**Table, Supplemental Digital Content 1.** Patient characteristics and procedures received for children receiving multiple exposures to anesthesia.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **SEX** | **# ANES** | **ADHD** | **LD** | **CHRONIC CONDITION** | **PROCEDURES RECEIVED PRIOR TO AGE 3** | | |
|  | | | | | **Age 0-0.9** | **Age 1-1.9** | **Age 2-2.9** |
| F | 2 | N | N | NONE | CLEFT PALATE CORRECTION/MYRINGOTOMY |  |  |
|  |  |  |  |  | INGUINAL HERNIA REPAIR |  |  |
| M | 2 | N | N | NONE | HAND SKIN GRAFTING |  |  |
|  |  |  |  |  | SYNDACTYLY CORRECTION |  |  |
| F | 2 | N | N | NONE |  | UMBILICAL HERNIA REPAIR | MYRINGOTOMY |
| M | 5 | N | N | NONE | RVOT RECONSTRUCTION/SHUNT |  |  |
|  |  |  |  |  | DEFINITIVE REPAIR OF  PULMONARY ATRESIA |  |  |
|  |  |  |  |  | CARDIAC CATHETERIZATION\* |  |  |
| F | 3 | N | N | NONE | MYRINGOTOMY |  | WOUND DEBRIDEMENT \* |
| F | 2 | N | N | ASTHMA |  |  | T&A |
|  |  |  |  |  |  |  | DENTAL PROCEDURE |
| M | 2 | N | N | ASTHMA | MYRINGOTOMY | DENTAL SCALING & DEBRIDE |  |
| F | 3 | N | N | NONE | NASOLACRIMAL DUCT PROBE | HYPOSPADIUS REPAIR | NASOLACRIMAL DUCT PROBE |
| M | 2 | N | N | NONE |  | NASOLACRIMAL DUCT PROBE |  |
|  |  |  |  |  |  | EXPLOR TEND SHEATH-HAND |  |
| F | 2 | N | N | NONE | INGUINAL HERNIA REPAIR | MYRINGOTOMY |  |
| M | 2 | N | N | TRIPLET | INGUINAL HERNA REPAIR | MYRINGOTOMY |  |
| F | 2 | N | N | NONE | MYRINGOTOMY |  | T&A |
| M | 5 | N | N | NONE |  | WOUND DEBRIDEMENT \* |  |
|  |  |  |  |  |  | SKIN GRAFT |  |
| M | 3 | N | N | NONE | MYRINGOTOMY\* |  | REMOVE RETAINED EAR TUBE |
| M | 2 | N | N | NONE | INCISION PERIANAL ABSCESS |  | T&A/MYRINGOTOMY |
| F | 2 | N | N | NONE | REMOVE ESOPH FOREIGN BODY | REMOVE TRACH FOREIGN BODY |  |
| M | 2 | N | N | NONE |  | T&A |  |
|  |  |  |  |  |  | MYRINGOTOMY |  |
| M | 2 | N | N | ASTHMA | ANAL FISTULOTOMY |  |  |
|  |  |  |  |  | MYRINGOTOMY |  |  |
| F | 3 | N | N | NONE | MYRINGOTOMY |  | MYRINGOTOMY |
|  |  |  |  |  |  |  | T&A |
| F | 5 | N | N | NONE |  | INTRAOCULAR LENS INSERTION |  |
|  |  |  |  |  |  | VITRECTOMY |  |
|  |  |  |  |  |  | REPAIR EYEBALL RUPTURE |  |
|  |  |  |  |  |  | EYE EXAM UNDER ANESTHESIA\* |  |
| M | 2 | N | N | SOLITARY KIDNEY | REPAIR OMPHALOCOELE | REPAIR PENILE CHORDEE |  |
| M | 2 | N | N | PREMATURITY | MYRINGOTOMY |  | MYRINGOTOMY |
| F | 4 | N | N | NONE |  | PERIRECTAL INCISION \* | PERINEAL INCISION |
|  |  |  |  |  |  | REPLACE WOUND PACK |  |
| M | 2 | N | N | NONE |  | MYRINGOTOMY |  |
|  |  |  |  |  |  | NASOLACRIMAL DUCT PROBE |  |
| M | 2 | N | N | SMALL VSD | MYRINGOTOMY | ADENOIDECTOMY |  |
| F | 2 | N | N | NONE | MYRINGOTOMY |  | ADENOIDECTOMY |
| F | 2 | N | N | NONE |  |  | REMOVE INTRANASAL FOREIGN BODY |
|  |  |  |  |  |  |  | T&A/MYRINGOTOMY |
| M | 2 | N | N | ASTHMA |  | MYRINGOTOMY |  |
|  |  |  |  |  |  | HYPOSPADIUS REPAIR |  |
| M | 2 | N | N | HEMOPHILIA A | PORTACATH PLACEMENT\* |  |  |
| M | 2 | N | N | ASTHMA |  | MYRINGOTOMY |  |
| F | 2 | N | N | NONE | DIVISION ANTRAL WEB |  |  |
|  |  |  |  |  | ANTRAL DILATION |  |  |
| F | 2 | N | N | TWIN |  | MYRINGOTOMY | MYRINGOTOMY |
|  |  |  |  |  | CLEFT LIP/PALATE CORRECTION |  |  |
| F | 2 | N | N | NONE | URETEROTOMY |  | URETERONEOCYSTOSTOMY |
| F | 2 | N | N | ASTHMA | MYRINGOTOMY | ADENOIDECTOMY |  |
| F | 2 | N | N | NONE |  | MYRINGOTOMY | T&A |
| M | 2 | N | N | ASTHMA | EXCISION POLYDACTYLY |  |  |
|  |  |  |  |  | REVISE CIRCUMCISION |  |  |
| M | 2 | N | N | NONE |  | MYRINGOTOMY | T&A |
| M | 2 | N | N | NONE |  | ADENOIDECTOMY |  |
|  |  |  |  |  |  | MYRINGOTOMY |  |
| F | 2 | N | N | NONE |  | ADENOIDECTOMY |  |
|  |  |  |  |  |  | MYRINGOTOMY |  |
| M | 2 | N | N | NONE | MYRINGOTOMY |  | ADENOIDECTOMY |
| F | 2 | N | N | NONE | CLEFT PALATE CORRECTION | MYRINGOTOMY |  |
| M | 2 | N | N | NONE | HYPO-EPISPADIUS REPAIR | MYRINGOTOMY |  |
| F | 2 | N | N | NONE |  | REMOV EXT IMMOBILIZATION |  |
|  |  |  |  |  |  | FINGER REATTACHMENT |  |
| M | 2 | N | N | NONE | INGUINAL HERNIA REPAIR |  |  |
|  |  |  |  |  | HYDROCOELE REPAINR |  |  |
| F | 2 | N | N | NONE | URETERONEOCYSTOTOMY |  |  |
|  |  |  |  |  | CYSTOSCOPY |  |  |
| F | 2 | N | N | NONE | MYRINGOTOMY |  | T&A |
| M | 3 | N | N | TUBEROUS SCLEROSIS |  |  | CRANIOTOMY (ASTROCYTOMA) |
|  |  |  |  |  |  |  | MRI\* |
| M | 4 | N | N | PREMATURITY | RESECTION PERFORATED ILEUM (MECKEL’S DIVERTICULUM) |  |  |
|  |  |  |  |  | ILEOSTOMY TAKEDOWN |  |  |
|  |  |  |  |  | INGUINAL HERNIA REPAIR |  |  |
|  |  |  |  |  | LYSIS OF ADHESIONS |  |  |
| M | 2 | N | N | PREMATURITY | CIRCUMCISION | STRABISMUS REPAIR |  |
| M | 11 | N | N | NONE | RECTAL BIOPSY |  |  |
|  |  |  |  |  | SUAVE PULL THROUG |  |  |
|  |  |  |  |  | ANAL DILATION |  |  |
| F | 3 | N | N | TWIN, THALASSEMIA | DIVISION VASCULAR RING (THORACOTOMY) |  |  |
|  |  |  |  |  | MICROLARYNGOSCOPY/EGD\* |  |  |
| M | 2 | N | N | NONE | MYRINGOTOMY | UMBILICAL HERNIA REPAIR |  |
| F | 2 | N | N | NONE | NASOLACRIMAL DUCT PROBE | EUSTACHIAN TUBE OPERATION |  |
| F | 2 | N | N | NONE |  |  | EXCISE PERIANAL SKIN TAG |
|  |  |  |  |  |  |  | DILATION ANAL SPHINCTER |
| F | 2 | N | N | ASTHMA |  | MYRINGOTOMY | T&A |
| M | 2 | N | N | NONE | PERIRECTAL INCISION |  |  |
|  |  |  |  |  | ANAL FISTULOTOMY |  |  |
| M | 7 | N | N | CONGENTIAL MYESTHENIA | MRI | STRABISMUS REPAIR | SOFT TISSUE BIOPSY |
|  |  |  |  | TUBEROUS SCLEROSIS |  | BRONCHOSCOPY | MRI |
|  |  |  |  | TRACHEOMALACIA |  | MRI | ELECTROMYOGRAPHY |
| F | 4 | N | N | NONE | CLUBFOOT RELEASE | MYRINGOTOMY |  |
|  |  |  |  |  | CAST CHANGE\* |  |  |
| M | 2 | N | N | NONE |  |  | MYRINGOTOMY |
|  |  |  |  |  |  |  | T&A |
| M | 4 | N | N | TRISOMY 21 | REPAIR ATRIOVENTRICULAR CANAL | T&A |  |
|  |  |  |  |  | ORCHIDOPEXY | BRONCHOSCOPY |  |
| F | 3 | N | N | NONE | RECTAL BIOPSY | STRABISMUS SURGERY |  |
|  |  |  |  |  |  | MYRINGOTOMY |  |
| F | 2 | N | N | NONE |  | T&A | MYRINGOTOMY |
|  |  |  |  |  |  |  | URETERONEOCYSTOSTOMY |
| M | 4 | N | N | ASTHMA | OPEN LUNG BIOPSY | BRONCHOSCOPY |  |
|  |  |  |  |  | EGD | HYPO-EPISPADIUS REPAIR |  |
| M | 2 | N | N | NONE | OPEN RENAL BIOPSY |  |  |
|  |  |  |  |  | PARTIAL NEPHRECTOMY |  |  |
| F | 4 | N | N | NONE |  | DRAIN SEPTIC HIP |  |
|  |  |  |  |  |  | DELAYED CLOSURE HIP |  |
| M | 3 | N | N | TRICUSPID AND MITRAL DYSPLASIA | EGD\* | EDG |  |
| F | 2 | N | N | NONE | ADENOIDECTOMY/MYRINGOTOMY |  | TONSILLECTOMY/MYRINGOTOMY |
| M | 2 | N | N | ASTHMA | NASOLACRIMAL DUCT PROBE | NASOLACRIMAL DUCT PROBE |  |
| F | 2 | N | N | NONE | MYRINGOTOMY | MYRINGOTOMY |  |
| F | 2 | N | N | NONE | NASOLACRIMAL DUCT PROBE\* |  |  |
| F | 2 | N | N | NONE |  | MYRINGOTOMY | DENTAL EXTRACTION |
| F | 2 | N | N | NONE |  | MYRINGOTOMY | MYRINGOTOMY |
| F | 2 | N | N | NONE |  | MYRINGOTOMY | T&A |
| M | 2 | N | N | ASTHMA |  | MYRINGOTOMY | ADENOIDECTOMY |
| F | 2 | Y | N | ASTHMA |  | MYRINGOTOMY | T&A |
| F | 2 | Y | N | NONE |  | CLOSED FEMUR FX REDUCTION |  |
|  |  |  |  |  |  | REMOV EXT IMMOBILIZATION |  |
| M | 2 | Y | N | NONE | PYLOROMYOTOMY | COARCTATION REPAIR |  |
| M | 2 | Y | N | NONE |  | MYRINGOTOMY | T&A |
| M | 2 | Y | N | NONE |  | MYRINGOTOMY |  |
|  |  |  |  |  |  | ADENOIDECTOMY |  |
| F | 4 | Y | N | HEMIHYPERTROPHY |  |  | LYMPH NODE BIOPSY |
|  |  |  |  |  |  |  | OPEN RENAL BIOPSY |
|  |  |  |  |  |  |  | NEPHROURETERECTOMY (WILM'S TUMOR) |
|  |  |  |  |  |  |  | PORTACATH PLACEMENT |
| M | 3 | Y | N | NONE |  | LASER - PORT WINE STAIN\* |  |
| F | 2 | Y | N | NONE |  | MYRINGOTOMY | STRABISMUS SURGERY |
| M | 2 | Y | N | NONE |  | MYRINGOTOMY | ADENOIDECTOMY |
| M | 2 | Y | N | NONE | MYRINGOTOMY |  | REMOVE RETAINED EAR TUBE |
| F | 4 | Y | N | ASTHMA |  | MYRINGOTOMY | NASOLACRIMAL DUCT PROBE\* |
| M | 2 | Y | N | NONE | MYRINGOTOMY |  | MYRINGOTOMY |
| M | 2 | N | Y | NONE |  |  | INGUINAL HERNIA REPAIR\* |
| F | 2 | N | Y | NONE | MYRINGOTOMY | ADENOIDECTOMY |  |
| M | 5 | N | Y | NONE | BIOPSY PHARYNGEAL MASS (DESMOID) | MRI\* |  |
|  |  |  |  |  | PHARYNGEAL TUMOR RESECTION |  |  |
|  |  |  |  |  | TRACHEOSTOMY TUBE REMOVAL |  |  |
| F | 3 | N | Y | NONE | MYRINGOTOMY | MYRINGOTOMY |  |
|  |  |  |  |  |  | TYMPANOSTOMY TUBE REMOVAL |  |
| M | 2 | N | Y | HYDROCEPHALUS | MYELOMENINGOCELE REPAIR | CLUBFOOT RELEASE |  |
| F | 2 | N | Y | NONE | STRABISMUS REPAIR | STRABISMUC REPAIR |  |
| M | 3 | Y | Y | NONE |  | MYRINGOTOMY | T&A |
|  |  |  |  |  |  |  | TYMP. TUBE REMOVAL |
| M | 2 | Y | Y | ASTHMA | MYRINGOTOMY |  |  |
|  |  |  |  |  | NASOLACRIMAL DUCT PROBE |  |  |
| F | 2 | Y | Y | ASTHMA | MYRINGOTOMY |  | T&A |
| F | 2 | Y | Y | NONE | MYRINGOTOMY |  | T&A |
| M | 7 | Y | Y | NONE | RIGHT SYSTEMIC-PA SHUNT |  | MYRINGOTOMY |
|  |  |  |  |  | GLENN PROCEDURE FOR UNIVENTRICULAR HEART |  | NASOLACRIMAL DUCT PROBE |
|  |  |  |  |  | CARDIAC CATHETERIZATION |  | SUTURE LIP LACTERATION |
|  |  |  |  |  |  |  | UPPER ENDOSCOPY |
| M | 2 | Y | Y |  | NASOLACRIMAL DUCT PROBE | INGUINAL HERNIA REPAIR |  |
| M | 2 | Y | Y | NONE | MYRINGOTOMY |  |  |
|  |  |  |  |  | INGUINAL HERNIA REPAIR |  |  |
| F | 5 | Y | Y | PREMATURITY, NEC | PARTIAL SMALL BOWEL RESECTION | CLOSE GASTROCUTANEOUS FISTULA |  |
|  |  |  |  |  | TAKEDOWN ILEOSTOMY |  |  |
|  |  |  |  |  | EXCISE GRANUATION TISSUE\* |  |  |
| M | 2 | Y | Y | NONE |  | MYRINGOTOMY | MYRINGOTOMY |
| F | 2 | Y | Y | NONE |  | UMBILICAL HERNIA REPAIR | ABD WALL HERNIA REPAIR |
| F | 4 | Y | Y | ASTHMA |  | MYRINGOTOMY\* | REMOVE NASAL FOREIGN BODY |
|  |  |  |  |  |  |  | CHOLECYSTECTOMY |
|  |  |  |  |  |  |  | ODONTECTOMY |
| F | 2 | Y | Y | CONGENTIAL EMPHYSEMA | BRONCHOSCOPY | LUNG LOBECTOMY |  |
| F | 2 | Y | Y | NONE |  | MYRINGOTOMY | T&A |
| M | 2 | Y | Y | NONE |  | MYRINGOTOMY | T&A |
| M | 2 | Y | Y | PREMATURITY |  | MICROLARNYGOSCOPY | LINGUAL FRENOTOMY |
| F | 2 | Y | Y | ASTHMA |  | MYRINGOTOMY | REMOVAL EAR TUBE |
| M | 2 | Y | Y | NONE | MYRINGOTOMY |  | T&A |
| M | 2 | Y | Y | NONE | MYRINGOTOMY |  | T&A |
| F | 6 | Y | Y | RENAL HYPOPLASIA | LARYGNOSCOPY/BRONCHOSCOPY\* |  |  |
|  |  |  |  | TRACHEOMALACIA | CYSTOSCOPY |  |  |
|  |  |  |  |  | ENDOVASCULAR PDA CLOSURE |  |  |
| F | 5 | Y | Y | HYPDROCEPHALUS | MYELOMENINGOCELE REPAIR, VP SHUNT |  | CLUBFOOT RELEASE |
|  |  |  |  |  | REVISION PERITONEAL INCISION |  | SPLINT REMOVAL |
|  |  |  |  |  |  |  | CAST CHANGE |
| F | 2 | Y | Y | NONE |  | MYRINGOTOMY\* |  |
| M | 2 | Y | Y | NONE |  | NASOLACRIMAL DUCT PROBE | NASOLACRIMAL DUCT PROBE |
| M | 2 | Y | Y | NONE | MYRINGOTOMY | T&A |  |
| M | 2 | Y | Y | NONE |  | MYRINGOTOMY | T&A |

**\*** Indicates that this procedure occurred more than once in an age range.

ANES, anesthetics; ADHD, attention deficit hyperactivity disorder; RVOT, right ventricular outflow tract; T&A, tonsillectomy and adenoidectomy; Esoph, esophageal; Trach, tracheal; FX, fracture; Tymp., tympanostomy; PA, pulmonary artery; ABD, abdominal; PDA, patent ductus arteriosis; VP, ventriculoperitoneal;