

Supplementary Table. Examined variables of included 44 studies and significant risk factors associated with paediatric UHRs under three health condition groups

Reference	Medical Condition	Outcome measures	Examined Variables	Significant Risk Factors
All-Cause Related UHRs (8)				
Toomey 2016 USA	All-cause	30-day Potentially preventable UHRs	Age; Gender; Race/ethnicity; Preferred language; Chronic condition indicators(CCI); Number of CCIs To assess if potentially preventable readmission were associated with (1) The readmissions being causally related to the index admission, (2) the readmission being related to the index admission by underlying CCI, and (3) the presence of identifiable contributing factors including hospital and patients'; Also examined the association between preventability rating and the presence of different CCIs; patients with CCIs were more likely to have certain contributing factors in readmissions	After adjusting for age, gender, language, and CCI counts: Index admission and readmission causally related (AOR=2.6; 95%CI 1.02-6.75) Hospital contributing factors (AOR 16.3; 95% CI 5.94-44.81) Patient contributing factors (AOR: 7.1; 95% CI 2.45-20.48)
Wijlaars 2016	All-cause	≤30-day & 31-day to 2-year UHRs	Age; Diagnosis at admission	Underlying chronic conditions (OR=1.93; 95%CI 1.89-1.99) CYP with underlying chronic conditions (OR: 1.93, 95% CI 1.89 to 1.99) Girls (OR: 1.04, 95% CI 1.02 to 1.05) More deprived CYP (most deprived compared with least deprived, OR: 1.06, 95% CI 1.03 to 1.09)
Khan 2015	All-cause	30-day UHRs (DHR)	Age; Gender; Race/ethnicity; Insurance status; CCI; CCI counts; LOS; Hospital profile (children vs. nonchildren's hospital; Teaching vs. nonteaching; Annual hospital pediatric volume; Hospital location;	Private insurance (OR=1.14; 95%CI 1.04-1.24) CCI for Mental disorder (OR=1.33; 95%CI 1.13-1.56) CCI for nervous system (OR=1.37; 95%CI 1.20-1.57) CCI for circulatory system (OR=1.20; 95%CI 1.00-1.43) Admission to a non-children's hospital (OR=1.62; 95%CI 1.01-2.60)
Auger 2015	All-cause	30-day UHRs	Age; Gender, Race/ethnicity; Source of admission; Insurance; LOS; CCCs; Technology dependency; Weekend admission; Weekend discharge;	Weekend discharge (OR=1.09; 95% CI 1.004-1.18)
Coller 2013	All-cause	30-day UHRs	Patient demographics (Gender; Age; Race/Ethnicity; Language; Payer/Insurance); Illness severity; Documentation of primary care provider(PCP) follow-up plans at discharge	Age 15-18 years old (OR=1.42; 95%CI 1.02-1.96) Public insurance (OR=1.48; 95%CI 1.20-1.83) Illness severity 4 vs 1(OR=6.88; 95% CI 4.99-9.99) Asian (OR=1.46; 95% CI 1.01-2.12) PCP documentation of follow-up plans (OR=4.52; 95% CI 1.01-20.3)
Berry 2011	All-Cause	365-day UHRs	Age; Race/ethnicity; Insurance status; Complex chronic condition (CCC) Technology assistance	CCC (OR=5.61; 95%CI 5.45-5.78) Public insurance (OR=1.36; 95%CI 1.33-1.40) Technology assistance (OR=2.85; 95%CI 2.74-2.96) Non-Hispanic black race (OR=1.65; 95%CI 1.59-1.70)

Feudtner 2009	All-cause	365-day UHRs	Age; Gender; Race/Ethnicity; Payer; CCC Diagnosis; LOS; Season; Disposition; Past Admission; Time since past admission; Past CCC Diagnoses; Past Dispositions	Female (Male as reference OR=0.94) Older age (15-18years as reference; younger age OR=0.79-0.87) Public insurance (OR=1.31; 95%CI 1.27-1.35) Black race (OR= 1.5; 95%CI1.5-1.59); CCC (OR= 2.39-5.24) Number of past admission (4+ as reference; 0-3 OR=0.04-0.4) LOS > 14 days (15+ as reference; <14 OR= 0.29-0.81) Time since past admission (shorter the greater risk)
Beck 2006	All-cause	30-day UHRs	Age; Gender; Number of diagnoses; LOS; Procedure during index admission; In-hospital complication; Hospital admission within 6 months before index admission	Number of diagnoses (>1) (OR=1.18; 95%CI 1.09-1.27) In-hospital complications (OR=1.43; 95%CI 1.16-1.5) Hospitalisations in the previous 6months (OR=3.93; 95%CI 3.58-4.3)
Surgical Procedure Related UHRs (20)				
Brown 2017	General surgical admissions	7-; 14-; & 30- day UHRs	Hospital-level factors (Volume; LOS; %ICU cases; Mean ICU days; Complication rate); Patient variables (Gender; Complications; Type of admission; Surgery specialties; Age; LOS	High volume centres (OR=1.06; 95% CI 1.04-1.08) Neurosurgery (OR=2.09; 95% CI 1.46-2.99) Spinal surgery (OR=2.25; 95% CI 1.36-3.71) LOS (8-14 days) (OR=8.06; 95% CI 1.93-33.37) LOS (15-30) (OR=7.91; 95% CI 1.84-33.94) LOS (30+days) (OR=13.96; 95% CI 3.23-60.40) Factors that Predisposed to UHR Age (9-12 Years) (OR=0.52; 95% CI 0.33-0.80) Orthopaedic surgery (OR=0.51; 95% CI 0.29-0.88) Trauma (OR=0.31; 95% CI 0.17-0.55)
Vo 2017	All Surgeries	30-day UHRs	Age; Gender; ASA; Race; Surgical specialty; Admission status; Urgency (Emergency vs. Elective); Prematurity; CHD; Postoperative complication (Neurological, renal, wound, cardiac, bleeding, or pulmonary)	Presence of CHD (OR=1.66; 95% CI 1.31-2.11) ASA>=3 (OR=1.9; 95% CI 1.8-2.0) >1 Postoperative complication (OR=3.14; 95% CI 2.92-3.34) Admission status (Inpatient vs. outpatient) (OR=3.5; 95% CI 3.3-3.7)
Richards 2016 USA	All Surgeries	30-day UHRs	Hospital service (specialties); Ethnicity; LOS; ASA Class; Operating room (number); Surgical location; Time between scheduled start and actual; Duration of operation; Discharge time (Mon to Friday -7am-12pm; 12pm-5pm; 5pm-11pm; Weekend and holiday 7am-12pm, 5pm-11pm; 11pm-7am); Previous admission; Previous emergency department visit; Distance travelled; Surgical division (specialties); Surgeries per 1st encounter; Procedures in 1st surgery; Bed transfers in 1st encounter; Patient age Case level; Add-on operation; Surgical case day of week; Patient gender; Patient race; Patient's primary language; Interpreter required; Operation start time; Nonoperative time; Actual vs expected in room time; Set-up time; Discharge department; Discharge day of the week; Emergency vs planned admit; Casper alert; Payer	Hispanic (OR=1.16; 95% CI 1.04-1.29) ASA Class II (OR=1.29; 95%CI 1.14—1.46) ASA Class III (OR=1.87; 95% CI 1.62-2.16) ASA Class IV (OR=2.00; 95% CI1.58-2.53) Discharge time: Mon to Fri 12pm-5pm (OR=1.25; 95% CI 1.10-1.41) Mon to Fri 5pm-11pm (OR=1.25; 95% CI 1.08-1.46) Weekend and holiday 7am-12pm (OR=1.75; 95%CI 1.21-2.54) Weekend and holiday 12pm-5pm (OR=1.81; 95% CI 1.27-2.59) Weekend and holiday 5pm-11pm (OR=2.27; 95%CI 1.55-3.33) Previous admission (OR=1.35; 95%CI 1.22-1.49) Previous ED visit (OR=1.96; 95% CI 1.76-2.19) Hospital service: Gastroenterology (OR=2.16; 95%CI 1.61-2.90) Nephrology (OR=1.51; 95%CI 1.03-2.23)

				Rehabilitation medicine (OR=2.67; 95%CI 1.21-5.95) Bone marrow transplant (OR=2.37; 95%CI 1.54-3.65) Surgical location: Angiography/Interventional radiology (OR=10.14; 95%CI 2.36-43.51) Cardiac catheterization laboratory (OR=6.21; 95%CI 1.32-29.32) Gastroenterology suite (OR=3.16; 95%CI 0.48-21.02) Outpatient procedure centre (OR=3.67; 95%CI 0.76-17.62) Factors that Predisposed to UHR Distance travelled: Secondary (OR=0.82; 95%CI 0.75-0.90) Tertiary (OR=0.58; 95%CI 0.51-0.66) Alaska, Montana, Idaho (OR=0.63; 95%CI 0.52-0.75) Surgical division: Plastic surgery (OR=0.36; 95%CI 0.17-0.75)
Elias 2017	Cardiac surgery	1-year UHRs	Gender; Age at initial cardiac surgical admission; Age at surgery; LOS; Genetic diagnosis; Region; Procedure; Risk adjustment for congenital heart surgery (RACHS) scores	Older age at admission (OR=1.17; 95% CI 1.14-1.20) Trisomy-21 (OR=1.24; 95% CI 1.04-1.48) Northeast region (OR=1.33; 1.12-1.56) South region (OR=1.48; 95% CI 1.29-1.71) West region (OR=1.36; 95% CI 1.16-1.58) Transplant (OR=1.82; 95% CI 1.38-2.38) Shunt (OR=2.23; 95% CI 1.84-2.69) ASD (OR=1.34; 95% CI 1.19-1.15)
Polites 2017 USA	General & Thoracic surgery	30-day UHRs	Procedure group; Pre-operative acute renal failure; Neurologic comorbidity; SIRS/Sepsis/Septic shock within 48hours prior to Index procedure; Wound class; Operative time; Complications; Postoperative LOS	Procedure group Head & Neck (OR=2.4; 95% CI 1.48-3.89) Hepatobiliary (OR=1.69; 95% CI 1.17-2.44) Small & Large intestine (OR=1.59; 95% CI 1.33-1.90) Neurological comorbidity (OR=1.30; 95% CI 1.05-1.62) Pre-operative acute renal failure (OR=2.47; 95% CI 1.31-4.66) SIRS/Sepsis/Septic shock within 48hours prior to index procedure (OR=1.2; 95% CI 1.02-1.41) Dirty/infected wound (OR= 1.92; 95% CI 1.53-2.40) Operative time (60-140 minutes) (OR=1.21; 95% CI 1.06-1.39) Operative time (>140 minutes) (OR=1.51; 95% CI 1.26-1.81) Complications (OR=1.34; 95% CI 1.09-1.65) Postoperative LOS (2-4 days) (OR=2.17; 95% CI 1.84-2.57) Postoperative LOS (>4 days) (OR=3.12; 95% CI 2.60-3.74) Factors that Predisposed to UHR Thoracic procedure (OR=0.69; 95% CI 0.52-0.91)

Yu 2017 USA	Tracheostomy	30-day UHRs	Age at admission; Comorbidities associated with indication for tracheostomy (premature, Upper airway obstruction; CLD; Neuromuscular disease); Medical comorbidities (Discharge on home Positive Pressure Ventilation/PPV); Surgical comorbidities (Gastrostomy tube placement); Primary payer; LOS;	<p>Patients ≤ 12months</p> <p>Discharge on home PPV (OR=2.88; 95% CI 1.19-6.96)</p> <p>Gastrostomy tube placement (OR=0.42; 95% CI 0.19-0.96)</p> <p>Patients ≤ 12months</p> <p>Elder in age (OR=1.10; 95% CI 1.00-1.22)</p> <p>LOS (per additional day) (OR=1.01; 95% CI 1.00-1.02)</p> <p>Malignancy (OR=6.03; 95% CI 1.25-29.16)</p> <p>Factors that Predisposed to UHR</p> <p>Premature (OR=0.35; 95% CI 0.15-0.83)</p>
Murray 2016	ENT Surgeries	30-day UHRs	Age; Race/Ethnicity; Gender; Complex condition; ICU admission; LOS; Number of Diagnoses; Insurance type; Procedure Type; Geographic region	<p>Age (13-18 Years) (OR=1.12; 95% CI 1.03-1.21)</p> <p>Complex condition (OR=1.73; 95% CI 1.64-1.83)</p> <p>LOS ≥ 2days (OR=4.17; 95% CI 3.8-4.56);</p> <p>Number of Diagnoses =2 (OR=1.12; 95% CI 1.05-1.2);</p> <p>Number of Diagnoses =3-4 (OR=1.24; 95% CI 1.16-1.33);</p> <p>Number of Diagnoses ≥5 (OR=1.69; 95% CI 1.57-1.81);</p> <p>Public and others insurance (OR=1.33; 95% CI 1.28-1.39);</p> <p>Procedure Type</p> <p>BMT (OR=2.84; 95% CI 2.56-3.13)</p> <p>LARYNX (OR=2.6; 95% CI 2.38-2.58)</p> <p>FP(OR=1.03; 95% CI 0.92-1.15)</p> <p>GEN(OR=1.4; 95% CI 1.26-1.54)</p> <p>SINUS(OR=1.7; 95% CI 1.5-1.93)</p> <p>TA(OR=3.12; 95% CI 2.92-3.33)</p> <p>Geographic region (Non-West) (OR=1.01-1.45)</p>
Roxbury 2015	Surgical (Otologic)	30-day UHRs	Age; Race; Gender; Surgery (Tympanoplasty; Tympanomastoidectomy; Cochlear implantation)	<p>Tympanomastoidectomy (OR=5.5; 95% CI 1.52-20.34)</p> <p>cochlear implant (OR=3.54; 95% CI 0.85-14.77);</p> <p>< 3 years (4 times vs. older pts) (OR=4.38; 95% CI 2.00-9.60)</p>
Roddy 2017 USA	Spinal fusion	30- & 90-day UHRs	Gender; Race; Age; Diagnosis; Type of insurance; Surgical approach; LOS; Hospital volume; Discharge disposition; Number of comorbidities; Hospital type; Infection on index admission; Mechanical complication at index admission; Date of discharge (Weekend vs. weekdays); Level of spinal infusion	<p>Male (OR=1.28; 95% CI 1.07-1.54); Diagnosis (OR=1.66 to 2.99);</p> <p>Medicaid (OR=1.5; 95% CI 1.24-1.82);</p> <p>Anterior approach (OR=1.55; 95% CI 1.01-2.36);</p> <p>LOS ≤3days (OR=1.89; 95% CI 1.37-2.59);</p> <p>LOS (6-124days) (OR=1.66; 95% CI 1.35-2.02);</p> <p>Discharge to Short-term care hospital (OR=12.41; 95% CI 8.51-18.10); Discharge to Home health care (OR=1.44; 95% CI 1.09-1.91);</p> <p>≥ 1 Comorbidities (OR=1.21; 95% CI 1.01-1.50);</p> <p>Teaching hospital (OR=1.59; 95% CI 1.10-2.18);</p> <p>Infection on index admission (OR=2.12; 95% CI 1.22-3.69);</p> <p>Mechanical complication (OR=3.79; 95% CI 1.71-8.39)</p>
Vedantam 2017	Epilepsy surgery	30-day UHRs	Age; Gender; Race; Procedure; ASA classification; LOS; Weight category; Comorbidities; Discharge destination	Hemispherectomy (OR=4.11; 95% CI 1.48-11.42)

Chern 2014	Shunt surgery	30-day UHRs	Demographic (Age; Primary language other than English; Ethnicity/ Caucasian); Social-economic (Atlanta zip codes; Income levels in \$10,000s; Medicaid payee); Clinical characteristics (ED admission; PICU admission; NICU admission; After-hour op; op length >70 mins; VAS op; Externalized shunt/EVD; Subdural/cyst shunt; Spina bifida; New shunt; OS ≥3 days)	After hour surgery (OR=1.45; 95% CI 1.01-2.09)
Sarda 2014	Non-shunt surgery	30-day UHRs	Demographic (Age, English as primary language; Ethnicity; Social-economic (Household income per zip code; Atlanta metropolitan zip codes; Medicaid/Medicare as the primary payee) Clinical characteristics (LOS; Procedure length; Admission from ED before index non-shunt surgery; PICU admission; NICU admission; surgery started after 3 p.m. & before 7 a.m. ; Minor procedures vs. Major procedures)	Longer LOS (≥3days) (OR=1.01; 95% CI 1.00-1.01); NICU admission (OR=3.54; 95% CI 1.54-8.13); Minor procedures (OR=2.86; 95% CI 1.53-5.34); Procedure starts after 3pm (OR=1.77; 95% CI 1.11-2.81);
Minhas 2016	Spinal Surgeries	30-day UHRs	Age; Gender; Weight; Diabetes; Premature birth; Ventilator requirement; Asthma; CF; CLD; Oxygen requirement; Tracheostomy; Structural pulmonary abnormality; Oesophageal/GI disease; Hepatobiliary/pancreatic disease; Cardiac risk factors; History of cerebrovascular event; CP; Childhood malignancy; CNS tumour; Impaired cognition; History of seizure; Structural CNS abnormality; Neuromuscular disorder; History of intraventricular haemorrhage; Immunity disorder; Chronic steroid use; Bone marrow disorder; History of organ transplant; Open wound; weight loss; Nutritional support requirement; Bleeding disorder; Haematological disorder; Chemotherapy; Preoperative sepsis; Preoperative inotrope requirement; Prior operation within last 30 days; Preoperative transfusion requirement; ASA≥3; Operative characteristics (Posterior fusion; Pelvic fixation; Progressive infantile scoliosis; Scoliosis; LOS >5d)	Obesity (OR=3.09; 95% CI 1.83-5.21) ; Impaired cognition for progressive infantile scoliosis (OR=10.08; 95% CI 2.78-14.23); ASA ≥3 (OR=5.92; 95% CI 1.02-10.74); Posterior fusion of ≥13 vertebrae for idiopathic scoliosis (OR=1.86; 95% CI 1.07-3.23); Pelvic fixation (OR=2.8; 95% CI 1.14-6.89)
Buicko 2017 USA	Laparoscopic Appendectomy	30-day UHRs	Type of appendicitis; Gender; Age; LOS; Household income; Type of insurance; Size of hospital; Type of hospital; Comorbidities	Perforated appendix (OR=2.3; 95% CI 1.88-2.81) Age <13Years (OR=1.24; 95% CI 1.01-1.53) LOS >7Days (OR=1.71; 95% CI 1.26-2.34) Metro teaching hospital (OR=1.28; 95% CI 1.03-1.58) Deficiency anaemias (OR=2.58; 95% CI 1.25-5.30) Fluid and electrolyte disorder (OR=1.57; 95% CI 1.12-2.21)
Cairo 2017a	Appendectomy	30-day UHRs	Day of discharge; Age; ASA classification; Gender; Race; Ethnicity	ASA class 3 (OR=1.78; 95% CI 1.18-2.70) Factors that Predisposed to UHR Female (OR=0.81; 95% CI 0.68-0.98)
Cairo 2017b	Laparoscopic Cholecystectomy	30-day UHRs	Gender; Age; BMI; Postoperative Diagnosis; Day of discharge (1-2 vs. Same day); Comorbidity; ASA classification; Indication for operation; Days from admission to surgery;	Hematologic comorbidity (OR=1.88; 95% CI 1.19-2.96) ASA 3 (OR=2.27; 95% CI 1.32-3.89) ASA 4 (OR=7.62; 95% CI 1.47-39.7) Factors that Predisposed to UHR Same-day discharge (OR=0.58; 95% CI 0.37-0.93)
Roth 2016	Circumcision	7-day UHRs	Age; Race; Insurance type	Public insurance (OR=1.44; 95% CI 1.07-1.94)

McNamara 2015	Surgical (Urology)	30-day UHRs	Age; Gender; BMI category; Operation time; Procedure count (1 vs. 2-5; vs. >5); Surgical risk index; Race/Ethnicity; Type of surgery; Primary diagnosis;	Longer operative time (OR=1.12; 95% CI 1.03-1.21); Previous procedures=2-5 (OR=2.16; 95% CI 1.10-4.16) Previous procedures >5 (OR=3.78; 95% CI 1.51- 9.45) Higher surgical risk score (OR=2.33; 95% CI 1.36-3.99)
Vemula-konda 2015	Surgical (Urology)	12-month UHRs	Patient demographics (Race/Ethnicity; Gender; Insurance); Clinical presentation (Disease severity; Age at surgery); Hospital characteristics (Census region; Any Urology fellowship; Hospital volume)	Early surgery (age at surgery < 1 Year) (HR=2.42; 95% CI 1.67-2.49)
Tahiri 2015	Plastic surgeries	30-day UHRs	Inpatient procedure; Gastrointestinal history; Cardia history; Central nervous system (CNS) history; Nutritional history; Congenital malformation; Wound contamination; Operative time (93-174 min vs. >175min); ASA class IV; Surgical complications; Medical complications; Relative value units (a measure of value used in the United States Medicare reimbursement formula for physician services)	Inpatients procedures (OR=1.57; 95% CI 1.03-2.40) Pre-op wound contamination (OR=2.33; 95% CI 1.35-4.02) Longer operative times (>175min) (OR=3.89; 95% CI 2.22-6.81) A higher ASA class (OR=7.70; 95% CI 1.48-40.08) Postop surgical complications (OR=6.94; 95% CI 3.70-13.0) Medical complications (OR=11.92; 95% CI 4.71-30.21)
General Medical Condition Related UHRs (16)				
Sacks 2017 USA	Cardiac conditions	30-day UHRs	Age; LOS; Diagnosis count; First weight; Last weight; Electrophysiology study; Surgery; ACE/ARB antihypertensive; Antiarrhythmic; Antibiotic; Anticoagulant; Beta-Blocker; Diuretic; Pulmonary antihypertensive; Gender; Season of discharge	Age < 1month (OR=1.74; 95% CI 1.01-3.01) Age (1-1Year) (OR=4.11; 95% CI 3.41-5.92) Higher diagnosis counts (OR=1.10; 95% CI 1.07-1.13) Factors that Predisposed to UHR Antibiotic (OR=0.73; 95% CI 0.53-1.00)
Chave 2017 Switzerland	Congenital Heart Disease	30-day UHRs	Gender; Surgery requirement; Age; Nationality (Swiss vs. Not Swiss); Type of disease; Canton of origin; LOS>14; Day of Discharge (Monday to Sunday)	CHD related UHR Live far from hospital (OR=2.96; 95% CI 1.56-5.61) Factors that Predisposed to UHR Had surgery (OR=0.49; 95% CI 0.25-0.97) LOS>14 (OR=0.42; 95% CI 0.20-0.91)
Mackie 2008	Congenital Heart Disease (CHD)	31-day UHRs	Patient-specific factors (Age; Gender; Severe CHD; ED visits ≤6 months; ≥2 outpatient visits ≤6 months; ≥2 CV specialist visit ≤6 months); Factors related to index hospitalization (LOS; Year of index hospitalization; CHD surgery or catheterization during the index hospitalization with or without ICU stay; Total number of diagnoses during index hospitalization; Index hospitalization in a Tertiary hospital; CV specialist/assessment; Discharge on Friday or Saturday)	<i>HR (95%CI) was illustrated via a Figure (no specific numbers were reported).</i> Significant variables are: Sever CHD lesion; Younger age; Friday or Saturday discharge; Having an ED visit within the preceding 6 months; LOS >14 days; Multiple (≥4) diagnoses
Nakamura 2017	Lower respiratory infections	30-day UHRs	Age; Gender; CCI; CCI counts	Male (OR=1.11; 95% CI 1.0-1.16) CCI of : Neoplasms (OR=2.86; 95% CI 2.21–3.70) Endocrine (OR=2.18; 95% CI 1.94–2.46) Diseases of blood (OR=1.76; 95% CI 1.57–1.96) Mental disorders (OR=1.47; 95% CI 1.29–1.68) Nervous system (OR=2.45; 95% CI 2.19–2.75) Circulatory system (OR=1.87 ; 95% CI 1.63–2.14) Respiratory system (OR=1.19; 95% CI 1.11–1.26) Digestive system (OR=2.01; 95% CI 1.82–2.21)

				<p>Genitourinary system (OR=2.05; 95%CI 1.47-2.86)</p> <p>Musculoskeletal system (OR=1.74 ; 95% CI 1.35–2.25)</p> <p>Congenital anomalies (OR=2.16 ; 95% CI 1.98–2.36)</p> <p>Factors influencing health status (OR=2.80 ; 95% CI 2.49–3.14)</p> <p>Factors that Predisposed to UHR</p> <p>Age (1-17Years) (OR=0.41-0.60)</p> <p>CCI count >3 body systems (OR=0.38 to 0.75)</p>
Veeranki 2017	Asthma	30-day UHRs	Age; Gender; Primary payer; County classification; Income quartiles based on median household income; Utilisation of emergency services; Weekend admission; Elective admission; Index hospitalization LOS; Bed size; Teaching status of the hospital; Hospital control/ownership; Discharge disposition	<p>Age (12-18) (OR=1.59; 95% CI 1.22-2.07)</p> <p>Central County classification (OR=1.50; 95% CI 1.00-2.24)</p> <p>Micropolitan (OR=2.146; 95% CI 1.36-4.45)</p> <p>LOS >4 days (OR=1.56; 95% CI 1.02-2.38)</p> <p>Urban non-teaching hospital (OR=2.11; 95% CI 1.03-4.32)</p> <p>Urban teaching hospital (OR=2.25; 1.16-4.439)</p> <p>Discharge to unfavourable/skilled facilities (OR=2.52; 95% CI 1.33-4.79)</p> <p>Pediatric CCC (OR=3.21; 95% CI 2.31-4.47)</p> <p>Factors that Predisposed to UHR</p> <p>Private payer (OR=0.69; 95% CI 0.59-0.95)</p>
Vicendese 2015	Asthma	28-day UHRs	Indoor sampling (Bedroom airborne fungus); Number of people in house; Pets; Frequency of vacuuming; Carpet; Vacuum cleaner; Bedding; Heating	<p>In children's bed room: Higher level of airborne Cladosporium (OR=1.68; 95% CI 1.04-2.72) & yeast (OR=1.52; 95% CI 0.99-2.34)</p> <p>Carpeted floors (OR=4.07; 95% CI 1.03-16.06); Synthetic doonas (OR=14.6; 95% CI 1.26-169.4); Frequent vacuuming using bagged cleaners (OR=15.7; 95% CI 2.82-87.2)</p>
Neuman 2014	Pneumonia	30-day UHRs	Age; Gender; Race/Ethnicity; Government payer; Distance to hospital; Household income; CCI; Asthma; Technology dependence; Number of hospitalization in previous year; Pneumonia-specific hospitalization in previous year; LOS; ICU stay; Complicated pneumonia	<p>All cause UHR</p> <p>Age <1month (OR=1.96; 95% CI 1.33-2.87); 1-12monts (OR=1.73; 95% CI 1.63-1.83); 13-18years (OR=1.01; 95% CI 0.91-1.11)</p> <p>CCIs (OR=3.01; 95% CI 2.82-3.21)</p> <p>Previous hospitalization 3+ (OR=4.60; 95% CI 4.22-5.01)</p> <p>LOS >7d (OR= 1.39; 95% CI 1.23-1.56)</p> <p>Complicated pneumonia (OR=1.32; 95% CI 1.11-1.56)</p> <p>Pneumonia-specific UHR</p> <p>Age <1month (OR=1.48; 95% CI 0.62-3.52); 1-12monts (OR=1.36; 95% CI 1.14-1.61); 13-18years (OR=1.18; 95% CI 1.00-1.39)</p> <p>CCIs (OR=1.84; 95% CI 1.69-2.01)</p> <p>Previous hospitalization 3+ (OR= 2.70; 95% CI 2.35-3.10)</p> <p>LOS 3-7d (OR= 1.05; 95% CI 0.96-1.16)</p> <p>Complicated pneumonia (OR=1.82; 95% CI 1.44-2.31)</p>
Vicendese 2014	Asthma	28-day & 1-year UHRs	Gender; Age; Season (Autumn vs. Winter vs. Spring vs. Summer vs. Grass pollen season <Oct-Jan>)	<p>28-day UHR: Female (OR=1.15; 95% CI 1.0041-1.32)</p> <p>Grass pollen season in boys (p=0.01)</p> <p>1-year UHR: Female (OR=1.11; 95%CI 1.05-1.19)</p>

Kun 2012	Chronic respiratory failure	1-year UHRs	Gender; Race/ethnicity; Reasons for Chronic respiratory failure; Comorbidities; Ventilator type; Hours of ventilator support; Initial disposition; Type of insurance	<i>Inconclusive findings</i>
McNally 2005	Preschool viral-wheeze	6-month UHRs	Age; Female; GA; Maternal smoking; History of eczema; or wheeze on exercise; Salbutamol inhaler only prescribed by GP; Prophylactic inhaled steroids; LOS; Minimum oxygen saturation in air; Salbutamol nebulisations during admission; Prednisolone given during admission	<i>Inconclusive findings</i>
Cohen 2000	Asthma	30-day UHRs	Gender; Race; Age; Type of admission; Month of admission; Previous history (Asthma admission; NICU admission; CLD/BHD; Other chronic disease; Exposure to smoke; Discharge medications	History of previous NICU admission (OR=5.2; 95% CI 1.7-15.4) Comorbidity with other chronic disease (OR=4.3; 95% CI 1.9-9.8) History of previous admission for asthma (OR=4.9; 95% CI 3.2-7.3)
Sobota 2012	Sickle Cell disease	30-day UHRs	Patient demographics (Age; Gender; Race; Sickle Genotype); Payer/Insurance; Hospitalization factors (LOS; Discharge day of the week and season); Co-morbidities (Asthma, Acute chest syndrome); Additional therapies/treatment (Corticosteroids, hydroxyurea, oxygen on the day of discharge, narcotic pain medication, simple and exchange transfusion; ICY are and ventilator support); APR-DRG severity score; Hospital factors (number of beds or number of sickle admission s during study period)	Age/each year (OR=1.06; 95% CI 1.04-1.07) Inpatient use of steroid (OR=1.48; 95% CI 1.09-2.02) Admission for pain (OR=1.53; 95% CI 1.24 -1.86)
Frei-Jones 2009	Sickle cell disease	30-day UHRs	LOS; Primary admission diagnosis; Primary discharge diagnosis; Pain & Management; Respiratory symptoms & use of steroid; Oxygen requirement; Fever; Follow-up (Appointment given; Seen in SCD-clinic for F/U)	No outpatient haematology F/U in within 30-days of discharge (OR=7.7; 95% CI 2.4-24.4); Asthma (OR=2.9; 95% CI 1.2-7.3); Oxygen requirement: on room air \leq 24 hours at discharge (OR=3.3; 95% CI 1.1-9.7); Disease severity with \geq 3 admissions in the previous 12 months (OR=7.3; 95% CI 2.8-18.9)
Slone 2008	ALL	28-day UHRs	Age at diagnosis; Absolute neutrophil count (ANC) at discharge; Absolute phagocyte count (APC) at discharge; Total WBC at diagnosis; LOS	Absolute neutrophil count (ANC) \leq 200/mm ³ at discharge (OR=3.3; 95% CI 1.42-7.73)
Braddock 2015	Complex chronic/ medical	7; 30; & 90 day UHRs	Type of insurance; Consult by critical care; Indwelling technology/device; Mobility support; Number of medication at discharge; LOS; Type of admission; APR-DRG (Nervous system; ENT/Craniofacial; All others); Service line (Neuroscience; other surgery; other medicine; all others); Sum of CCC diagnoses; Sum of physician specialties consulting	Presence of indwelling technology (OR=2.33-3.13); Increasing numbers of medications at discharge (OR=1.08-1.10); Nervous System APR-DRG diagnoses (OR=1.78-2.51)
Attard 2017	Gastrointestinal bleeding	30-day UHRs	Gender; Race; Urban/Rural; CCI; Gastrointestinal haemorrhage (GIH)symptoms; Blood transfusion (Red cell or Platelet); ICU stay; Hospital LOS (IQR); Day of EGD; Chronic liver disease; GIH present on admission; Sepsis; Shock; Pharmaceutical interventions; Diagnostic imaging; Surgical interventions	CCCs of 1 or 2 (OR=1.869; 95% CI 1.562-2.237) CCCs \geq 3 (OR=2.851; 95% CI 2.351-3.457) Chronic liver disease (OR=1.79; 95% CI 1.330-2.408) Receiving a PPI on the 1 st or 2 nd day of index admission (OR=1.368; 95% CI 1.151-1.625) Longer LOS – a 10% increase in LOS (OR=1.130; 95%CI 1.118-1.144) Factors that Predisposed to UHR Endoscopic procedures (OR=0.774; 95%CI 0.661-0.906)

				Meckel scan in the 1 st 3 days of index admission (OR=0.513; 95% CI 0.362-0.727)
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