
Drug Use Evaluation: Tetracycline Antibiotics

Research Questions:

1. What are the most common durations of therapy, measured by both treatment duration and unique pharmacy claims, of tetracycline antibiotics?
2. What is the prevalence of members receiving short- (14 days or less), medium- (15-89 days) and long- (90 days or longer) term treatment with tetracyclines?
3. What is the prevalence and associated costs of members receiving tetracycline treatment of unfunded conditions?

Conclusions:

1. The majority of members (69.2%) received a single prescription with an average of a 13-day supply. A minority of members (17.8%) received more than two tetracycline prescriptions.
2. Most tetracycline claims were for short-term therapy (57%), followed by medium-term duration (28%) and long-term duration (15%).
3. Members with claims data indicating treatment of tetracyclines for only unfunded conditions comprised 27.9% of the total study population and represented 43.3% of the total prescription drug expenditures (\$28,439).
4. When a funded condition for tetracyclines was identified, 86% of members received only short-term treatment.

Recommendations:

1. Restrict use of all (preferred and non-preferred) tetracycline antibiotics to a 14-day supply every 6 months.
2. Make tetracycline antibiotic therapy exceeding 14 days every 6 months subject to prior authorization to verify the presence of an OHP funded condition.

Background:

Tetracycline antibiotics are indicated for a variety of infections, including sexually transmitted diseases, respiratory tract infections, urinary tract infections, soft tissue infections, acne vulgaris, rosacea, as well as a variety of less common such as anthrax.¹⁻⁶ Therapy exceeding 21 days is rarely indicated for conditions other than acne and rosacea, with the most common durations for therapy limited to a 14 day course. Rosacea and most mild forms of acne fall below the current Oregon Health Plan (OHP) funded line on the Prioritized List of Health services.⁷ The only funded form of acne is acne conglobata in the presence of recurrent abscesses or communicating sinuses.

Methods:

The study included patients with a paid (FFS) pharmacy claim for a qualifying tetracycline antibiotic between January 1, 2014 and June 30, 2014. A complete list of qualifying appears in Table A1 of Appendix A. An Index Event (IE) was defined as the first paid FFS claim qualifying claims during the study period. All claims for tetracycline antibiotics for 6 months after the IE were included. Patients with dual Medicare and Medicaid coverage were excluded. Patients enrolled in a Coordinated Care Organization (CCO) within 6 months after the IE were excluded. Patients with more than a 25% gap in eligibility within 6 months after the IE were excluded.

ICD9 codes for the most likely indications for tetracyclines are included in table A2 of Appendix A. Diagnoses associated with medical claims ranging from 30 days before the IE to 7 days after the IE were used to identify likely indications for

acute treatment. Diagnoses of chronic conditions (e.g. acne, rosacea) were included for all diagnoses from July 1, 2013 to December 31, 2014. This broad strategy was used in recognition that patients with stable, chronic conditions may not be seen more than once per year. Patients were categorized as having at least one funded condition (funded), at least one medical claim with a qualifying, unfunded diagnosis (unfunded), or no claims for qualifying diagnoses (no diagnosis available). Patients were also categorized based on the total number of days covered by a tetracycline antibiotic: short (14 days or less), medium (15-89) and long (90 days or longer).

Results:

Initial screening identified 927 members with qualifying tetracycline claims. Of these 10 were excluded due to dual Medicare/Medicaid coverage, 22 members were excluded due to gaps in eligibility, and 304 were excluded based on enrollment in a CCO. The basic demographics of the remaining 591 members appear in Table 1. A minority of members (n=236,40%) had a least one medical claim identified for a condition that would be an expected indication for a tetracycline antibiotic (Table 2). Of these, 165 had claims only for unfunded conditions. A small proportion (15%) of members received long term therapy (Table 3). A single member with claims for funded conditions received long term tetracycline therapy, while 86% of members with funded conditions received short term therapy (Table 3).

Table 1 - Demographics

	#	%
Total	591	100.0%
Age		
0-11	3	0.5%
12-17	69	11.7%
18-30	218	36.9%
31-50	191	32.3%
51-64	108	18.3%
Over 65	2	0.3%
Gender		
F	380	64.3%
M	211	35.7%

Table 2 – Prevalence of Diagnosis Information for Tetracycline Antibiotics

Diagnosis Funding Status	Members		Amount Paid	
	#	%	\$	%
Funded	71	12.0%	\$ 4,620	7.0%
No Diagnosis Available	355	60.1%	\$ 32,636	49.7%
Unfunded	165	27.9%	\$ 28,439	43.3%
Total	591	100.0%	\$ 65,696	100.0%

Table 3 – Funded Status and Duration of Tetracycline Therapy

Duration of Therapy	Funded		Unfunded		No Diagnosis Available		Total Unique Members	
	#	%	#	%	#	%	#	%
Short	61	86%	62	38%	212	60%	335	57%
Medium	9	13%	65	39%	93	26%	167	28%
Long	1	1%	38	23%	50	14%	89	15%
Grand Total	71	100%	165	100%	355	100%	591	100%

Members receiving three or fewer prescriptions had an average duration of therapy of 24 days or less (Table 4). With one exception, the average prescription length for members with more than 3 claims had an average prescription duration of 27 days or more.

Table 4 – Total Claims Per Member and Average Day Supply per Claim

Total Claims	Members		Average Days Supply
	#	%	
1	409	69.2%	13
2	77	13.0%	20
3	36	6.1%	24
4	13	2.2%	28
5	20	3.4%	27
6	20	3.4%	29
7	15	2.5%	28
8	1	0.2%	10

Limitations:

The intended indications for long term therapy are unclear from the available claims data. Only 45% of members on long term therapy had diagnosis data available. In all but one case, the conditions were unfunded. Members receiving between 4 and 7 prescriptions have durations of therapy consistent with chronic therapy (average 27-29 days). Based on the literature, the most common indications for chronic tetracycline use are unfunded dermatologic conditions (e.g. Acne, Rosacea, see Table A2). The precision and specificity of time periods used to identify potential diagnosis information have not been validated, raising the possibility of incorrect characterizations of the conditions being treated. Time related effects, such as seasonal variations in community acquired pneumonia and recent increases in the rates of sexually transmitted diseases were not considered.

References:

1. Workowski KA, Berman S, Centers for Disease Control and Prevention (CDC). Sexually transmitted diseases treatment guidelines, 2010. *MMWR Recomm Rep Morb Mortal Wkly Rep Recomm Rep Cent Dis Control*. 2010;59(RR-12):1-110.
2. Centers for Disease Control and Prevention (CDC). Update to CDC's Sexually transmitted diseases treatment guidelines, 2010: oral cephalosporins no longer a recommended treatment for gonococcal infections. *MMWR Morb Mortal Wkly Rep*. 2012;61(31):590-594.
3. Bradley JS, Byington CL, Shah SS, et al. The management of community-acquired pneumonia in infants and children older than 3 months of age: clinical practice guidelines by the Pediatric Infectious Diseases Society and the Infectious Diseases Society of America. *Clin Infect Dis Off Publ Infect Dis Soc Am*. 2011;53(7):e25-e76. doi:10.1093/cid/cir531.
4. Gupta K, Hooton TM, Naber KG, et al. International Clinical Practice Guidelines for the Treatment of Acute Uncomplicated Cystitis and Pyelonephritis in Women: A 2010 Update by the Infectious Diseases Society of America

and the European Society for Microbiology and Infectious Diseases. *Clin Infect Dis*. 2011;52(5):e103-e120.
doi:10.1093/cid/ciq257.

5. Stevens DL, Bisno AL, Chambers HF, et al. Practice Guidelines for the Diagnosis and Management of Skin and Soft Tissue Infections: 2014 Update by the Infectious Diseases Society of America. *Clin Infect Dis*. 2014;59(2):e10-e52. doi:10.1093/cid/ciu296.
6. Kayabas U, Karahocagil MK, Ozkurt Z, et al. Naturally Occurring Cutaneous Anthrax: Antibiotic Treatment and Outcome. *Chemotherapy*. 2012;58(1):34-43.
7. Oregon Health Policy and Research Current Prioritized List of Health Services.
<http://www.oregon.gov/oha/herc/Pages/PrioritizedList.aspx>. Accessed June 1, 2015.

Appendix A

Table A1 – Study Eligible Tetracyclines

GSN	Generic Name	Drug Form
009213	DEMECLOCYCLINE HCL	TABLET
009214	DEMECLOCYCLINE HCL	TABLET
009217	DOXYCYCLINE CALCIUM	SYRUP
009218	DOXYCYCLINE HYCLATE	CAPSULE
009219	DOXYCYCLINE HYCLATE	CAPSULE
043362	DOXYCYCLINE HYCLATE	CAPSULE
049446	DOXYCYCLINE HYCLATE	CAPSULE DR
009220	DOXYCYCLINE HYCLATE	CAPSULE DR
009223	DOXYCYCLINE HYCLATE	TABLET
048077	DOXYCYCLINE HYCLATE	TABLET
072633	DOXYCYCLINE HYCLATE	TABLET
072634	DOXYCYCLINE HYCLATE	TABLET
059573	DOXYCYCLINE HYCLATE	TABLET DR
059574	DOXYCYCLINE HYCLATE	TABLET DR
064119	DOXYCYCLINE HYCLATE	TABLET DR
070917	DOXYCYCLINE HYCLATE	TABLET DR
060942	DOXYCYCLINE MONOHYDRATE	CAP IR DR
062496	DOXYCYCLINE MONOHYDRATE	CAPSULE
063058	DOXYCYCLINE MONOHYDRATE	CAPSULE
015943	DOXYCYCLINE MONOHYDRATE	CAPSULE
016815	DOXYCYCLINE MONOHYDRATE	CAPSULE
009225	DOXYCYCLINE MONOHYDRATE	SUSP RECON
027050	DOXYCYCLINE MONOHYDRATE	TABLET
036747	DOXYCYCLINE MONOHYDRATE	TABLET
051756	DOXYCYCLINE MONOHYDRATE	TABLET
059845	DOXYCYCLINE MONOHYDRATE	TABLET
042778	MINOCYCLINE HCL	CAPSULE
009226	MINOCYCLINE HCL	CAPSULE
009227	MINOCYCLINE HCL	CAPSULE
009229	MINOCYCLINE HCL	ORAL SUSP
060730	MINOCYCLINE HCL	TAB ER 24H
060731	MINOCYCLINE HCL	TAB ER 24H
060732	MINOCYCLINE HCL	TAB ER 24H
065433	MINOCYCLINE HCL	TAB ER 24H
065434	MINOCYCLINE HCL	TAB ER 24H
066683	MINOCYCLINE HCL	TAB ER 24H
066684	MINOCYCLINE HCL	TAB ER 24H
066685	MINOCYCLINE HCL	TAB ER 24H
009230	MINOCYCLINE HCL	TABLET
009231	MINOCYCLINE HCL	TABLET
052057	MINOCYCLINE HCL	TABLET
009189	TETRACYCLINE HCL	CAPSULE
009190	TETRACYCLINE HCL	CAPSULE
009195	TETRACYCLINE HCL	ORAL SUSP
009196	TETRACYCLINE HCL	TABLET
009197	TETRACYCLINE HCL	TABLET

Table A2 – Diagnosis Codes

ICD9	Description	Line	Chronic
020	Plague	N/A	0
0200	Bubonic plague	210	0
0201	Cellulocutaneous plague	210	0
0202	Septicemic plague	210	0
0203	Primary pneumonic plague	210	0
0204	Secondary pneumonic plague	210	0
0205	Pneumonic plague, unspecified	210	0
0208	Other specified types of plague	210	0
0209	Plague, unspecified	210	0
022	Anthrax	N/A	0
0220	Cutaneous anthrax	210	0
0221	Pulmonary anthrax	210	0
0222	Gastrointestinal anthrax	210	0
0223	Anthrax septicemia	210	0
0228	Other specified manifestations of anthrax	210	0
0229	Anthrax, unspecified	210	0
077	Oth diseases conjunctiva due viruses&chlamydiae	N/A	0
0779	Unspec dz conjunctiva due viruses&chlamydiae	N/A	0
07798	Unspecified diseases of conjunctiva due to chlamydiae	171	0
07799	Unspecified diseases of conjunctiva due to viruses	641	0
078	Other diseases due to viruses and chlamydiae	N/A	0
0788	Other specified diseases due viruses&chlamydiae	N/A	0
07888	Other specified diseases due to chlamydiae	623	0
08881	Lyme Disease	271	0
090	Congenital syphilis	N/A	0
0900	Early congenital syphilis, symptomatic	16	0
0901	Early congenital syphilis, latent	16	0
0902	Early congenital syphilis, unspecified	16	0
0903	Syphilitic interstitial keratitis	16	0
0904	Juvenile neurosyphilis	N/A	0
09041	Congenital syphilitic encephalitis	16	0
09042	Congenital syphilitic meningitis	16	0
09049	Other juvenile neurosyphilis	16	0
0905	Other late congenital syphilis, symptomatic	16	0
0906	Late congenital syphilis, latent	16	0
0907	Late congenital syphilis, unspecified	16	0
0909	Congenital syphilis, unspecified	16	0
091	Early syphilis, symptomatic	N/A	0
0910	Genital syphilis (primary)	42	0
0911	Primary anal syphilis	42	0
0912	Other primary syphilis	42	0
0913	Secondary syphilis of skin or mucous membranes	42	0
0914	Adenopathy due to secondary syphilis	42	0
0915	Early syphilis uveitis due to secondary syphilis	N/A	0
09150	Syphilitic uveitis, unspecified	42	0
09151	Syphilitic chorioretinitis (secondary)	42	0
09152	Syphilitic iridocyclitis (secondary)	42	0
0916	Early syphilis sec syphilis of viscera and bone	N/A	0
09161	Secondary syphilitic periostitis	42	0
09162	Secondary syphilitic hepatitis	42	0
09169	Secondary syphilis of other viscera	42	0
0917	Secondary syphilis, relapse	42	0
0918	Early syphilis other forms of secondary syphilis	N/A	0

ICD9	Description	Line	Chronic
09181	Acute syphilitic meningitis (secondary)	42	0
09182	Syphilitic alopecia	42	0
09189	Other forms of secondary syphilis	42	0
0919	Unspecified secondary syphilis	42	0
092	Early syphilis, latent	N/A	0
0920	Early syphilis, latent, serological relapse after treatment	42	0
0929	Early syphilis, latent, unspecified	42	0
093	Cardiovascular syphilis	N/A	0
0930	Aneurysm of aorta, specified as syphilitic	42	0
0931	Syphilitic aortitis	42	0
0932	Syphilitic endocarditis	N/A	0
0938	Other specified cardiovascular syphilis	N/A	0
09389	Other specified cardiovascular syphilis	42	0
0939	Cardiovascular syphilis, unspecified	42	0
094	Neurosyphilis	N/A	0
0943	Asymptomatic neurosyphilis	386	0
0948	Other specified neurosyphilis	N/A	0
095	Other forms of late syphilis with symptoms	N/A	0
0950	Syphilitic episcleritis	386	0
0951	Syphilis of lung	386	0
0952	Syphilitic peritonitis	386	0
0953	Syphilis of liver	386	0
0954	Syphilis of kidney	386	0
0955	Syphilis of bone	386	0
0956	Syphilis of muscle	386	0
0957	Syphilis of synovium, tendon, and bursa	386	0
0958	Other specified forms of late symptomatic syphilis	386	0
0959	Late symptomatic syphilis, unspecified	386	0
096	Late syphilis, latent	386	0
097	Other and unspecified syphilis	N/A	0
0970	Late syphilis, unspecified	386	0
0971	Latent syphilis, unspecified	386	0
0979	Syphilis, unspecified	386	0
098	Gonococcal infections	N/A	0
0980	Gonococcal infection (acute) of lower genitourinary tract	56	0
0981	Gonococcal infection upper genitourinary tract	N/A	0
09810	Gonococcal infection (acute) of upper genitourinary tract, site unspecified	56	0
09811	Gonococcal cystitis (acute)	56	0
09812	Gonococcal prostatitis (acute)	56	0
09813	Gonococcal epididymo-orchitis (acute)	56	0
09814	Gonococcal seminal vesiculitis (acute)	56	0
09815	Gonococcal cervicitis (acute)	56	0
09816	Gonococcal endometritis (acute)	56	0
09817	Gonococcal salpingitis, specified as acute	56	0
09819	Other gonococcal infection (acute) of upper genitourinary tract	56	0
0982	Gonococcal infection, chronic, of lower genitourinary tract	56	0
0983	Gonococcal infections chronic upper gu tract	N/A	0
09830	Chronic gonococcal infection of upper genitourinary tract, site unspecified	56	0
09831	Gonococcal cystitis, chronic	56	0
09832	Gonococcal prostatitis, chronic	56	0
09833	Gonococcal epididymo-orchitis, chronic	56	0
09834	Gonococcal seminal vesiculitis, chronic	56	0

ICD9	Description	Line	Chronic
09835	Gonococcal cervicitis, chronic	56	0
09836	Gonococcal endometritis, chronic	56	0
09837	Gonococcal salpingitis (chronic)	56	0
09839	Other chronic gonococcal infection of upper genitourinary tract	56	0
0984	Gonococcal infection of eye	N/A	0
09840	Gonococcal conjunctivitis (neonatorum)	171	0
09841	Gonococcal iridocyclitis	171	0
09842	Gonococcal endophthalmitis	171	0
09843	Gonococcal keratitis	171	0
09849	Other gonococcal infection of eye	171	0
0985	Gonococcal infection of joint	N/A	0
09850	Gonococcal arthritis	56	0
09851	Gonococcal synovitis and tenosynovitis	56	0
09852	Gonococcal bursitis	56	0
09853	Gonococcal spondylitis	56	0
09859	Other gonococcal infection of joint	56	0
0986	Gonococcal infection of pharynx	56	0
0987	Gonococcal infection of anus and rectum	56	0
0988	Gonococcal infection of other specified sites	N/A	0
09881	Gonococcal keratosis (blennorrhagica)	56	0
09882	Gonococcal meningitis	56	0
09883	Gonococcal pericarditis	56	0
09884	Gonococcal endocarditis	56	0
09885	Other gonococcal heart disease	56	0
09886	Gonococcal peritonitis	56	0
09889	Gonococcal infection of other specified sites	186	0
099	Other venereal diseases	N/A	0
0990	Chancroid	56	0
0991	Lymphogranuloma venereum	56	0
0992	Granuloma inguinale	56	0
0993	Reiter's disease	50	0
0994	Other nongonococcal urethritis	N/A	0
09940	Other nongonococcal urethritis, unspecified	56	0
09941	Other nongonococcal urethritis, chlamydia trachomatis	56	0
09949	Other nongonococcal urethritis, other specified organism	56	0
0995	Other venereal diseases due to chlamydia trachomatis	N/A	0
09950	Other venereal diseases due to chlamydia trachomatis, unspecified site	56	0
09951	Other venereal diseases due to chlamydia trachomatis, pharynx	56	0
09952	Other venereal diseases due to chlamydia trachomatis, anus and rectum	56	0
09953	Other venereal diseases due to chlamydia trachomatis, lower genitourinary sites	56	0
09954	Other venereal diseases due to chlamydia trachomatis, other genitourinary sites	56	0
09955	Other venereal diseases due to chlamydia trachomatis, unspecified genitourinary site	56	0
09956	Other venereal diseases due to chlamydia trachomatis, peritoneum	56	0
09959	Other venereal diseases due to chlamydia trachomatis, other specified site	56	0
0998	Other specified venereal diseases	56	0
0999	Venereal disease, unspecified	56	0
102	Yaws	N/A	0
1020	Initial lesions of yaws	276	0

ICD9	Description	Line	Chronic
1021	Multiple papillomata due to yaws and wet crab yaws	276	0
1022	Other early skin lesions of yaws	276	0
1023	Hyperkeratosis due to yaws	276	0
1024	Gummata and ulcers due to yaws	276	0
1025	Gangosa	276	0
1026	Bone and joint lesions due to yaws	276	0
1027	Other manifestations of yaws	276	0
1028	Latent yaws	276	0
1029	Yaws, unspecified	276	0
480	Viral pneumonia	N/A	0
4800	Pneumonia due to adenovirus	623	0
4801	Pneumonia due to respiratory syncytial virus	623	0
4802	Pneumonia due to parainfluenza virus	623	0
4803	Pneumonia due to SARS-associated coronavirus	623	0
4808	Pneumonia due to other virus not elsewhere classified	623	0
4809	Viral pneumonia, unspecified	623	0
481	Pneumococcal pneumonia [Streptococcus pneumoniae pneumonia]	208	0
482	Other bacterial pneumonia	N/A	0
4820	Pneumonia due to Klebsiella pneumoniae	208	0
4821	Pneumonia due to Pseudomonas	208	0
4822	Pneumonia due to Hemophilus influenzae [H. influenzae]	208	0
4823	Pneumonia due to streptococcus	N/A	0
48230	Pneumonia due to Streptococcus, unspecified	208	0
48231	Pneumonia due to Streptococcus, group A	208	0
48232	Pneumonia due to Streptococcus, group B	208	0
48239	Pneumonia due to other Streptococcus	208	0
4824	Pneumonia due to staphylococcus	N/A	0
48240	Pneumonia due to Staphylococcus, unspecified	208	0
48241	Methicillin susceptible pneumonia due to Staphylococcus aureus	208	0
48242	Methicillin resistant pneumonia due to Staphylococcus aureus	208	0
48249	Other Staphylococcus pneumonia	208	0
4828	Pneumonia due to other specified bacteria	N/A	0
48281	Pneumonia due to anaerobes	208	0
48282	Pneumonia due to escherichia coli [E. coli]	208	0
48283	Pneumonia due to other gram-negative bacteria	208	0
48284	Pneumonia due to Legionnaires disease	208	0
48289	Pneumonia due to other specified bacteria	208	0
4829	Bacterial pneumonia, unspecified	208	0
483	Pneumonia due to other specified organism	N/A	0
4830	Pneumonia due to mycoplasma pneumoniae	208	0
4831	Pneumonia due to chlamydia	208	0
4838	Pneumonia due to other specified organism	208	0
484	Pneumonia infectious diseases classified elsewhere	N/A	0
4841	Pneumonia in cytomegalic inclusion disease	208	0
4843	Pneumonia in whooping cough	208	0
4845	Pneumonia in anthrax	208	0
4846	Pneumonia in aspergillosis	208	0
4847	Pneumonia in other systemic mycoses	208	0
4848	Pneumonia in other infectious diseases classified elsewhere	208	0
485	Bronchopneumonia, organism unspecified	208	0

ICD9	Description	Line	Chronic
486	Pneumonia, organism unspecified	208	0
487	Influenza	N/A	0
4870	Influenza with pneumonia	403	0
4871	Influenza with other respiratory manifestations	403	0
4878	Influenza with other manifestations	403	0
488	Influenza d/t certn identified influenza viruses	N/A	0
4880	Influenza due to identifid avian influenza virus	N/A	0
48801	Influenza due to identified avian influenza virus with pneumonia	403	0
48802	Influenza due to identified avian influenza virus with other respiratory manifestations	403	0
48809	Influenza due to identified avian influenza virus with other manifestations	403	0
4881	Influenza due to id novel h1n1 influenza virus	N/A	0
48811	Influenza due to identified 2009 H1N1 influenza virus with pneumonia	403	0
48812	Influenza due to identified 2009 H1N1 influenza virus with other respiratory manifestations	403	0
48819	Influenza due to identified 2009 H1N1 influenza virus with other manifestations	403	0
48881	Influenza due to identified novel influenza A virus with pneumonia	403	0
48882	Influenza due to identified novel influenza A virus with other respiratory manifestations	403	0
48889	Influenza due to identified novel influenza A virus with other manifestations	403	0
530	Diseases of esophagus	N/A	1
5300	Achalasia and cardiospasm	382	1
5301	Esophagitis	N/A	1
53010	Esophagitis, unspecified	519	1
53011	Reflux esophagitis	519	1
53012	Acute esophagitis	519	1
53013	Eosinophilic esophagitis	519	1
53019	Other esophagitis	519	1
5302	Ulcer of esophagus	N/A	1
53020	Ulcer of esophagus without bleeding	519	1
53021	Ulcer of esophagus with bleeding	519	1
5303	Stricture and stenosis of esophagus	382	1
5304	Perforation of esophagus	230	1
5305	Dyskinesia of esophagus	382	1
5306	Diverticulum of esophagus, acquired	519	1
5307	Gastroesophageal laceration-hemorrhage syndrome	60	1
5308	Other specified disorders of esophagus	N/A	1
53081	Esophageal reflux	519	1
53083	Esophageal leukoplakia	519	1
53084	Tracheoesophageal fistula	68	1
53085	Barrett's esophagus	519	1
53086	Infection of esophagostomy	427	1
53087	Mechanical complication of esophagostomy	427	1
53089	Other specified disorders of esophagus	519	1
5309	Unspecified disorder of esophagus	519	1
556	Ulcerative colitis	N/A	1
5560	Ulcerative (chronic) enterocolitis	32	1
5561	Ulcerative (chronic) ileocolitis	32	1
5562	Ulcerative (chronic) proctitis	32	1
5563	Ulcerative (chronic) proctosigmoiditis	32	1
5564	Pseudopolyposis of colon	32	1
5565	Left-sided ulcerative (chronic) colitis	32	1

ICD9	Description	Line	Chronic
5566	Universal ulcerative (chronic) colitis	32	1
5568	Other ulcerative colitis	32	1
5569	Ulcerative colitis, unspecified	32	1
590	Infections of kidney	N/A	0
5900	Chronic pyelonephritis	N/A	0
5901	Acute pyelonephritis	N/A	0
59010	Acute pyelonephritis without lesion of renal medullary necrosis	51	0
59011	Acute pyelonephritis with lesion of renal medullary necrosis	51	0
5902	Renal and perinephric abscess	51	0
5903	Pyeloureteritis cystica	51	0
5908	Oth pyelonephritis/pyonephrof not spec acut/chrn	N/A	0
59080	Pyelonephritis, unspecified	278	0
59081	Pyelitis or pyelonephritis in diseases classified elsewhere	N/A	0
5909	Infection of kidney, unspecified	278	0
591	Hydronephrosis	184	0
592	Calculus of kidney and ureter	N/A	0
5921	Calculus of ureter	355	0
5929	Urinary calculus, unspecified	355	0
593	Other disorders of kidney and ureter	N/A	0
5930	Nephroptosis	667	0
5931	Hypertrophy of kidney	667	0
5932	Cyst of kidney, acquired	561	0
5933	Stricture or kinking of ureter	184	0
5934	Other ureteric obstruction	184	0
5935	Hydroureter	184	0
5936	Postural proteinuria	667	0
5937	Vesicoureteral reflux	N/A	0
5938	Other specified disorders of kidney and ureter	N/A	0
59382	Ureteral fistula	234	0
5939	Unspecified disorder of kidney and ureter	343	0
594	Calculus of lower urinary tract	N/A	0
5940	Calculus in diverticulum of bladder	355	0
5941	Other calculus in bladder	355	0
5942	Calculus in urethra	355	0
5948	Other lower urinary tract calculus	355	0
5949	Calculus of lower urinary tract, unspecified	355	0
595	Cystitis	N/A	0
5950	Acute cystitis	278	0
5951	Chronic interstitial cystitis	331	0
5952	Other chronic cystitis	278	0
5953	Trigonitis	278	0
5954	Cystitis in diseases classified elsewhere	278	0
5958	Other specified types of cystitis	N/A	0
59581	Cystitis cystica	278	0
59582	Irradiation cystitis	278	0
59589	Other specified types of cystitis	278	0
5959	Cystitis, unspecified	278	0
596	Other disorders of bladder	N/A	0
5960	Bladder neck obstruction	331	0
5961	Intestinovesical fistula	234	0
5962	Vesical fistula, not elsewhere classified	234	0
5963	Diverticulum of bladder	331	0
5965	Other functional disorders of bladder	N/A	0
59652	Low bladder compliance	331	0
59655	Detrusor sphincter dyssynergia	331	0

ICD9	Description	Line	Chronic
59659	Other functional disorder of bladder	331	0
5966	Rupture of bladder, nontraumatic	84	0
5967	Hemorrhage into bladder wall	331	0
5968	Other specified disorder of bladder	N/A	0
59681	Infection of cystostomy	331	0
59682	Mechanical complication of cystostomy	331	0
59683	Other complication of cystostomy	331	0
59689	Other specified disorders of bladder	331	0
5969	Unspecified disorder of bladder	331	0
597	Urethritis not sexually trnsmttd&urethral synd	N/A	0
5970	Urethral abscess	209	0
5978	Other urethritis	N/A	0
59780	Urethritis, unspecified	586	0
59781	Urethral syndrome NOS	586	0
59789	Other urethritis	586	0
598	Urethral stricture	N/A	0
5980	Urethral stricture due to infection	N/A	0
59800	Urethral stricture due to unspecified infection	331	0
59801	Urethral stricture due to infective diseases classified elsewhere	331	0
5981	Traumatic urethral stricture	331	0
5982	Postoperative urethral stricture	331	0
5988	Other specified causes of urethral stricture	331	0
5989	Urethral stricture, unspecified	331	0
599	Other disorders of urethra and urinary tract	N/A	0
5990	Urinary tract infection, site not specified	278	0
5991	Urethral fistula	434	0
5992	Urethral diverticulum	434	0
5993	Urethral caruncle	586	0
5993	Urethral caruncle	598	0
5994	Urethral false passage	586	0
5995	Prolapsed urethral mucosa	586	0
5995	Prolapsed urethral mucosa	598	0
5996	Urinary obstruction	N/A	0
59960	Urinary obstruction, unspecified	576	0
59969	Urinary obstruction, not elsewhere classified	576	0
5997	Hematuria	N/A	0
59971	Gross hematuria	N/A	0
59972	Microscopic hematuria	N/A	0
5998	Other specified disorder urethra&urinary tract	N/A	0
59981	Urethral hypermobility	459	0
59982	Intrinsic (urethral) sphincter deficiency [ISD]	331	0
59983	Urethral instability	331	0
59984	Other specified disorders of urethra	331	0
59989	Other specified disorders of urinary tract	331	0
5999	Unspecified disorder of urethra and urinary tract	586	0
614	Inflam dz of ovary-tube-pelvic tissue-peritoneum	N/A	0
6140	Acute salpingitis and oophoritis	55	0
6141	Chronic salpingitis and oophoritis	536	0
6142	Salpingitis and oophoritis not specified as acute, subacute, or chronic	536	0
6143	Acute parametritis and pelvic cellulitis	55	0
6144	Chronic or unspecified parametritis and pelvic cellulitis	536	0
6145	Acute or unspecified pelvic peritonitis, female	536	0
6146	Pelvic peritoneal adhesions, female	536	0

ICD9	Description	Line	Chronic
	(postoperative) (postinfection)		
6147	Other chronic pelvic peritonitis, female	536	0
6148	Other specified inflammatory disease of female pelvic organs and tissues	55	0
6149	Unspecified inflammatory disease of female pelvic organs and tissues	55	0
647	Infect-parasitic maternal cce-complicating pc/p	N/A	0
6470	Mtrn syphilis comp pg childbirth/the puerperium	N/A	0
64700	Syphilis of mother, complicating pregnancy, childbirth, or the puerperium, unspecified as to episode of care or not applicable	1	0
64701	Syphilis of mother, complicating pregnancy, childbirth, or the puerperium, delivered, with or without mention of antepartum condition	1	0
64702	Syphilis of mother, complicating pregnancy, childbirth, or the puerperium, delivered, with mention of postpartum complication	1	0
64703	Syphilis of mother, complicating pregnancy, childbirth, or the puerperium, antepartum condition or complication	1	0
64704	Syphilis of mother, complicating pregnancy, childbirth, or the puerperium, postpartum condition or complication	1	0
6471	Mtrn gonorrhea comp pg childbirth/the puerperium	N/A	0
64710	Gonorrhea of mother, complicating pregnancy, childbirth, or the puerperium, unspecified as to episode of care or not applicable	1	0
64711	Gonorrhea of mother, complicating pregnancy, childbirth, or the puerperium, delivered, with or without mention of antepartum condition	1	0
64712	Gonorrhea of mother, complicating pregnancy, childbirth, or the puerperium, delivered, with mention of postpartum complication	1	0
64713	Gonorrhea of mother, complicating pregnancy, childbirth, or the puerperium, antepartum condition or complication	1	0
64714	Gonorrhea of mother, complicating pregnancy, childbirth, or the puerperium, postpartum condition or complication	1	0
6472	Oth maternal venereal diseases-complicating pc/p	N/A	0
64720	Other venereal diseases of mother, complicating pregnancy, childbirth, or the puerperium, unspecified as to episode of care or not applicable	1	0
64721	Other venereal diseases of mother, complicating pregnancy, childbirth, or the puerperium, delivered, with or without mention of antepartum condition	1	0
64722	Other venereal diseases of mother, complicating pregnancy, childbirth, or the puerperium, delivered, with mention of postpartum complication	1	0
64723	Other venereal diseases of mother, complicating pregnancy, childbirth, or the puerperium, antepartum condition or complication	1	0
64724	Other venereal diseases of mother, complicating pregnancy, childbirth, or the puerperium, postpartum condition or	1	0

ICD9	Description	Line	Chronic
	complication		
6473	Mtrn tb comp pg childbirth/the puerperium	N/A	0
64730	Tuberculosis of mother, complicating pregnancy, childbirth, or the puerperium, unspecified as to episode of care or not applicable	1	0
64731	Tuberculosis of mother, complicating pregnancy, childbirth, or the puerperium, delivered, with or without mention of antepartum condition	1	0
64732	Tuberculosis of mother, complicating pregnancy, childbirth, or the puerperium, delivered, with mention of postpartum complication	1	0
64733	Tuberculosis of mother, complicating pregnancy, childbirth, or the puerperium, antepartum condition or complication	1	0
64734	Tuberculosis of mother, complicating pregnancy, childbirth, or the puerperium, postpartum condition or complication	1	0
6474	Mtrn malaria comp pg childbirth/the puerperium	N/A	0
64740	Malaria in the mother, unspecified as to episode of care or not applicable	1	0
64741	Malaria in the mother, delivered, with or without mention of antepartum condition	1	0
64742	Malaria in the mother, delivered, with mention of postpartum complication	1	0
64743	Malaria in the mother, antepartum condition or complication	1	0
64744	Malaria in the mother, postpartum condition or complication	1	0
6475	Mtrn rubella comp pg childbirth/the puerperium	N/A	0
64750	Rubella in the mother, unspecified as to episode of care or not applicable	1	0
64751	Rubella in the mother, delivered, with or without mention of antepartum condition	1	0
64752	Rubella in the mother, delivered, with mention of postpartum complication	1	0
64753	Rubella in the mother, antepartum condition or complication	1	0
64754	Rubella in the mother, postpartum condition or complication	1	0
6476	Oth mtrn viri dz comp pg chldbrth/the puerperium	N/A	0
64760	Other viral diseases in the mother, unspecified as to episode of care or not applicable	1	0
64761	Other viral diseases in the mother, delivered, with or without mention of antepartum condition	1	0
64762	Other viral diseases in the mother, delivered, with mention of postpartum complication	1	0
64763	Other viral diseases in the mother, antepartum condition or complication	1	0
64764	Other viral diseases in the mother, postpartum condition or complication	1	0
6478	Oth maternal infectious-parasitic dz-compli pc/p	N/A	0
64780	Other specified infectious and parasitic diseases of mother, unspecified as to episode	1	0

ICD9	Description	Line	Chronic
	of care or not applicable		
64781	Other specified infectious and parasitic diseases of mother, delivered, with or without mention of antepartum condition	1	0
64782	Other specified infectious and parasitic diseases of mother, delivered, with mention of postpartum complication	1	0
64783	Other specified infectious and parasitic diseases of mother, antepartum condition or complication	1	0
64784	Other specified infectious and parasitic diseases of mother, postpartum condition or complication	1	0
6479	Uns maternal infection/infestation-compli pc/p	N/A	0
64790	Unspecified infection or infestation of mother, unspecified as to episode of care or not applicable	1	0
64791	Unspecified infection or infestation of mother, delivered, with or without mention of antepartum condition	1	0
64792	Unspecified infection or infestation of mother, delivered, with mention of postpartum complication	1	0
64793	Unspecified infection or infestation of mother, antepartum condition or complication	1	0
64794	Unspecified infection or infestation of mother, postpartum condition or complication	1	0
694	Bullous dermatoses	N/A	1
6940	Dermatitis herpetiformis	216	1
6941	Subcorneal pustular dermatosis	216	1
6942	Juvenile dermatitis herpetiformis	216	1
6943	Impetigo herpetiformis	216	1
6944	Pemphigus	216	1
6945	Pemphigoid	216	1
6946	Benign mucous membrane pemphigoid	N/A	1
69460	Benign mucous membrane pemphigoid without mention of ocular involvement	216	1
69461	Benign mucous membrane pemphigoid with ocular involvement	216	1
6948	Other specified bullous dermatoses	216	1
6949	Unspecified bullous dermatoses	216	1
6953	Rosacea	510	1
706	Diseases of sebaceous glands	N/A	1
7060	Acne varioliformis	528	1
7061	Other acne	528	1
7062	Sebaceous cyst	632	1
7063	Seborrhea	593	1
7068	Other specified diseases of sebaceous glands	665	1
7069	Unspecified disease of sebaceous glands	593	1
7090	Dyschromia	N/A	1
70900	Dyschromia, unspecified	665	1
70901	Vitiligo	665	1
70909	Other dyschromia	665	1
V027	Carrier or suspected carrier of gonorrhea	3	0
V6545	Counseling on other sexually transmitted diseases	3	0
V73	Special scr examination viral&chlamydial dz	N/A	0
V738	Screening oth specific viral&chlamydial diseases	N/A	0
V7388	Special screening examination for other specified chlamydial diseases	3	0

ICD9	Description	Line	Chronic
V7389	Special screening examination for other specified viral diseases	3	0