**Appendix: Electronic Query Descriptions**

Eligibility:

All pediatric patients less than 22 years old who had ambulatory visits at one of these five sites from October 1, 2010 through September 30, 2015 were eligible for inclusion.

**3 Queries:**

**Query 1: Patients with ICD9 codes for CAUTI:**

1. All children with ICD-9 codes for infections or complications due to catheter or indwelling devices billed in ambulatory settings, on admission, or within 48 hours of admission.

* 1. ICD9 996.64: Infection and inflammatory reaction due to indwelling urinary catheter effective 1989
  2. ICD9 996.65: Infection and inflammatory reaction due to other genitourinary device, implant and graft effective 1989
  3. ICD9 996.76: Other complications due to genitourinary device, implant and graft effective 1989
  4. ICD9 E879.6: Urinary catheterization as the cause of abnormal reaction of patient first use 2009
  5. ICD9 997.5: Urostomy-associated UTI is assigned to code
  6. ICD9 996.30 or 996.31 or 996.39: Mechanical complications due to GU device, due to urethral indwelling catheter, other complication
  7. ICD9 596.81 Infection of cystostomy effective 2011 (or ICD9 997.5 before 2011)

**Query 2: Patients with positive urine cultures & ICD9/CPT codes suggesting diagnoses at high risk for or specific urinary catheter usage:**

1. Patients with positive urine culture (defined as any organism growth) collected >2 days after discharge or <2 days after admission and one of the below diagnoses

2. Exclude patients already in Cohort 1

1. Diagnosis of Neuromuscular disease:
   * 1. ICD9 741.00-.03, 741.90-93, 344.61: Spina bifida
     2. ICD9 952.00-.09, 952.10-19, 952.2, 952.3, 952.4, 952.8, 952.9: Spinal cord injury without evidence of spinal bone injury
2. Diagnosis of Urinary disease:
3. ICD9 596.54, 596.4, 596.51-596.55, 596.59: Neurogenic bladder
4. ICD9 788.2: Urinary retention
5. Diagnosis of Cerebral Palsy:
6. ICD9 343.0: Congenital Diplegia
7. ICD9 343.1: Congenital Hemiplegia
8. ICD9 343.2: Congenital Quadriplegia
9. ICD9 343.3: Congenital Monoplegia
10. ICD9 343.4: Infantile Hemiplegia
11. ICD9 343.8: Other Specified Infantile Cerebral Palsy
12. ICD9 343.9: Infantile Cerebral Palsy Unspecified
13. Diagnoses at High Risk for Catheter usage:
14. ICD9 598.9: Urethral stricture
15. ICD9 599.71: Gross hematuria
16. ICD9 599.4: urethral false passage
17. ICD9 596.0: bladder neck obstruction
18. Diagnosis of Vesicoureteral reflux:
19. ICD9 593.70, 593.71, 593.72: vesicoureteral reflux unspecified or without reflux nephropathy, with unilateral reflux nephropathy or with bilateral reflux nephropathy
20. Long Term antibiotic usage:
21. ICD9 V58.62: Long-term use antibiotic, billable medical code that can be used to indicate a diagnosis on a reimbursement claim
22. ICD-9/CPT Codes for Urinary Catheterization:
23. ICD9 Codes:
    * + 1. ICD9 V53.6: Fitting and adjustment of urinary devices
        2. ICD9 57.94: Insertion of indwelling urinary catheter
        3. ICD9 57.95: Replacement of indwelling urinary catheter
        4. ICD9 51701: Insertion of non-indwelling bladder catheter
        5. ICD9 51702: Insertion of temporary indwelling bladder catheter; simple
        6. ICD9 51703: Insertion of temporary indwelling bladder catheter; complicated
        7. V58.82: Fitting and adjustment of nonvascular catheter, should be used for claims with a date of service on or before September 30, 2015
        8. E879.6: Urinary catheterization as the case of abnormal reaction of patient or of later complication without misadventure at time of procedure
24. CPT Codes:
    * + 1. CPT A4321: Therapeutic agent for urinary catheter irrigation
        2. CPT A4333: Urinary catheter anchoring device, adhesive skin attachment, each
        3. CPT A4334: Urinary catheter anchoring device, leg strap, each
        4. CPT A4351: Intermittent urinary catheter; straight tip, with or without coating (Teflon, silicone, silicone elastomer, or hydrophilic, etc.), each
        5. CPT A4352: Intermittent urinary catheter; Coude (curved) tip, with or without coating (Teflon, silicone, silicone elastomeric, or hydrophilic, etc.), each
        6. CPT A4353: Intermittent urinary catheter, with insertion supplies

**Query 3: Patients with ICD9/CPT codes suggesting urinary catheter usage:**

1. Patients with ICD-9/CPT codes for urinary catheterization:
2. Exclude patients already in Cohort 1or Cohort 2
3. ICD9 Codes:
   * + 1. ICD9 V53.6: Fitting and adjustment of urinary devices
       2. ICD9 57.94: Insertion of indwelling urinary catheter
       3. ICD9 57.95: Replacement of indwelling urinary catheter
       4. ICD9 51701: Insertion of non-indwelling bladder catheter
       5. ICD9 51702: Insertion of temporary indwelling bladder catheter; simple
       6. ICD9 51703: Insertion of temporary indwelling bladder catheter; complicated
       7. V58.82: Fitting and adjustment of nonvascular catheter, should be used for claims with a date of service on or before September 30, 2015
       8. E879.6: Urinary catheterization as the cause of abnormal reaction of patient or of later complication without misadventure at time of procedure
4. CPT Codes:
   * + 1. CPT A4321: Therapeutic agent for urinary catheter irrigation
       2. CPT A4333: Urinary catheter anchoring device, adhesive skin attachment, each
       3. CPT A4334: Urinary catheter anchoring device, leg strap, each
       4. CPT A4351: Intermittent urinary catheter; straight tip, with or without coating (Teflon, silicone, silicone elastomer, or hydrophilic, etc.), each
       5. CPT A4352: Intermittent urinary catheter; Coude (curved) tip, with or without coating (Teflon, silicone, silicone elastomeric, or hydrophilic, etc.), each
       6. CPT A4353: Intermittent urinary catheter, with insertion supplies