

Pediatric Health Information System (PHIS)

©Choosing Wisely Measures Report Card Definitions

Special Note: Choosing Wisely is an initiative of the American Board of Internal Medicine (ABIM) Foundation and has not reviewed or endorsed this report.

For all measures:

Patient Type: Inpatient/Observation or ED Visit (Defined by the prompt)
Severity Levels: 1, 2, 3 (Minor, Moderate, Major)
ICU Flag: ICU Flag = N

Achievable Benchmarks of Care (ABC):

ABCs are derived benchmarks that: 1) represent a measurable level of excellence, 2) are attainable, and (3) are derived from data in an objective and reproducible fashion. The ABC for the measure is calculated based on the performance of the top decile, with adjustments for sample size by participant/site.

Asthma Population defined as:

Age at Admit: Age in Years 3 thru 17
Length of Stay: LOS <= 3 days
Principal Dx (ICD): In Asthma Inclusion Codes list

Asthma Inclusion Codes:

49300	Extrinsic asthma, unspecified
49301	Extrinsic asthma with status asthmaticus
49302	Extrinsic asthma, with (acute) exacerbation
49310	Intrinsic asthma, unspecified
49311	Intrinsic asthma with status asthmaticus
49312	Intrinsic asthma, with (acute) exacerbation
49320	Chronic obstructive asthma, unspecified
49321	Chronic obstructive asthma, with status asthmaticus
49322	Chronic obstructive asthma, with (acute) exacerbation
49381	Exercise induced bronchospasm
49382	Cough variant asthma
49390	Asthma, unspecified, unspecified
49391	Asthma, unspecified type, with status asthmaticus
49392	Asthma, unspecified, with (acute) exacerbation
J4520	Mild intermittent asthma, uncomplicated
J4521	Mild intermittent asthma with (acute) exacerbation
J4522	Mild intermittent asthma with status asthmaticus
J4530	Mild persistent asthma, uncomplicated
J4531	Mild persistent asthma with (acute) exacerbation
J4532	Mild persistent asthma with status asthmaticus
J4540	Moderate persistent asthma, uncomplicated
J4541	Moderate persistent asthma with (acute) exacerbation

J4542	Moderate persistent asthma with status asthmaticus
J4550	Severe persistent asthma, uncomplicated
J4551	Severe persistent asthma with (acute) exacerbation
J4552	Severe persistent asthma with status asthmaticus
J45901	Unspecified asthma with (acute) exacerbation
J45902	Unspecified asthma with status asthmaticus J45909 Unspecified asthma, uncomplicated
J45990	Exercise induced bronchospasm
J45991	Cough variant asthma
J45998	Other asthma

Chest Radiograph defined as: (Asthma/Bronchiolitis Measure #1)

433011	Chest x-ray
433111	Chest posterior anterior (PA) x-ray
433211	Chest anterior posterior (AP) x-ray
433311	Chest PA and lateral x-ray
433411	Chest AP and lateral x-ray
433511	Chest lateral decubitus x-ray
433611	Chest lateral x-ray
433711	Chest inspiration/expiration x-ray
433911	Other specified chest x-ray

Asthma Exclusions:

- Dx Code (ICD) in Basic Exclusion List for Respiratory (See Appendix A)
- Dx Code (ICD) in Bronchiolitis inclusion codes list (466.11, 466.19, J21.0, J21.1, J21.8, J21.9)
- Dx Code (ICD) in Lower Tract Respiratory Infection inclusion codes list (See below)

Bronchiolitis Population defined as:

Age at Admit: Admit age >= 1 month and < 1 year
Length of Stay: LOS <= 3 days
Principal Dx (ICD): In Bronchiolitis Inclusion Codes list

Bronchiolitis Inclusion Codes:

46611	Acute bronchiolitis due to respiratory syncytial virus (RSV)
46619	Acute bronchiolitis due to other infectious organisms
J210	Acute bronchiolitis due to respiratory syncytial virus
J211	Acute bronchiolitis due to human metapneumovirus
J218	Acute bronchiolitis due to other specified organisms
J219	Acute bronchiolitis, unspecified

Relievers defined as: (Bronchiolitis Measure #2)

131321	Epinephrine
181211	Albuterol sulfate
181231	Levalbuterol HCl
181235	Metaproterenol sulfate
181245	Terbutaline sulfate
181251	Pirbuterol acetate
181311	Ipratropium bromide
181315	Albuterol sulfate and ipratropium bromide

Bronchiolitis Exclusions:

- Dx Code (ICD) in Basic Exclusion List for Respiratory (See Appendix A)
- Dx Code (ICD) in Asthma inclusion codes list
- Dx Code (ICD) in Lower Tract Respiratory Infection inclusion codes list (See below)

Lower Respiratory Tract Infection (LRTI) defined as:

Age at Admit: Admit age >= 1 month and < 2 years

Length of Stay: LOS <= 3 days

Principal Dx (ICD): In LRTI Inclusion Codes list

Lower Respiratory Tract Infection (LRTI) Inclusion Codes – Principal Dx (ICD):

46611	Acute bronchiolitis due to respiratory syncytial virus (RSV)
46619	Acute bronchiolitis due to other infectious organisms
4800	Pneumonia due to adenovirus
4801	Pneumonia due to respiratory syncytial virus
4802	Pneumonia due to parainfluenza virus
4803	Pneumonia due to SARS-associated coronavirus 4808 Pneumonia due to other virus not elsewhere classified 4809
4809	Viral pneumonia, unspecified
481	Pneumococcal pneumonia [Streptococcus pneumoniae pneumonia]
4820	Pneumonia due to Klebsiella pneumoniae
4821	Pneumonia due to Pseudomonas
4822	Pneumonia due to Hemophilus influenzae [H. influenzae]
48230	Pneumonia due to unspecified Streptococcus
48231	Pneumonia due to Streptococcus, group A
48232	Pneumonia due to Streptococcus, group B
48239	Pneumonia due to other Streptococcus
48240	Pneumonia due to Staphylococcus, unspecified
48241	Methicillin susceptible pneumonia due to Staphylococcus aureus
48242	Methicillin resistant pneumonia due to Staphylococcus aureus
48249	Other Staphylococcus pneumonia

48281 Pneumonia due to anaerobes
 48282 Pneumonia due to Escherichia coli [E. coli]
 48283 Pneumonia due to other gram-negative bacteria
 48284 Legionnaires' disease
 48289 Pneumonia due to other specified bacteria
 4829 Bacterial pneumonia, unspecified
 4830 Pneumonia due to Mycoplasma pneumoniae
 4831 Pneumonia due to Chlamydia
 4838 Pneumonia due to other specified organism 4841
 Pneumonia in cytomegalic inclusion disease 4843
 Pneumonia in whooping cough
 4845 Pneumonia in anthrax
 4846 Pneumonia in aspergillosis
 4847 Pneumonia in other systemic mycoses
 4848 Pneumonia in other infectious diseases classified elsewhere
 485 Bronchopneumonia, organism unspecified
 486 Pneumonia, organism unspecified
 4870 Influenza with pneumonia
 A221 Pulmonary anthrax
 A3701 Whooping cough due to Bordetella pertussis with pneumonia
 A3711 Whooping cough due to Bordetella parapertussis with pneumonia
 A3781 Whooping cough due to other Bordetella species with pneumonia
 A3791 Whooping cough, unspecified species with pneumonia
 A481 Legionnaires' disease
 B250 Cytomegaloviral pneumonitis
 B440 Invasive pulmonary aspergillosis
 J09X1 Influenza due to identified novel influenza A virus with pneumonia
 J1000 Influenza due to other identified influenza virus with unspecified type of pneumonia
 J1001 Influenza due to other identified influenza virus with the same other identified influenza virus pneumonia
 J1008 Influenza due to other identified influenza virus with other specified pneumonia
 J1100 Influenza due to unidentified influenza virus with unspecified type of pneumonia
 J1108 Influenza due to unidentified influenza virus with specified pneumonia
 J120 Adenoviral pneumonia
 J121 Respiratory syncytial virus pneumonia
 J122 Parainfluenza virus pneumonia
 J123 Human metapneumovirus pneumonia
 J1281 Pneumonia due to SARS-associated coronavirus
 J1289 Other viral pneumonia
 J129 Viral pneumonia, unspecified
 J13 Pneumonia due to Streptococcus pneumoniae

J14 Pneumonia due to Hemophilus influenzae
 J150 Pneumonia due to Klebsiella pneumoniae
 J151 Pneumonia due to Pseudomonas
 J1520 Pneumonia due to staphylococcus, unspecified
 J15211 Pneumonia due to Methicillin susceptible Staphylococcus aureus
 J15212 Pneumonia due to Methicillin resistant Staphylococcus aureus
 J1529 Pneumonia due to other staphylococcus
 J153 Pneumonia due to streptococcus, group B
 J154 Pneumonia due to other streptococci
 J155 Pneumonia due to Escherichia coli
 J156 Pneumonia due to other aerobic Gram-negative bacteria
 J157 Pneumonia due to Mycoplasma pneumoniae
 J158 Pneumonia due to other specified bacteria
 J159 Unspecified bacterial pneumonia
 J160 Chlamydial pneumonia
 J168 Pneumonia due to other specified infectious organisms
 J17 Pneumonia in diseases classified elsewhere
 J180 Bronchopneumonia, unspecified organism
 J181 Lobar pneumonia, unspecified organism
 J182 Hypostatic pneumonia, unspecified organism
 J188 Other pneumonia, unspecified organism
 J189 Pneumonia, unspecified organism
 J210 Acute bronchiolitis due to respiratory syncytial virus J211
 Acute bronchiolitis due to human metapneumovirus J218
 Acute bronchiolitis due to other specified organisms J219
 Acute bronchiolitis, unspecified

Systemic Steroids defined as: (LRTI Measure #3)

154035 Dexamethasone
 154063 Hydrocortisone
 154071 Methylprednisolone
 154081 Prednisolone
 154083 Prednisone

Lower Respiratory Tract Infection (LRTI) Exclusions:

- Dx Code (ICD) in Basic Exclusion List for Respiratory (See Appendix A)
- Dx Code (ICD) in list of Asthma Inclusion codes (See above)

Gastroesophageal Reflux defined as:

Age at Admit: Admit age <= 1 year

Length of Stay: LOS <= 3 days

Principal Dx (ICD):

530.81 Esophageal Reflux

K21.9 Gastro-esophageal reflux disease without esophagitis

Acid Suppressors defined as: (GER Measure #4)

147200 Proton pump inhibitors, unspecified

147201 Esomeprazole

147203 Dexlansoprazole

147205 Lansoprazole

147211 Pantoprazole sodium

147215 Omeprazole

147221 Rabeprazole

147229 Other specified proton pump inhibitors

147100 Histamine antagonists

147101 Cimetidine

147105 Famotidine

147111 Rantidine

147115 Nizatidine

147129 Other histamine antagonists

Gastroesophageal (GER) Exclusions – Dx Code (ICD):

261 Nutritional marasmus

262 Other severe protein-calorie malnutrition

2630 Malnutrition of moderate degree

2631 Malnutrition of mild degree

2632 Arrested development following protein-calorie malnutrition

2638 Other protein-calorie malnutrition

2639 Unspecified protein-calorie malnutrition

32720 Organic sleep apnea, unspecified

32721 Primary central sleep apnea

32723 Obstructive sleep apnea (adult) (pediatric)

32727 Central sleep apnea in conditions classified elsewhere

32729 Other organic sleep apnea

53010 Unspecified esophagitis

53011 Reflux esophagitis
53012 Acute esophagitis
53013 Eosinophilic esophagitis
53019 Other esophagitis
53311 Acute peptic ulcer of unspecified site with perforation, with obstruction
53320 Acute peptic ulcer of unspecified site with hemorrhage and perforation, without mention of obstruction
53321 Acute peptic ulcer of unspecified site with hemorrhage and perforation, with obstruction
53330 Acute peptic ulcer of unspecified site without mention of hemorrhage and perforation, without mention of obstruction
53331 Acute peptic ulcer of unspecified site without mention of hemorrhage and perforation, with obstruction
53340 Chronic or unspecified peptic ulcer of unspecified site with hemorrhage, without mention of obstruction
53341 Chronic or unspecified peptic ulcer of unspecified site with hemorrhage, with obstruction
53350 Chronic or unspecified peptic ulcer of unspecified site with perforation, without mention of obstruction
53351 Chronic or unspecified peptic ulcer of unspecified site with perforation, with obstruction
53360 Chronic or unspecified peptic ulcer of unspecified site with hemorrhage and perforation, without mention of obstruction
53361 Chronic or unspecified peptic ulcer of unspecified site with hemorrhage and perforation, with obstruction
53370 Chronic peptic ulcer of unspecified site without mention of hemorrhage or perforation, without mention of obstruction
53371 Chronic peptic ulcer of unspecified site without mention of hemorrhage or perforation, with obstruction
53390 Peptic ulcer of unspecified site, unspecified as acute or chronic, without mention of hemorrhage or perforation, without mention of obstruction
53391 Peptic ulcer of unspecified site, unspecified as acute or chronic, without mention of hemorrhage or perforation, with obstruction
53500 Acute gastritis, without mention of hemorrhage
53501 Acute gastritis, with hemorrhage
53510 Atrophic gastritis, without mention of hemorrhage
53511 Atrophic gastritis, with hemorrhage
53520 Gastric mucosal hypertrophy, without mention of hemorrhage
53521 Gastric mucosal hypertrophy, with hemorrhage
53530 Alcoholic gastritis, without mention of hemorrhage
53531 Alcoholic gastritis, with hemorrhage
53540 Other specified gastritis, without mention of hemorrhage
53541 Other specified gastritis, with hemorrhage
53550 Unspecified gastritis and gastroduodenitis, without mention of hemorrhage
53551 Unspecified gastritis and gastroduodenitis, with hemorrhage
53560 Duodenitis, without mention of hemorrhage
53561 Duodenitis, with hemorrhage
53570 Eosinophilic gastritis, without mention of hemorrhage
53571 Eosinophilic gastritis, with hemorrhage
77081 Primary apnea of newborn
77082 Other apnea of newborn
77934 Failure to thrive in newborn

78051 Insomnia with sleep apnea, unspecified
78053 Hypersomnia with sleep apnea, unspecified
78057 Unspecified sleep apnea
78341 Failure to thrive
78603 Apnea
79982 Apparent life threatening event in infant
E41 Nutritional marasmus
E42 Marasmic kwashiorkor
E43 Unspecified severe protein-calorie malnutrition
E440 Moderate protein-calorie malnutrition
E441 Mild protein-calorie malnutrition
E45 Retarded development following protein-calorie malnutrition
E46 Unspecified protein-calorie malnutrition
G4730 Sleep apnea, unspecified
G4731 Primary central sleep apnea
G4733 Obstructive sleep apnea (adult) (pediatric)
G4737 Central sleep apnea in conditions classified elsewhere
G4739 Other sleep apnea
K200 Eosinophilic esophagitis
K208 Other esophagitis
K209 Esophagitis, unspecified
K210 Gastro-esophageal reflux disease with esophagitis
K270 Acute peptic ulcer, site unspecified, with hemorrhage
K271 Acute peptic ulcer, site unspecified, with perforation
K272 Acute peptic ulcer, site unspecified, with both hemorrhage and perforation
K273 Acute peptic ulcer, site unspecified, without hemorrhage or perforation
K274 Chronic or unspecified peptic ulcer, site unspecified, with hemorrhage
K275 Chronic or unspecified peptic ulcer, site unspecified, with perforation
K276 Chronic or unspecified peptic ulcer, site unspecified, with both hemorrhage and perforation
K277 Chronic peptic ulcer, site unspecified, without hemorrhage or perforation
K279 Peptic ulcer, site unspecified, unspecified as acute or chronic, without hemorrhage or perforation
K2900 Acute gastritis without bleeding
K2901 Acute gastritis with bleeding
K2920 Alcoholic gastritis without bleeding
K2921 Alcoholic gastritis with bleeding
K2930 Chronic superficial gastritis without bleeding
K2931 Chronic superficial gastritis with bleeding
K2940 Chronic atrophic gastritis without bleeding
K2941 Chronic atrophic gastritis with bleeding
K2950 Unspecified chronic gastritis without bleeding
K2951 Unspecified chronic gastritis with bleeding

K2960	Other gastritis without bleeding
K2961	Other gastritis with bleeding
K2970	Gastritis, unspecified, without bleeding
K2971	Gastritis, unspecified, with bleeding
K2980	Duodenitis without bleeding
K2981	Duodenitis with bleeding
K2990	Gastroduodenitis, unspecified, without bleeding
K2991	Gastroduodenitis, unspecified, with bleeding
K5281	Eosinophilic gastritis or gastroenteritis
P283	Primary sleep apnea of newborn
P284	Other apnea of newborn
P926	Failure to thrive in newborn
R0681	Apnea, not elsewhere classified
R6251	Failure to thrive (child)
R6813	Apparent life threatening event in infant (ALTE)

Appendix A: Basic Exclusion List for Respiratory

261	Nutritional marasmus
262	Other severe protein-calorie malnutrition
2630	Malnutrition of moderate degree
2631	Malnutrition of mild degree
2638	Other protein-calorie malnutrition
2639	Unspecified protein-calorie malnutrition
2734	Alpha-1-antitrypsin deficiency
2762	Acidosis
27700	Cystic fibrosis without mention of meconium ileus
27701	Cystic fibrosis with meconium ileus
27702	Cystic fibrosis with pulmonary manifestations
27703	Cystic fibrosis with gastrointestinal manifestations
27709	Cystic fibrosis with other manifestations
317	Mild intellectual disabilities 3180
	Moderate intellectual
disabilities 3181	Severe intellectual
disabilities 3182	Profound
	intellectual disabilities
319	Unspecified intellectual disabilities
32720	Organic sleep apnea, unspecified
32721	Primary central sleep apnea
32723	Obstructive sleep apnea (adult) (pediatric)
32727	Central sleep apnea in conditions classified elsewhere

32729 Other organic sleep apnea
 3430 Diplegic infantile cerebral palsy
 3431 Hemiplegic infantile cerebral palsy
 3432 Quadriplegic infantile cerebral palsy
 3433 Monoplegic infantile cerebral palsy
 3434 Infantile hemiplegia
 3438 Other specified infantile cerebral palsy
 3439 Infantile cerebral palsy, unspecified
 3481 Anoxic brain damage
 34830 Encephalopathy, unspecified
 34831 Metabolic encephalopathy
 34839 Other encephalopathy 3489
 Unspecified condition of
 brain
 490 Bronchitis, not specified as acute or chronic
 496 Chronic airway obstruction, not classified elsewhere
 5111 Pleurisy with effusion, with mention of a bacterial cause other than tuberculosis
 5119 Unspecified pleural effusion
 51661 Neuroendocrine cell hyperplasia of infancy
 51662 Pulmonary interstitial glycogenosis
 51663 Surfactant mutations of the lung
 51664 Alveolar capillary dysplasia with vein misalignment
 51669 Other interstitial lung diseases of childhood
 5168 Other specified alveolar and parietoalveolar pneumonopathies
 5169 Unspecified alveolar and parietoalveolar pneumonopathy
 51881 Acute respiratory failure
 51882 Other pulmonary insufficiency, not elsewhere classified
 51883 Chronic respiratory failure
 51884 Acute and chronic respiratory failure
 51889 Other diseases of lung not classified elsewhere
 51911 Acute bronchospasm
 52400 Unspecified anomaly of jaw size
 52401 Maxillary hyperplasia
 52402 Mandibular hyperplasia
 52403 Maxillary hypoplasia
 52404 Mandibular hypoplasia
 52405 Macrogenia
 52406 Microgenia
 52407 Excessive tuberosity of jaw
 52409 Other specified anomaly of jaw size
 52410 Unspecified anomaly of relationship of jaw to cranial base

52411 Maxillary asymmetry

52412 Other jaw asymmetry
 52419 Other specified anomaly of relationship of jaw to cranial base
 7450 Common truncus
 74510 Complete transposition of great vessels
 74511 Double outlet right ventricle
 74512 Corrected transposition of great vessels
 74519 Other transposition of great vessels
 7452 Tetralogy of Fallot
 7453 Common ventricle 7454
 Ventricular septal
 defect
 7455 Ostium secundum type atrial septal defect
 74560 Endocardial cushion defect, unspecified type
 74561 Ostium primum defect
 74569 Other endocardial cushion defects
 7457 Cor biloculare
 7458 Other bulbus cordis anomalies and anomalies of cardiac septal closure
 7459 Unspecified defect of septal closure
 74600 Congenital pulmonary valve anomaly, unspecified
 74601 Atresia of pulmonary valve, congenital
 74602 Stenosis of pulmonary valve, congenital
 74609 Other congenital anomalies of pulmonary valve
 7461 Tricuspid atresia and stenosis, congenital 7462
 Ebstein's anomaly
 7463 Congenital stenosis of aortic valve
 7464 Congenital insufficiency of aortic valve
 7465 Congenital mitral stenosis
 7466 Congenital mitral insufficiency
 7467 Hypoplastic left heart syndrome
 74681 Subaortic stenosis, congenital
 74682 Cor triatriatum
 74683 Infundibular pulmonic stenosis, congenital
 74684 Obstructive anomalies of heart, congenital, not elsewhere classified
 74685 Coronary artery anomaly, congenital
 74686 Congenital heart block
 74687 Malposition of heart and cardiac apex
 74689 Other specified congenital anomalies of heart
 7469 Unspecified congenital anomaly of heart
 7470 Patent Ductus Arteriosus
 74710 Coarctation of aorta (preductal) (postductal)
 74720 Congenital anomaly of aorta, unspecified

74860 Congenital anomaly of lung, unspecified

74869 Other congenital anomalies of lung
74900 Cleft palate, unspecified
74901 Unilateral, unspecified
74902 Cleft palate, unilateral, incomplete
74903 Cleft palate, bilateral, complete
74904 Cleft palate, bilateral, incomplete
74910 Cleft lip, unspecified
74911 Cleft lip, unilateral, complete
74912 Cleft lip, unilateral, incomplete
74913 Cleft lip, bilateral, complete
74914 Cleft lip, bilateral, incomplete
74920 Cleft palate with cleft lip, unspecified
74921 Cleft palate with cleft lip, unilateral, complete
74922 Cleft palate with cleft lip, unilateral, incomplete
74923 Cleft palate with cleft lip, bilateral, complete
74924 Cleft palate with cleft lip, bilateral, incomplete
74925 Other combinations of cleft palate with cleft lip
7560 Congenital anomalies of skull and face bones
7678 Other specified birth trauma
76870 Hypoxic-ischemic encephalopathy, unspecified
76871 Mild hypoxic-ischemic encephalopathy
76872 Moderate hypoxic-ischemic encephalopathy
76873 Severe hypoxic-ischemic encephalopathy
7707 Chronic respiratory disease arising in the perinatal period
77081 Primary apnea of newborn
77082 Other apnea of newborn
77934 Failure to thrive in newborn
78051 Insomnia with sleep apnea, unspecified
78053 Hypersomnia with sleep apnea, unspecified
78057 Unspecified sleep apnea
78341 Failure to thrive
78603 Apnea
V440 Tracheostomy status
V550 Attention to tracheostomy
E41 Nutritional marasmus
E42 Marasmic kwashiorkor
E43 Unspecified severe protein-calorie malnutrition
E440 Moderate protein-calorie malnutrition
E441 Mild protein-calorie malnutrition
E46 Unspecified protein-calorie malnutrition
E840 Cystic fibrosis with pulmonary manifestations

E8411 Meconium ileus in cystic fibrosis
 E8419 Cystic fibrosis with other intestinal manifestations
 E848 Cystic fibrosis with other manifestations
 E849 Cystic fibrosis, unspecified
 E872 Acidosis
 E8801 Alpha-1-antitrypsin deficiency
 F70 Mild intellectual disabilities
 F71 Moderate intellectual disabilities
 F72 Severe intellectual disabilities
 F73 Profound intellectual disabilities
 F78 Other intellectual disabilities
 F79 Unspecified intellectual disabilities
 G4730 Sleep apnea, unspecified
 G4731 Primary central sleep apnea
 G4733 Obstructive sleep apnea (adult) (pediatric)
 G4737 Central sleep apnea in conditions classified elsewhere
 G4739 Other sleep apnea
 G800 Spastic quadriplegic cerebral palsy
 G801 Spastic diplegic cerebral palsy
 G802 Spastic hemiplegic cerebral palsy
 G803 Athetoid cerebral palsy
 G804 Ataxic cerebral palsy
 G808 Other cerebral palsy
 G809 Cerebral palsy, unspecified
 G931 Anoxic brain damage, not elsewhere classified
 G9340 Encephalopathy, unspecified
 G9341 Metabolic encephalopathy
 G9349 Other encephalopathy
 G939 Disorder of brain, unspecified
 I6783 Posterior reversible encephalopathy syndrome
 J40 Bronchitis, not specified as acute or chronic
 J449 Chronic obstructive pulmonary disease, unspecified
 J80 Acute respiratory distress syndrome
 J8409 Other alveolar and parieto-alveolar conditions
 J8483 Surfactant mutations of the lung
 J84841 Neuroendocrine cell hyperplasia of infancy
 J84842 Pulmonary interstitial glycogenosis
 J84843 Alveolar capillary dysplasia with vein misalignment
 J84848 Other interstitial lung diseases of childhood
 J8489 Other specified interstitial pulmonary diseases
 J849 Interstitial pulmonary disease, unspecified

J90 Pleural effusion, not elsewhere classified
J918 Pleural effusion in other conditions classified elsewhere
J9600 Acute respiratory failure, unspecified whether with hypoxia or hypercapnia
J9601 Acute respiratory failure with hypoxia
J9602 Acute respiratory failure with hypercapnia
J9610 Chronic respiratory failure, unspecified whether with hypoxia or hypercapnia
J9611 Chronic respiratory failure with hypoxia
J9612 Chronic respiratory failure with hypercapnia
J9620 Acute and chronic respiratory failure, unspecified whether with hypoxia or hypercapnia
J9621 Acute and chronic respiratory failure with hypoxia
J9622 Acute and chronic respiratory failure with hypercapnia
J9690 Respiratory failure, unspecified, unspecified whether with hypoxia or hypercapnia
J9691 Respiratory failure, unspecified with hypoxia
J9692 Respiratory failure, unspecified with hypercapnia
J9801 Acute bronchospasm
J984 Other disorders of lung
M2600 Unspecified anomaly of jaw size
M2601 Maxillary hyperplasia
M2602 Maxillary hypoplasia
M2603 Mandibular hyperplasia
M2604 Mandibular hypoplasia
M2605 Macrogenia
M2606 Microgenia
M2607 Excessive tuberosity of jaw
M2609 Other specified anomalies of jaw size
M2610 Unspecified anomaly of jaw-cranial base relationship
M2611 Maxillary asymmetry
M2612 Other jaw asymmetry
M2619 Other specified anomalies of jaw-cranial base relationship
P150 Birth injury to liver
P151 Birth injury to spleen
P152 Sternomastoid injury due to birth injury
P153 Birth injury to eye
P154 Birth injury to face
P155 Birth injury to external genitalia
P158 Other specified birth injuries
P159 Birth injury, unspecified
P270 Wilson-Mikity syndrome
P271 Bronchopulmonary dysplasia originating in the perinatal period
P278 Other chronic respiratory diseases originating in the perinatal period
P279 Unspecified chronic respiratory disease originating in the perinatal period

P283 Primary sleep apnea of newborn
P284 Other apnea of newborn
P9160 Hypoxic ischemic encephalopathy [HIE], unspecified
P9161 Mild hypoxic ischemic encephalopathy [HIE]
P9162 Moderate hypoxic ischemic encephalopathy [HIE]
P9163 Severe hypoxic ischemic encephalopathy [HIE]
P926 Failure to thrive in newborn
Q200 Common arterial trunk
Q201 Double outlet right ventricle
Q202 Double outlet left ventricle
Q203 Discordant ventriculoarterial connection
Q204 Double inlet ventricle
Q205 Discordant atrioventricular connection
Q208 Other congenital malformations of cardiac chambers and connections Q209
Congenital malformation of cardiac chambers and connections, unspecified
Q210 Ventricular septal defect
Q211 Atrial septal defect
Q212 Atrioventricular septal defect
Q213 Tetralogy of Fallot
Q214 Aortopulmonary septal defect
Q218 Other congenital malformations of cardiac septa
Q219 Congenital malformation of cardiac septum, unspecified
Q220 Pulmonary valve atresia
Q221 Congenital pulmonary valve stenosis
Q222 Congenital pulmonary valve insufficiency
Q223 Other congenital malformations of pulmonary valve
Q225 Ebstein's anomaly
Q226 Hypoplastic right heart syndrome
Q228 Other congenital malformations of tricuspid valve
Q229 Congenital malformation of tricuspid valve, unspecified
Q230 Congenital stenosis of aortic valve
Q231 Congenital insufficiency of aortic valve
Q232 Congenital mitral stenosis
Q233 Congenital mitral insufficiency
Q234 Hypoplastic left heart syndrome
Q238 Other congenital malformations of aortic and mitral valves
Q239 Congenital malformation of aortic and mitral valves, unspecified
Q240 Dextrocardia
Q241 Levocardia
Q242 Cor triatriatum
Q243 Pulmonary infundibular stenosis

Q244 Congenital subaortic stenosis
Q245 Malformation of coronary vessels
Q246 Congenital heart block
Q248 Other specified congenital malformations of heart
Q249 Congenital malformation of heart, unspecified
Q250 Patent ductus arteriosus
Q251 Coarctation of aorta
Q252 Atresia of aorta
Q253 Supravalvular aortic stenosis
Q254 Other congenital malformations of aorta
Q331 Accessory lobe of lung
Q335 Ectopic tissue in lung
Q338 Other congenital malformations of lung
Q339 Congenital malformation of lung, unspecified
Q351 Cleft hard palate
Q353 Cleft soft palate
Q357 Cleft uvula
Q359 Cleft palate, unspecified
Q360 Cleft lip, bilateral
Q361 Cleft lip, median
Q369 Cleft lip, unilateral
Q370 Cleft hard palate with bilateral cleft lip
Q371 Cleft hard palate with unilateral cleft lip
Q372 Cleft soft palate with bilateral cleft lip
Q373 Cleft soft palate with unilateral cleft lip
Q374 Cleft hard and soft palate with bilateral cleft lip
Q375 Cleft hard and soft palate with unilateral cleft lip
Q378 Unspecified cleft palate with bilateral cleft lip
Q379 Unspecified cleft palate with unilateral cleft lip
Q750 Craniosynostosis
Q752 Hypertelorism
Q758 Other specified congenital malformations of skull and face bones
Q759 Congenital malformation of skull and face bones, unspecified
R0681 Apnea, not elsewhere classified
R6251 Failure to thrive (child)
Z430 Encounter for attention to tracheostomy
Z930 Tracheostomy status

Table A. Aggregate trends in utilization of low-value services (average adjusted percent (95% CI)) over five years before (2008-2012) and after (2013-2017) publication of CWC-PHM recommendations.

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	p (Trend)
Asthma											
Chest radiograph	52.8 (51.9, 53.7)	53.6 (52.8, 54.5)	48.5 (47.6, 49.4)	45.9 (45.1, 46.8)	42.4 (41.5, 43.2)	38 (37.2, 38.9)	35.7 (34.9, 36.5)	32.4 (31.6, 33.3)	32.5 (31.7, 33.3)	32 (31.2, 32.8)	<.001
Bronchiolitis											
Chest radiograph	58.4 (57.3, 59.5)	56.9 (55.8, 58)	55.8 (54.8, 56.9)	51.5 (50.4, 52.5)	45.8 (44.8, 46.8)	40 (39, 41)	36.8 (35.7, 37.9)	30.9 (30, 31.9)	28.3 (27.4, 29.2)	26.9 (26.1, 27.8)	<.001
Relievers	64 (62.8, 65.1)	63.4 (62.3, 64.5)	62.9 (61.8, 64)	60.8 (59.8, 61.9)	58.9 (57.8, 59.9)	56.8 (55.8, 57.9)	51.9 (50.7, 53)	38.3 (37.2, 39.3)	31.2 (30.3, 32.1)	27.4 (26.6, 28.3)	<.001
Lower Respiratory Tract Infection											
Systemic steroids	15.1 (13.8, 16.4)	14.3 (13.1, 15.6)	14.8 (13.5, 16.1)	15.8 (14.4, 17.2)	15.5 (14, 16.9)	14.8 (13.4, 16.2)	13.5 (12, 14.9)	10.6 (9.4, 11.9)	12 (10.7, 13.2)	12.2 (10.8, 13.5)	<.001
GER											
Acid Suppressors	63 (60.8, 65.3)	62.2 (59.9, 64.5)	62.3 (59.9, 64.7)	60.7 (58.1, 63.3)	59.3 (56.5, 62.2)	56.6 (53.5, 59.7)	51.5 (48.3, 54.7)	52.6 (49.1, 56)	48.9 (45.4, 52.4)	48.9 (45.3, 52.5)	<.001

Footnote:

p(Trend) - p-value for overall trend over 10 years. The values are adjusted for patient demographic and clinical factors that were found to be significantly different (p<0.01, Table 2) before and after the intervention on bivariate analyses

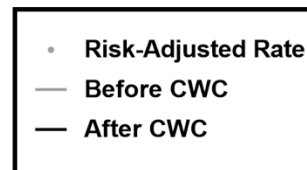
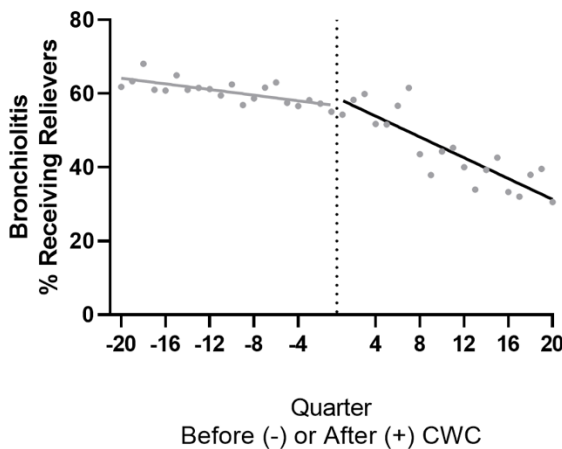
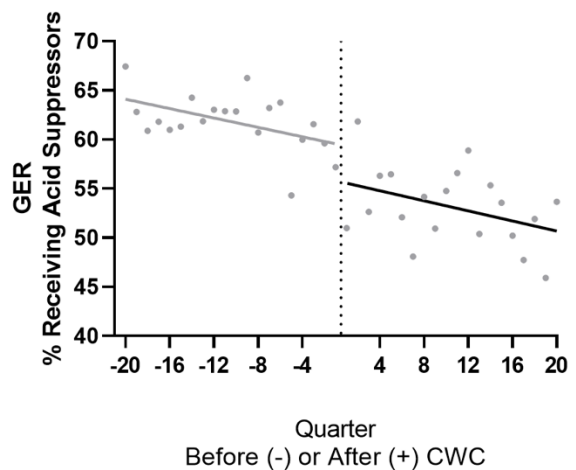
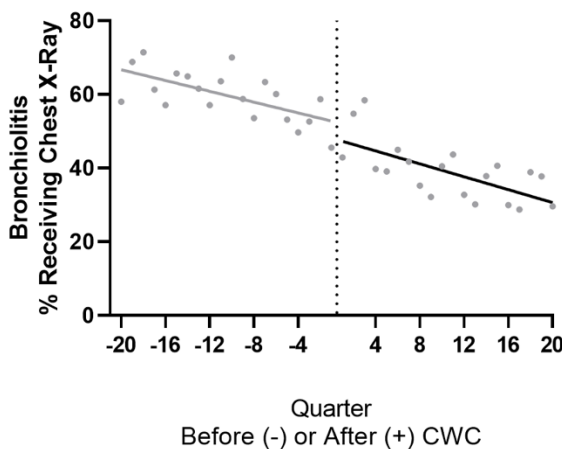
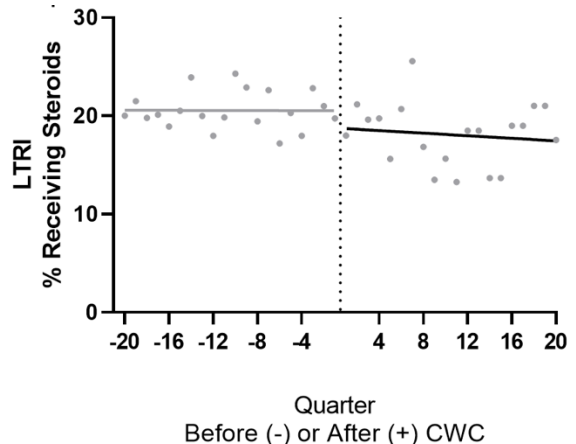
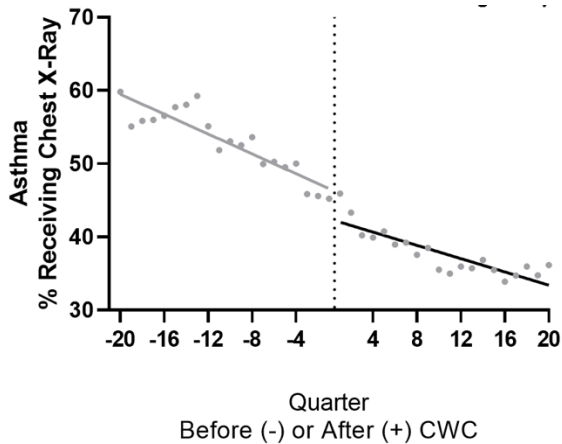


Figure 1- supplemental online graphic.

Trends in average utilization rates of low-value services over five years before and after CWC.

Footnote:

Y-axes: each dot represents risk adjusted average utilization rate.

X-axes: time in 3 months intervals (quarters) before and after CWC.