

Appendix A**US Healthcare Facilities in the Premier Research Database with Accessible
Microbiology Results****Characteristic, n (%)****(N=178)**

Setting

Urban

142 (79.8)

Rural

36 (20.2)

Facility

Teaching

62 (34.8)

Non-teaching

116 (65.2)

Number of beds

0–99

30 (16.9)

100–199

40 (22.5)

200–299

39 (21.9)

300–399

27 (15.2)

400–499

14 (7.9)

500+

28 (15.7)

Appendix B

cUTI
At least one diagnosis from group A
OR
At least one diagnosis from group B
AND
At least one event (either diagnosis or procedure) from group C

Group A (Diagnosis Codes)	
ICD-9-CM Diagnosis Code	Description
598.0X	Urethral stricture due to infection
996.64	Infection and inflammatory reaction due to indwelling urinary catheter
590.1X	Acute pyelonephritis
590.2X	Renal and perinephric abscess
590.3X	Pyeloureteritis cystica
590.8X	Other pyelonephritis or pyonephrosis, not specified as acute or chronic
590.9X	Infection of kidney, unspecified
590.XX	Infections of kidney
590.0X	Chronic pyelonephritis without lesion of renal medullary necrosis
590.01	Chronic pyelonephritis with lesion of renal medullary necrosis
590.1X	Acute pyelonephritis NOS
590.2X	Renal/perirenal abscess
590.3X	Pyeloureteritis cystica
590.8X	Pyelonephritis NOS
590.9X	Infection of kidney NOS

NOS = not otherwise specified.

Group B (Diagnosis Codes)

ICD-9-CM Diagnosis Code	Description
598.8X	Other specified causes of urethral structure
598.XX	Urethral stricture: infect NOS
599.0X	Urinary tract infection, site not specified
599.2X	Urethral diverticulum
599.3X	Urethral caruncle
599.4X	Urethral false passage
599.5X	Prolapse urethral mucosa
599.69	Urinary obstruction NEC
595.XX	Acute cystitis
595.3X	Trigonitis
595.4X	Cystitis in diseases classified elsewhere
595.8X	Other specified types of cystitis
595.9X	Cystitis, unspecified
595.XX	Acute cystitis
595.1X	Chronic interstitial cystitis
595.2X	Chronic cystitis NEC
595.4X	Cystitis in diseases classified elsewhere
595.81	Cystitis cystica
595.82	Irradiation cystitis
595.89	Cystitis NEC
595.9X	Cystitis NOS
597.XX	Urethral abscess
597.8X	Urethritis, unspecified
597.8X	Urethritis NOS
597.81	Urethral syndrome NOS
597.89	Urethritis NEC
599.1X	Urethral fistula

NEC = "other"; NOS = not otherwise specified. **Group C (Diagnosis and Procedure Codes)**

Code Type	Codes	Description
ICD-9-CM procedure	57.94	Insertion of indwelling urinary catheter
ICD-9-CM procedure	57.95	Replacement of indwelling urinary catheter
ICD-9-CM procedure	96.48	Irrigation of indwelling urinary catheter
CPT-4 procedure	51702	Insertion of temporary indwelling bladder catheter, simple (eg, Foley)
CPT-4 procedure	51703	Insertion of temporary indwelling bladder catheter, complicated (eg, altered anatomy, fractured catheter/balloon)
ICD-9-CM diagnosis	V53.6X	Urinary catheter
ICD-9-CM diagnosis	V55.6X	Attention to other artificial opening of urinary tract
ICD-9-CM diagnosis	592.XX	Nephrolithiasis or ureteric calculi
ICD-9-CM diagnosis	753.2X	Obstructive defect of renal pelvis and ureter
ICD-9-CM diagnosis	599.6X	Urinary obstruction
ICD-9-CM diagnosis	600.XX	Prostate hyperplasia
ICD-9-CM diagnosis	596.XX	Bladder neck obstruction
ICD-9-CM diagnosis	591.XX	Hydronephrosis
ICD-9-CM diagnosis	788.2X	Retention of urine
ICD-9-CM diagnosis	596.4X	Atony of bladder
ICD-9-CM diagnosis	596.53	Paralysis of bladder
ICD-9-CM diagnosis	596.54	Neurogenic bladder
ICD-9-CM diagnosis	596.55	Detrusor sphincter dyssynergia

ICD-9-CM = International Classification of Diseases, Ninth Edition, Clinical Modification; NOS = not otherwise specified.

cIAI
At least one diagnosis from group A
AND
At least one procedure from group B

Group A (Diagnosis Codes)		
ICD-9-CM Diagnosis Code	Description	Comment
562.01	Diverticulitis of small intestine (without mention of hemorrhage)	
562.03	Diverticulitis of small intestine (with hemorrhage)	
562.11	Diverticulitis of colon (without mention of hemorrhage)	
562.13	Diverticulitis of colon (with hemorrhage)	
569.81	Fistula of intestine, excluding rectum and anus	
569.82	Ulceration of intestine	
569.83	Perforation of intestine	
531.1X	Gastric ulcer with perforation, acute	
531.2X	Gastric ulcer with hemorrhage and perforation, acute	
531.5X	Gastric ulcer with perforation, chronic	
531.6X	Gastric ulcer with hemorrhage and perforation, chronic	
532.1X	Duodenal ulcer with perforation, acute	
532.2X	Duodenal ulcer with hemorrhage and perforation, acute	
532.5X	Duodenal ulcer with perforation, chronic	
532.6X	Duodenal ulcer with hemorrhage and perforation, chronic	
533.1X	Peptic ulcer with perforation, acute	
533.2X	Peptic ulcer with hemorrhage and perforation, acute	
533.5X	Peptic ulcer with perforation, chronic	
533.6X	Peptic ulcer with hemorrhage and perforation, chronic	
534.1X	Gastrojejunal ulcer with perforation, acute	
534.2X	Gastrojejunal ulcer with hemorrhage and perforation, acute	
534.5X	Gastrojejunal ulcer with perforation, chronic	
534.6X	Gastrojejunal ulcer with hemorrhage and perforation, chronic	
540.0X	Acute appendicitis with generalized peritonitis	
540.1X	Acute appendicitis with peritoneal abscess	
541.XX	Appendicitis NOS	

542.XX	Other appendicitis	
567.XX	Peritonitis	
569.5X	Abscess of intestine	
572.XX	Abscess of liver	
575.4 plus 574.0, 574.3, 574.6, 574.8, or 575.0	Acute cholecystitis	Patients who meet this criterion will need a minimum of 2 diagnosis codes
576.1X	Cholangitis	

NOS = not otherwise specified.

Group B (Procedure Codes)

Code Type	Codes	Description
ICD-9-CM	43.5X-43.9X, 44.40-44.42, 44.61, 45.6X-46.13, 46.20-46.23, 46.7X, 46.80-46.82, 46.91-46.94, 46.99, 47.XX, 50.0X, 50.12-50.69, 51.02-51.04, 51.13, 51.2X, 51.3X, 51.4X-51.5X, 51.61-51.63, 51.69, 51.7X, 51.81-51.83, 51.89, 51.91-51.95, 51.99, 52.01, 52.09, 52.12, 52.22, 52.3X-52.83, 52.92, 52.95, 52.96, 52.99, 54.1X, 54.21, 54.4X, 54.5X, and/or 54.92-54.95	Laparotomy, laparoscopy, or percutaneous drainage
CPT-4	43117, 43118, 43121, 43122, 43631, 43632, 43633, 43634, 43775, 43845, 43620, 43621, 43622, 43840, 43500, 43501, 43502, 43840, 44602, 44603, 43840, 44110, 44111, 44120, 44121, 44125, 43496, 44120, 44121, 44125, 44126, 44127, 44128, 44132, 44133, 44202, 44203, 44660, 44661, 44132, 44133, 44155, 44156, 44212, 44143, 44144, 44160, 44204, 44205, 44206, 44141, 44144, 44155, 44156, 44160, 44204, 44205, 44206, 44212, 44146, 44147, 44207, 44208, 45395, 45397, 45550, 44139, 44140, 44144, 44147, 44213, 44660, 44661, 44210, 44211, 44212, 44137, 44150, 44151, 44155, 44156, 44157, 44158, 44620, 44625, 44626, 43845, 44160, 44144, 44145, 44146, 44799, 45113, 44211, 44141, 44188, 44320, 44322, 44604, 44605, 45820, 45825, 44300, 44322, 57307, 45562, 45563, 45800, 45805, 45126, 51597, 58240, 44120, 4412, 44125, 44150, 44155, 44156, 44187, 44310, 44144, 44187, 44310, 44151, 44316, 44799, 44210, 44211, 44212, 45136, 44602, 44603, 35870, 44640, 44650, 44602, 44602, 44615, 35780, 44640, 44650, 44604, 44605, 35870, 44650, 44370, 44379, 44383, 44397, 44602, 44603, 44604, 44605, 44615, 45327, 45345, 45387, 44799, 44050, 44055, 44799, 44137, 44139, 44213, 44700, 44701, 45136, 44970, 44950, 44955, 44960, 44900, 49406, 50845, 44650, 44799, 44979, 47010, 47001, 47100, 47560, 47561, 47700, 49220, 37200, 47561, 47300, 47120, 47122, 47125, 47130, 47133, 47140, 47141, 47142, 47380, 47381, 47382, 47399, 47120, 47122, 47125, 47130, 47140, 47141, 47142, 47133, 47140, 47141, 47142, 47350, 47360, 47361, 47362, 47350, 47360, 47361, 47362, 47490, 47480, 48000, 48001, 47480, 47560, 47561, 47600, 47605, 47600, 47605, 47610, 47612, 47620, 47562, 47563, 47564, 47999, 47570, 47610, 47612, 47620, 47701, 47360, 47420, 47425, 47564, 47610, 47612, 47620, 47700, 47510, 47511, 43273, 47400, 47999, 48148, 47715, 47711, 47712, 47999, 47900, 47460, 47420, 47425, 47460, 47610, 47612, 47620, 47999, 47999, 43275, 47510, 47511, 49405, 48020, 48510, 48100, 48105, 48120, 48500, 43240, 48999, 48140, 48145, 48146, 48155, 48160, 48550, 48150, 48152, 48153, 48154, 48554, 43273, 48999, 48545, 48547, 48140, 48145, 48150, 48152, 48153, 48154, 48000, 48001, 48556, 49000, 49220, 58960, 49002, 58960, 35840, 47015, 49020, 49040, 49060, 49412, 49320, 44820, 49203, 49204, 49205, 49215, 49255, 58662, 58943, 58950, 58951, 58952, 58953, 58954, 58956, 58957, 58958, 60545, 44180, 44005, 49402, 49324, 49325, 49418, 49419, 49421, 49999, 49425, 49426, 44050, 44055, 49412, 49418, 49419	Laparotomy, laparoscopy, or percutaneous drainage

Hospital-associated pneumonia, including ventilator-associated pneumonia (VAP)

Algorithm 1

- 1) A primary OR secondary discharge diagnosis of VAP (**997.31**)
- 2) ≥ 1 positive cultures for Gram-negative bacteria of interest drawn from a site consistent with pneumonia (the date of the earliest such culture will be deemed the index date)
- 3) Index date ≥ 3 days following admission

AND

- 4) Receipt of antibiotics on the index date or within the 3-day period thereafter

Algorithm 2

- 1) Any discharge diagnosis (ie, principal or secondary) of pneumonia (excluding VAP) (**481.xx, 482.xx, 483.xx, 484.xx, 486.xx, 482.0, 482.1, 482.2, 485.xx**)
- 2) ≥ 1 positive cultures for Gram-negative bacteria of interest drawn from a site consistent with pneumonia (the date of the earliest such culture will be deemed the index date)
- 3) Index date ≥ 3 days following admission

AND

- 4) Receipt of antibiotics on the index date or within the 3-day period thereafter

Algorithm 3

- 1) Any discharge diagnosis (ie, principal or secondary) of pneumonia (excluding VAP)
- 2) ≥ 1 positive cultures for Gram-negative bacteria of interest drawn from a site consistent with pneumonia (the date of the earliest such culture will be deemed the “index date”) < 3 days following admission
- 3) Receipt of antibiotics on the index date or within the 3-day period thereafter

AND

- 4) Evidence that the source of pneumonia was nosocomial (as opposed to community-acquired or healthcare associated)

BSI

ICD-9-CM Diagnosis Code	Description
790.7	Bacteremia
038.0	Streptococcal septicemia
038.10	Staphylococcal septicemia, unspecified
038.11	Methicillin-susceptible <i>Staphylococcus aureus</i> septicemia
038.12	Methicillin-resistant <i>S aureus</i> septicemia
038.19	Other staphylococcal septicemia
038.2	Pneumococcal septicemia
038.3	Septicemia due to anaerobes
038.40	Septicemia due to Gram-negative organism, unspecified
038.41	Septicemia due to <i>Haemophilus influenzae</i> (<i>H influenzae</i>)
038.42	Septicemia due to <i>E coli</i>
038.43	Septicemia due to <i>Pseudomonas</i> spp
038.44	Septicemia due to <i>Serratia</i> spp
038.49	Other septicemia due to Gram-negative organisms
038.8	Other specified septicemias
038.9	Unspecified septicemia
421.0	Acute and subacute bacterial endocarditis
421.1	Acute and subacute infective endocarditis in diseases, classified elsewhere
421.9	Acute endocarditis, unspecified
424.90	Endocarditis valve, unspecified cause
771.81	Septicemia [sepsis] of newborn
995.91	Sepsis

Appendix C. Designated Culture Sites for Infection Types of Interest

Culture Site	cUTI	cIAI	HAP	VAP	Bacteremia
Urine culture	X				
Gastric culture		X			
Wound culture		X			
Fluid culture		X			
Body fluid culture		X			
Wound culture deep		X			
Aerobic culture		X			
Tissue culture		X			
Drainage culture		X			
Wound culture aerobic/anaerobic		X			
Wound culture aerobic		X			
Wound culture superficial		X			
Abscess culture		X			
Blood culture					X
Quantitative blood culture					X
Respiratory culture			X	X	
Quantitative respiratory culture			X	X	
Respiratory culture, cystic fibrosis			X	X	
Sputum culture			X	X	
Bronchial culture			X	X	
Bronchial/BAL lavage			X	X	

BAL = bronchoalveolar; cIAI = complicated intra-abdominal infection; cUTI = complicated urinary tract infection; HAP = hospital-associated pneumonia; VAP = ventilator-associated pneumonia