Supplementary Table 1. Diagnosis cohort definitions using ICD-10 codes

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<th>Diagnosis</th>
<th>ICD-10 Definition</th>
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<td>Community Acquired Pneumonia&lt;sup&gt;a,b&lt;/sup&gt;</td>
<td>1. Age 2 months to 18 years AND &lt;br&gt;2. Diagnosis of pneumonia defined by: &lt;br&gt;   a. Primary discharge diagnosis code of pneumonia (J12.x, J13, J14, J15.x, J16.x, J18.0, J18.1, J18.8, J18.9), empyema (J86.x) or pleurisy (R09.1,J90, J91.8) OR &lt;br&gt;   b. Pneumonia related symptom as primary ICD10 code with pneumonia diagnosis in any other position &lt;br&gt;       - R50.81 or R50.9 (Fever) &lt;br&gt;       - R06.9 (Respiratory Abnormality Unspecified) &lt;br&gt;       - R06.02 (Shortness of breath) &lt;br&gt;       - R06.82 (Tachypnea) &lt;br&gt;       - R06.2 (Wheezeing) &lt;br&gt;       - R05 (Cough) &lt;br&gt;       - R04.2, R04.9, or R04.89 (Hemoptysis) &lt;br&gt;       - R09.3 (Abnormal sputum) &lt;br&gt;       - R07.1, R07.8x, R07.9 (Chest pain) &lt;br&gt;       - R07.2 (Precordial pain) &lt;br&gt;       - R07.1, R07.81 (Painful respiration) &lt;br&gt;</td>
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<td>Neck infection&lt;sup&gt;c&lt;/sup&gt;</td>
<td>1. Age 2 months to 18 years AND &lt;br&gt;2. Diagnosis of neck infection defined by primary or secondary discharge code of any one of the following: &lt;br&gt;   - J36 (Peritonsillar abscess) &lt;br&gt;   - J03 (Acute tonsillitis) &lt;br&gt;   - J35 (Chronic tonsillitis) &lt;br&gt;   - J39 (Abscess peri/retro/para/postpharyngeal) &lt;br&gt;   - I88.9, I88.1 (Nonspecific lymphadenitis, unspecified) &lt;br&gt;   - L02.11, L02.12, L02.13 (Cutaneous abscess of the neck, furuncle and carbuncle of neck) &lt;br&gt;   - L03.221, L03.222 (Cellulitis and acute lymphangitis of the face and neck) &lt;br&gt;   - L04.0, L04.8, L04.9 (Acute lymphadenitis of the face, head and neck) &lt;br&gt;   - L04.9 (Acute lymphadenitis, unspecified) &lt;br&gt;   - R22.1 (Localized swelling, mass, lump of the neck) &lt;br&gt;   - R59.9 (Enlarged lymph nodes, unspecified) &lt;br&gt;</td>
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<td>Periorbital/orbital infection&lt;sup&gt;d&lt;/sup&gt;</td>
<td>1. Age 2 months to 18 years AND &lt;br&gt;2. Diagnosis of periorbital/orbital infection defined by primary or secondary discharge code of any one of the following: &lt;br&gt;   - H05.01 (cellulitis of orbit) &lt;br&gt;   - H05.02 (osteomyelitis of orbit) &lt;br&gt;   - L03.213 (periorbital cellulitis)</td>
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<td>Urinary Tract Infections&lt;sup&gt;a,e&lt;/sup&gt;</td>
<td>1. Age 2 months to 18 years AND &lt;br&gt;2. Diagnosis of urinary tract infection defined by primary discharge code of any one of the following:</td>
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- N10 (acute pyelonephritis)
- N15.1 (renal or perinephric abscess)
- N13.6 (pyonephrosis)
- N12 (Tubulo-interstitial nephritis, not specified as acute or chronic)
- N11.9 (Chronic tubulo-interstitial nephritis, unspecified)
- N16 (Renal tubulo-interstitial disorders in diseases classified elsewhere)
- N39.0 (urinary tract infection, site not specified)
- P39.3 (neonatal UTI)

Osteomyelitis

1. Age 2 months to 18 years AND
2. Diagnoses of osteomyelitis defined by primary or secondary discharge code of any one of the following:
   - A54.43 (gonococcal osteomyelitis)
   - M46.2x (osteomyelitis of vertebra)
   - M86.0x (acute osteomyelitis)
   - M86.1x (other acute osteomyelitis)
   - M86.2x (subacute osteomyelitis)
   - M86.4x (chronic osteomyelitis with draining sinus)
   - M86.5x (other chronic hematogenous osteomyelitis)
   - M86.6x (other chronic osteomyelitis)
   - M86.8x (other osteomyelitis)
   - M86.9 (osteomyelitis, unspecified)

Exclusions:
- M86.29, M86.49, M86.59, M86.69 (multifocal osteomyelitis)

Septic Arthritis

1. Age 2 months to 18 years AND
2. Diagnoses of septic arthritis defined by primary or secondary discharge code of any one of the following:
   - A54.52 (gonococcal arthritis)
   - M00.0x (staphylococcal arthritis and polyarthritis)
   - M00.1x (pneumococcal arthritis and polyarthritis)
   - M00.2x (other streptococcal arthritis and polyarthritis)
   - M00.8x (arthritis and polyarthritis due other bacteria)
   - M00.9x (pyogenic arthritis, unspecified)

Skin and Soft Tissue Infections

1. Age 2 months to 18 years AND
2. Diagnosis in primary starting with:
   - K12.2 (Cellulitis and abcess of mouth)
   - L02.x (cutaneous abscess, furuncle and carbuncle)
   - L03.x (Cellulitis and acute lymphangitis)
   - L08.x (eosinophilic cellulitis)
   - K61.x (abcess of anal and rectal region)
   - P39.0 (neonatal infective mastitis)
   - N61.x (inflammatory disorders of breast)

Exclusions:
- PICC line (procedure code 02HV33Z, 02H633Z, or 06H033Z)
- D80.x, D81.0, D81.1, D81.2, D81.4, D81.6, D81.7, D81.89, D81.9, D82.x, D83.x, D84.x, D89.3, D89.4x, D89.81x, D89.82, D89.89, D89.9, D71, D72.0 (Hereditary/Immunology)
- Z21.x, B20.x (HIV)
- C00-D49 (Malignant)
- P39.1, H04.30x, H04.32x, H00.03x, H04.00x (Dacrocystitis)
- D75.8, L04.x, Q18.0 (Lymphadenitis)
- P38.x (Omphalitis)
- H05.01x (Orbital)
- L01.x (Impetigo)

Tchou, 2019, Adapted from Florin, 2013. Adapted from Desai, 2019. Adapted from Markham, 2018. Adapted from Tieder, 2011. Adapted from Keren, 2015. Adapted from Singh, 2017. Adapted from Foradori, 2018