FEV ₁)		521103
Antibiotics		
Amikacin sulfate		121101
Aztreonam		124121
Cefepime		122252
Ceftazidime		122221
Ceftriaxone		122231
Ciprofloxacin		123201
Clindamycin		124143
Colistimethate sodium		124147
Doxycycline		123115
Erythromycin		122401
Gentamicin		121105
Levofloxacin		123215
Linezolid		124137
Meropenem		124118
Metronidazole		124164
Minocycline		123131
Piperacillin sodium and tazobactam sodium		121265
Rifampin		126245
Sulfamethoxazole and trimethoprim		124451
Ticarcillin disodium and clavulanate sodium		121271
Tobramycin sulfate		121135
Vancomycin (HCl)		124133

FEV₁, forced expiratory volume in 1 second.

SUPPLEMENTAL TABLE 5 Top 10 IV Antibiotics Used in All Pulmonary Exacerbations

Top 10 IV Antibiotics	IV Antibiotic Use Frequency (<i>N</i> = 4827), %
Tobramycin	58.5
Ceftazidime	27.3
Vancomycin	18.6
Piperacillin sodium and tazobactam sodium	18.0
Cefepime	12.8
Ticarcillin disodium and clavulanate potassium	12.7
Meropenem	11.0
Clindamycin	4.5
Ciprofloxacin	4.5
Ceftriaxone	4.1

SUPPLEMENTAL TABLE 4 List of Included CFF-Accredited PHIS-Participating Pediatric Centers (*N* = 38)

Akron Children's Hospital (Akron, OH)
All Children's Hospital (St Petersburg, FL)
Ann and Robert H. Lurie Children's Hospital of Chicago (Chicago, IL)
Arkansas Children's Hospital (Little Rock, AK)
Boston Children's Hospital (Boston, MA)
Children's Healthcare of Atlanta (Atlanta, GA)
Children's Hospitals and Clinics of Minnesota (Minneapolis, MN)
Children's Hospital and Medical Center (Omaha, NE)
Children's Hospital Colorado (Denver, CO)
Children's Hospital of Los Angeles (Los Angeles, CA)
Children's Hospital of New Orleans (New Orleans, LA)
Children's Hospital of Orange County (Orange County, CA)
Children's Hospital of Pittsburgh of University of Pittsburgh Medical Center (Pittsburgh, PA)
Children's Hospital of the King's Daughters (Norfolk, VA)
Children's Hospital of Wisconsin (Milwaukee, WI)
Children's Medical Center (Dallas, TX)
Children's of Alabama (Birmingham, AL)
Children's National Medical Center (Washington, DC)
Cincinnati Children's Hospital Medical Center (Cincinnati, OH)
Connecticut Children's Medical Center (Hartford, CT)
Cook Children's (Fort Worth, TX)
Le Bonheur Children's Medical Center (Memphis, TN)
Lucille Packard Children's Hospital at Stanford (Palo Alto, CA)
Nationwide Children's Hospital (Columbus, OH)
New York–Presbyterian Morgan Stanley Children's Hospital (New York, NY)
Niklaus Children's Hospital (Miami, FL)
Phoenix Children's Hospital (Phoenix, AZ)
Primary Children's Hospital (Salt Lake City, UT)
Rady Children's Hospital of San Diego (San Diego, CA)
Riley Hospital for Children at Indiana University Health (Indianapolis, IN)
Seattle Children's Hospital (Seattle, WA)
St Louis Children's Hospital (St Louis, MI)
Texas Children's Hospital (Houston, TX)
The Children's Hospital of Philadelphia (Philadelphia, PA)
University of California at San Francisco Benioff Children's Hospital Oakland (Oakland, CA)
Valley Children's Hospital (Madera, CA)
Women and Children's Hospital of Buffalo (Buffalo, NY)
Yale–New Haven Children's Hospital (New Haven, CT)

SUPPLEMENTAL TABLE 7 Top 10 IV Antibiotics on Admission When 2 IV Antibiotics Were Used

IV Antibiotic 1	IV Antibiotic 2	IV Antibiotic Use Frequency (<i>n</i> = 2732), %
Ceftazidime	Tobramycin	20.9
Piperacillin sodium and tazobactam sodium	Tobramycin	15.7
Ticarcillin disodium and clavulanate potassium	Tobramycin	13.7
Cefepime	Tobramycin	12.1
Meropenem	Tobramycin	6.7
Ceftazidime	Vancomycin	2.2
Piperacillin sodium and tazobactam sodium	Vancomycin	1.5
Cefepime	Vancomycin	1.2
Piperacillin sodium and tazobactam sodium	Gentamicin	0.9
Ceftazidime	Ciprofloxacin	0.8

SUPPLEMENTAL TABLE 6 Top 10 IV Antibiotics on Admission When Only 1 IV Antibiotic Was Used

Top 10 IV Antibiotics	IV Antibiotic Use Frequency (<i>n</i> = 997), %
Vancomycin	13.9
Ampicillin sodium and sulbactam sodium	10.8
Cefazolin	9.5
Ceftriaxone	9.1
Piperacillin sodium and tazobactam sodium	7.6
Oxacillin	6.0
Ceftazidime	5.7
Clindamycin	5.1
Ticarcillin disodium and clavulanate potassium	5.0
Cefepime	4.9

SUPPLEMENTAL TABLE 9 Top 10 Oral Antibiotics Used in All Pulmonary Exacerbations

Top 10 Oral Antibiotics	Oral Antibiotic Use Frequency (<i>n</i> = 1784), %
Trimethoprim-sulfamethoxazole	46.2
Ciprofloxacin	10.7
Linezolid	8.7
Minocycline	8.7
Rifampin	7.3
Doxycycline	7.0
Erythromycin	5.8
Metronidazole	5.2
Levofloxacin	5.0
Clindamycin	4.9

SUPPLEMENTAL TABLE 10 Top 5 Inhaled Antibiotics Used in All Pulmonary Exacerbations

Top 5 Inhaled Antibiotics	Inhaled Antibiotic Use Frequency (<i>n</i> = 1043), %
Tobramycin	87.4
Colistimethate sodium	9.2
Amikacin	2.6
Aztreonam	2.2
Gentamicin	0.9

SUPPLEMENTAL TABLE 8 Top 10 IV Antibiotic Trios on Admission When at Least 3 IV Antibiotics Were Used

IV Antibiotic 1	IV Antibiotic 2	IV Antibiotic 3	IV Antibiotic Use Frequency (<i>n</i> = 1098), %
Ceftazidime	Tobramycin	Vancomycin	13.8
Cefepime	Tobramycin	Vancomycin	6.5
Piperacillin sodium and tazobactam sodium	Tobramycin	Vancomycin	6.0
Meropenem	Tobramycin	Vancomycin	5.5
Ceftazidime	Clindamycin	Tobramycin	4.6
Ceftazidime	Linezolid	Tobramycin	3.9
Ticarcillin disodium and clavulanate sodium	Tobramycin	Vancomycin	3.5
Ceftazidime	Meropenem	Tobramycin	2.5
Piperacillin sodium and tazobactam sodium	Ceftazidime	Tobramycin	1.9
Ceftazidime	Ciprofloxacin	Tobramycin	1.5