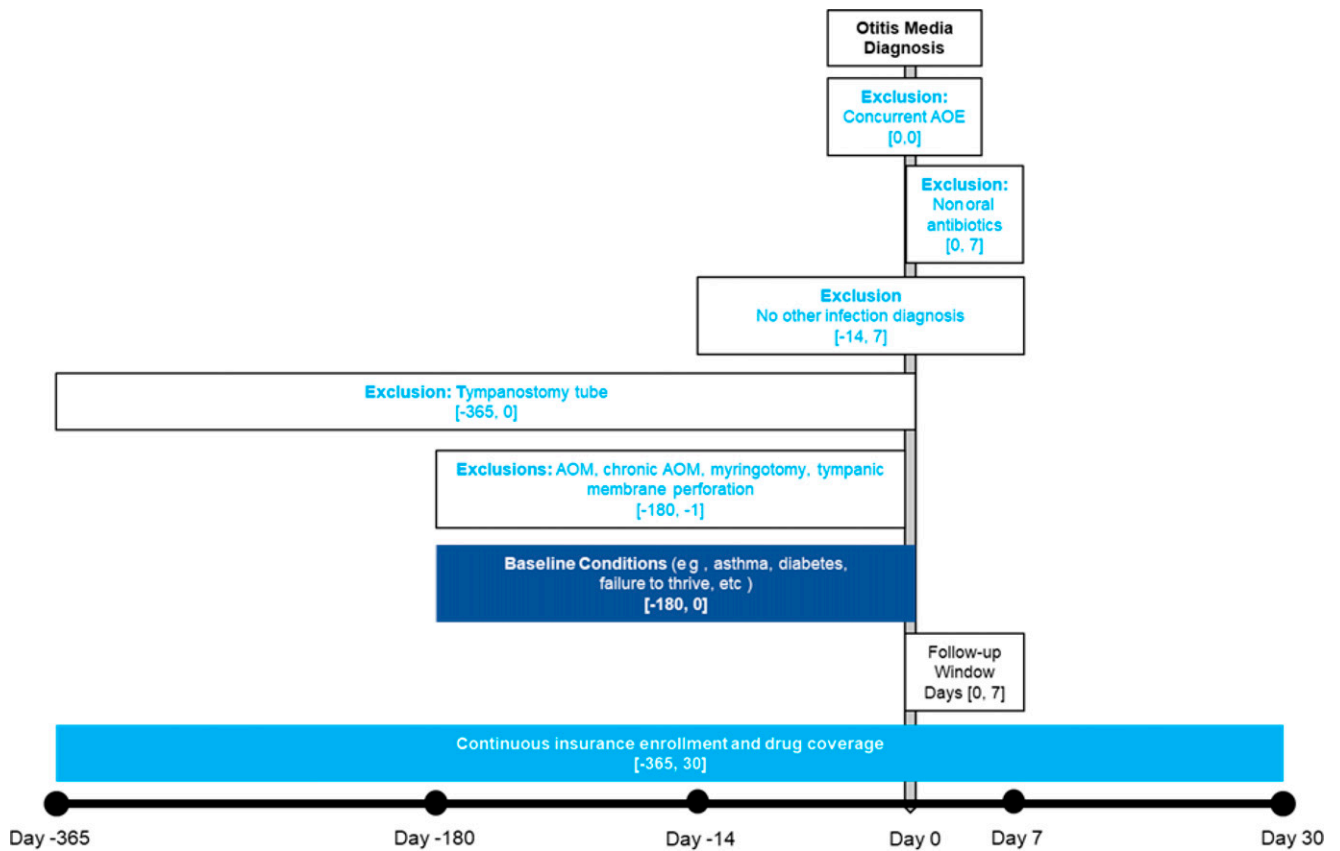
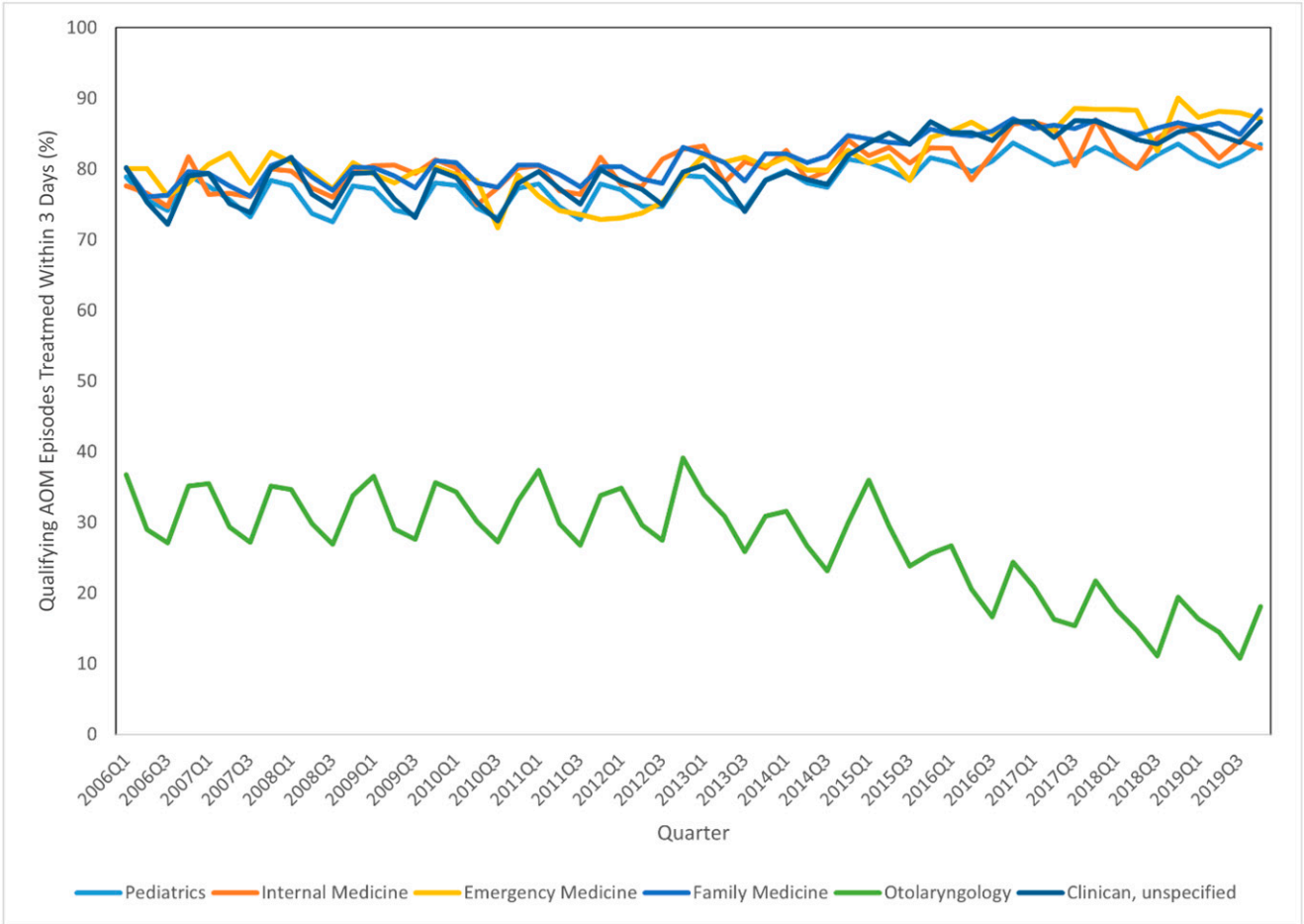


Supplemental Information



SUPPLEMENTAL FIGURE 3

Study design diagram.



SUPPLEMENTAL FIGURE 4

Trends for AOM treatment prevalence by clinician specialty.

SUPPLEMENTAL TABLE 4 International Classification of Disease, Clinical Modification (ICD-CM) Codes Used for Exclusion Criteria

Disease	ICD-9-CM	Description	ICD-10-CM	Description
Chronic otitis media with effusion	381.10, 381.19	Chronic serous otitis media simple or unspecified	H65.2x	Chronic serous otitis media, unspecified ear
	381.2	Chronic mucoid otitis media	H65.3x	Chronic mucoid otitis media
	381.3	Other and unspecified chronic nonsuppurative otitis media	H65.499	Other chronic nonsuppurative otitis media, unspecified ear
Otitis media unspecified	381.4	Nonsuppurative otitis media not specified as acute or chronic	H65.9x	Unspecified nonsuppurative otitis media, unspecified ear
Otitis externa	380.1x, 381.2x	Infective otitis externa, other otitis externa	H60x	Otitis externa
Tympanic membrane perforation	384.20	Perforation of tympanic membrane unspecified	H72.90, 72.91, H72.92	Unspecified perforation of tympanic membrane
	384.21	Central perforation of tympanic membrane	H72.00, H72.01, H72.02, H72.03	Central perforation of tympanic membrane
	384.23	Other marginal perforation of tympanic membrane	H72.2x9, H72.2x1, H72.2x2, H72.2x3	Other marginal perforations of tympanic membrane
	384.24	Multiple perforations of tympanic membrane	H72.819, H72.811, H72.812, H72.813	Multiple perforations of tympanic membrane
	384.25	Total perforation of tympanic membrane	H72.829, H72.821, H72.822, H72.823	Total perforations of tympanic membrane

SUPPLEMENTAL TABLE 5 Current Procedural Terminology (CPT) Codes Used for Exclusion Criteria

CPT Codes	Description
69420	Myringotomy including aspiration and/or eustachian tube inflation
69421	Myringotomy including aspiration and/or eustachian tube inflation requiring general anesthesia
69433	Tympanostomy (requiring insertion of ventilating tube), local or topical anesthesia
69436	Tympanostomy (requiring insertion of ventilating tube), general anesthesia

SUPPLEMENTAL TABLE 6 Clinical Classification Software (CCS) Categories Used for Exclusion of Infections

CCS Level	Description
1	Tuberculosis
2	Septicemia (except in labor)
3	Bacterial infection; unspecified site
7	Viral infection
8	Other infections; including parasitic
76	Meningitis (except that caused by tuberculosis or sexually transmitted disease)
77	Encephalitis (except that caused by tuberculosis or sexually transmitted disease)
78	Other central nervous system infection and poliomyelitis
97	Peri-; endo-; and myocarditis; cardiomyopathy (except that caused by tuberculosis or sexually transmitted disease)
122	Pneumonia (except that caused by tuberculosis or sexually transmitted disease)
123	Influenza
124	Acute and chronic tonsillitis
125	Acute bronchitis
126	Other upper respiratory infections

SUPPLEMENTAL TABLE 7 International Classification of Disease, Clinical Modification (ICD-CM) Codes Used to Describe AOM Episodes

Disease	ICD-9-CM	Description	ICD-10-CM	Description
Fever	780.60	Fever, unspecified	R50.9	Fever, unspecified
Asthma	493x	Asthma	J45	Asthma
Atopic dermatitis	691	Atopic dermatitis and related conditions	L20	Atopic dermatitis
Diabetes	250	Diabetes mellitus	E10x, E11x	Type 1 diabetes mellitus, type 2 diabetes mellitus
Failure to thrive	783.41	Failure to thrive	R62.51	Failure to thrive (child)
Immune deficiency	279	Disorders involving the immune mechanism	D80-D89	Certain disorders involving the immune mechanism
Cancer	140–239	Neoplasms	C00-D49	Neoplasms

ICD-9-CM, *International Classification of Diseases, Ninth Revision, Clinical Modification*; ICD-10-CM, *International Classification of Diseases, 10th Revision, Clinical Modification*.

SUPPLEMENTAL TABLE 8 Insurance Plan Type Groupings

Plan Type	Insurance Plans
Restricted	Exclusive provider organization (EPO), preferred provider organization (PPO), health maintenance organization (HMO)
High deductible	High deductible health plan (HDHP), point of service (POS), POS with capitation, consumer directed health plan (CDHP)
Comprehensive	Comprehensive and basic plans

SUPPLEMENTAL TABLE 9 State Healthcare Quality Classification

Rank	State
High-rank	Hawaii, Alaska, Washington, Utah, Maine, Delaware, Colorado, Oregon, Rhode Island, California
Middle-rank	Arizona, Maryland, Massachusetts, Connecticut, Wisconsin, Michigan, Idaho, Pennsylvania, New Jersey, Vermont, Virginia, Minnesota, Nevada, Florida, Montana, Illinois, South Carolina, North Carolina, New Hampshire, New York, Tennessee, Ohio, Nebraska, Indiana, New Mexico, Iowa, Georgia, Missouri, Alabama, Louisiana
Low-rank	Texas, Kansas, South Dakota, North Dakota, Wyoming, Oklahoma, Kentucky, West Virginia, Arkansas, Mississippi

SUPPLEMENTAL TABLE 10 Acute Otitis Media Classification Codes for Sensitivity Analysis

Characteristic	ICD-10 CM Codes
Unilateral AOM	H65.191, H65.192, H65.194, H65.195, H66.001, H66.002, H66.004, H66.05
Bilateral AOM	H65.193, H65.196, H66.003, H66.006
AOM, unspecified ear	H65.197, H65.199, H66.007, H66.009

SUPPLEMENTAL TABLE 11 Sensitivity Analysis for Factors Associated With Watchful Waiting for AOM Management Using ICD-10 Era Episodes to Evaluate the Impact of Bilaterality

Characteristic	Restricted to Episodes Managed by Clinicians With ≥ 30 Episodes in the Analysis (3205 clinicians) OR (95% CI), <i>N</i> = 165 209
Age, y	0.949 (0.945–0.954)
Male	1.01 (0.99–1.04)
Concurrent fever diagnosis	0.61 (0.56–0.67)
Affected ear	
Unilateral	Reference
Bilateral	1.29 (1.25–1.33)
Unspecified	1.92 (1.81–2.04)
Comorbidities	
Asthma	1.04 (0.96–1.12)
Atopic dermatitis	1.12 (1.02–1.22)
Diabetes	0.82 (0.44–1.55)
Failure to thrive	1.60 (1.28–1.99)
Immune deficiency	1.46 (1.06–2.00)
State healthcare quality ranking	
High	1.04 (0.98–1.10)
Middle	0.98 (0.94–1.02)
Low	Reference
Region	
Northeast	Reference
North central	0.95 (0.91–0.99)
South	1.01 (0.98–1.05)
West	1.10 (1.05–1.15)
Insurance type	
Comprehensive	Reference
Restrictive	0.86 (0.64–1.16)
High deductible	0.91 (0.68–1.23)
Physician specialty	
Pediatrician	Reference
Internal medicine	0.93 (0.81–1.05)
Emergency medicine	0.77 (0.68–0.88)
Family practice	0.84 (0.79–0.88)
Otolaryngology	11.09 (10.17–12.09)
Clinician, not specified	0.89 (0.85–0.93)
Month	
January	Reference
February	0.94 (0.89–0.99)
March	0.99 (0.94–1.05)
April	1.05 (0.99–1.11)
May	1.03 (0.97–1.09)
June	1.12 (1.05–1.20)
July	1.13 (1.05–1.22)
August	1.10 (1.03–1.19)
September	0.93 (0.87–1.00)
October	0.91 (0.85–0.96)
November	0.86 (0.81–0.91)
December	0.81 (0.76–0.87)
Year	
2015	Reference
2016	0.96 (0.90–1.02)
2017	0.93 (0.87–0.99)
2018	0.94 (0.88–1.00)
2019	0.94 (0.88–1.00)
Prescribing tendency definition	
$\leq 20\%$ treated (low-volume)	6.14 (5.22–7.22)
21% to 79% treated (middle-volume)	1.96 (1.90–2.01)
$\geq 80\%$ treated (high-volume)	Reference

Reference, reference level within each categorical variable in the regression model.