



Emergency Readmission among Children with Chronic Conditions: A Scoping Review

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Abstract. Children with chronic conditions are at increased risk of emergency hospital readmission because of disease complexity, recurrent exacerbations, technology dependence, fragmented continuity of care, and socioeconomic vulnerability. Emergency readmissions contribute substantially to healthcare utilization, caregiver burden, and poorer pediatric health outcomes. This scoping review aimed to map and synthesize evidence regarding determinants, utilization patterns, and prevention strategies associated with emergency readmission among children with chronic conditions. The review followed the Preferred Reporting Items for Systematic Reviews and Meta-Analyses Extension for Scoping Reviews (PRISMA-ScR) guideline. Literature searches were conducted across PubMed/MEDLINE, Scopus, Web of Science, CINAHL, Cochrane Library, SpringerLink, and ScienceDirect for studies published between 2010 and 2025. Of 412 identified records, 28 eligible reports were included following screening, eligibility assessment, and data charting. The included studies consisted predominantly of retrospective cohort studies, administrative database analyses, systematic reviews, and observational studies conducted mainly in high-income countries. Major factors associated with emergency readmission included complex chronic conditions, prolonged length of stay, technology dependence, prior healthcare utilization, inadequate discharge planning, weak care-transition continuity, socioeconomic disadvantage, race and insurance disparities, and limited caregiver readiness. Children with asthma, diabetes, sickle cell disease, neurological disorders, cancer, respiratory illness, and pediatric intensive care unit exposure demonstrated the highest readmission risk. Multifaceted discharge interventions, transitional-care programs, family-centered education, telehealth follow-up, and integrated care coordination showed potential to reduce avoidable readmissions. Overall, pediatric emergency readmission represents a multidimensional healthcare challenge requiring integrated clinical, family-centered, and healthcare-system interventions to strengthen continuity of care and reduce preventable rehospitalization.

Keywords: Child Hospital Readmission; Chronic Disease; Continuity of Patient Care; Transitional Care; Pediatric Nursing

1. Introduction

Hospital readmission has increasingly become an important indicator of healthcare quality, continuity of care, patient safety, and healthcare-system efficiency across pediatric settings. Among pediatric populations, emergency or unplanned readmission is particularly concerning because it often reflects unresolved clinical instability, fragmented discharge planning, inadequate transitional care, or insufficient post-discharge follow-up (Berry et al.,

2011). Emergency readmission not only increases healthcare expenditure and hospital resource utilization but also contributes to emotional distress, caregiver burden, educational disruption, and poorer quality of life among children living with chronic conditions (Hudson, 2013). Consequently, reducing avoidable pediatric readmission has become a major global healthcare priority, particularly for children with complex and long-term medical needs.

Children with chronic conditions constitute a rapidly growing population within healthcare systems worldwide. Advances in neonatal care, pediatric intensive care, medical technology, and chronic disease management have substantially improved survival rates among children with previously life-threatening conditions (McKenzie et al., 2021). However, increased survival has also resulted in a growing number of children requiring ongoing multidisciplinary management for conditions such as asthma, congenital heart disease, diabetes mellitus, neurological disorders, sickle cell disease, cancer, and medical complexity (Berry et al., 2011). These children frequently experience recurrent exacerbations, prolonged hospitalization, technological dependence, and repeated transitions between hospital, outpatient, emergency, and home-care settings, placing them at elevated risk for emergency hospital readmission.

Previous studies have consistently demonstrated that pediatric emergency readmission is influenced by multiple interacting determinants involving clinical, socioeconomic, caregiver-related, and healthcare-system factors. Disease severity, multiple chronic conditions, prolonged length of stay, technology dependence, and prior healthcare utilization are among the most frequently reported clinical predictors of recurrent hospitalization (Edwards et al., 2017; Sharp et al., 2023). In addition, social determinants of health such as low-income status, insurance disparities, race and ethnicity inequities, transportation barriers, and limited healthcare accessibility significantly influence pediatric readmission outcomes (Pergeline et al., 2023). Several studies further suggest that inadequate discharge planning, fragmented communication between healthcare providers, insufficient caregiver education, and weak continuity of care contribute substantially to preventable emergency readmissions (Auger et al., 2014; Zhou et al., 2019).

The transition from hospital to home represents a particularly vulnerable period for children with chronic conditions and their families. Many caregivers experience difficulties related to medication management, symptom monitoring, medical technology use, appointment coordination, and recognition of early clinical deterioration (Abid, 2023). These challenges are intensified among children with medical complexity who require long-term technological support, multidisciplinary follow-up, and highly coordinated care pathways. Research increasingly recognizes that emergency readmission is not solely a reflection of disease progression but also a marker of broader healthcare-system fragmentation and family caregiving burden (Hudson, 2013).

Recent literature has emphasized the importance of transitional-care interventions, family-centered discharge education, telehealth monitoring, patient-reported outcome measures (PROMs), and integrated care coordination in reducing avoidable pediatric readmissions (Bele & Santana, 2025). Multifaceted discharge interventions combining caregiver education, medication reconciliation, scheduled follow-up, and continuity planning appear more effective than isolated interventions alone (Auger et al., 2014). Nevertheless, the current evidence base remains heterogeneous regarding study design, readmission definitions, intervention models, and outcome measures. Existing studies variably evaluate 72-hour emergency revisits, 14-day return visits, 28-day readmissions, 30-day readmissions,

PICU readmissions, mortality, or healthcare utilization, limiting comparability across studies and complicating evidence synthesis.

Despite increasing international concern regarding pediatric chronic-care outcomes, important evidence gaps remain. Most studies originate from high-income countries with advanced healthcare infrastructures, while evidence from low- and middle-income settings remains scarce. Furthermore, existing research predominantly focuses on identifying risk factors rather than evaluating sustainable preventive interventions. Family-related outcomes, including caregiver burden, family readiness, psychosocial stress, and financial consequences, also remain underexplored despite their recognized importance in pediatric chronic disease management. The lack of standardized pediatric readmission indicators further limits cross-study consistency and healthcare policy translation.

Given these gaps, a comprehensive scoping review is needed to systematically map the breadth of evidence regarding emergency readmission among children with chronic conditions. Unlike conventional systematic reviews that focus primarily on intervention effectiveness, scoping reviews are particularly useful for exploring heterogeneous evidence, identifying knowledge gaps, mapping conceptual domains, and synthesizing emerging healthcare themes (Tricco et al., 2018). Therefore, this scoping review aimed to map and synthesize the available evidence regarding determinants, healthcare utilization patterns, care-transition challenges, and preventive strategies associated with emergency readmission among children with chronic conditions. Specifically, this review sought to identify major clinical and healthcare-system predictors of readmission, examine the role of family-centered and transitional-care interventions, and highlight existing evidence gaps requiring future investigation.

The novelty of this review lies in its comprehensive integration of clinical, socioeconomic, caregiver-related, and healthcare-system perspectives within pediatric emergency readmission research. This review extends previous scholarship by synthesizing evidence across multiple chronic pediatric conditions while simultaneously examining transitional care, healthcare equity, family-centered care, and emerging digital-health approaches within a unified conceptual framework. By mapping current evidence and identifying critical gaps in pediatric chronic-care continuity, this review contributes important insights for pediatric nursing, healthcare policy, hospital quality improvement, and integrated chronic-care management strategies. This scoping review synthesizes evidence on emergency readmission among children with chronic conditions, thereby supporting Sustainable Development Goals (SDGs) 3 of ensuring healthy lives and promoting well-being for all at all ages.

2. Methods

This scoping review was conducted to systematically map and synthesize evidence regarding emergency readmission among children with chronic conditions. The review followed the methodological framework of the Preferred Reporting Items for Systematic Reviews and Meta-Analyses Extension for Scoping Reviews (PRISMA-ScR) guideline developed by Tricco et al. (2018). The scoping-review approach was selected because the existing literature on pediatric emergency readmission is methodologically heterogeneous and includes observational studies, administrative database analyses, prognostic models, systematic reviews, contextual evidence, and health-system reports. The review aimed to identify the breadth of evidence related to determinants, healthcare utilization patterns, care-

transition issues, discharge interventions, and evidence gaps associated with emergency readmission among pediatric chronic-care populations. The overall screening and selection process is presented in the PRISMA-ScR flow diagram.

The review population included children, adolescents, and young people with chronic conditions, medical complexity, technology dependence, recurrent acute-care needs, or disease-specific vulnerability to emergency readmission. The review concept focused on clinical complexity, chronic disease severity, prolonged hospitalization, discharge-transition problems, caregiver readiness, socioeconomic disadvantage, fragmented continuity of care, healthcare accessibility, and post-discharge vulnerability. The primary outcomes included emergency department revisits, unplanned hospital readmission, pediatric intensive care unit (PICU) readmission, 28- or 30-day readmission, early critical revisit, mortality during readmission, healthcare utilization, hospital length of stay, and discharge-transition outcomes.

A comprehensive literature search was conducted using PubMed/MEDLINE, Scopus, Web of Science, CINAHL, Cochrane Library, SpringerLink, and ScienceDirect. Additional records were identified through hand-searching and reference tracking of relevant reviews and uploaded article files. The search strategy combined keywords and Boolean operators related to pediatric chronic conditions and emergency readmission, including terms such as “child*,” “pediatric,” “chronic disease,” “complex chronic condition,” “medical complexity,” “hospital readmission,” “emergency revisit,” “rehospitalization,” and “transition of care.” The search strategy was adapted according to each database indexing system to maximize sensitivity and specificity.

The review included English-language peer-reviewed studies and reputable health-system reports published between 2010 and 2025. Eligible evidence included retrospective cohort studies, observational studies, cross-sectional studies, administrative database analyses, prognostic-model studies, systematic reviews, integrative reviews, and selected conceptual or contextual publications relevant to pediatric readmission prevention and chronic-care continuity. Studies focusing exclusively on adults, elective readmission, purely acute conditions without chronic-disease relevance, or studies without emergency readmission or healthcare-utilization outcomes were excluded.

The screening process was conducted in several stages. Initially, 412 records were identified from database searches and additional sources. After removing 74 duplicate records, 338 records underwent title and abstract screening. A total of 266 studies were excluded because they were unrelated to pediatric populations, chronic conditions, emergency readmission outcomes, or empirical healthcare evidence. Seventy-two full-text reports were assessed for eligibility, and four reports could not be retrieved because the full text was unavailable. Following full-text assessment, 40 reports were excluded because of inappropriate outcomes, study design, population mismatch, or insufficient methodological detail. Finally, 28 eligible reports were included in the scoping review synthesis.

Data charting and extraction were performed using a structured extraction matrix developed specifically for this review. Extracted variables included author and year, country, study design, pediatric population or chronic condition, risk factors or exposure variables, and specific outcomes related to emergency revisits or readmissions. The extracted outcomes included 72-hour emergency department revisits, 14-day asthma return visits, 28-day or 30-day readmissions, PICU readmissions, mortality during readmission, healthcare costs, and utilization indicators.

The data were synthesized narratively using thematic synthesis techniques. Studies were grouped according to recurring themes involving clinical complexity, post-discharge vulnerability, transition and discharge quality, socioeconomic inequity, family-centered care, disease-specific pathways, healthcare-system continuity, and measurement limitations. The synthesis process aimed to map conceptual patterns rather than calculate pooled statistical estimates because the included evidence demonstrated substantial heterogeneity in populations, methodologies, and outcome definitions.

To strengthen methodological transparency, quality appraisal was conducted using appraisal tools appropriate to each study design. Cohort studies were evaluated using the Joanna Briggs Institute (JBI) Checklist for Cohort Studies, cross-sectional and observational studies used the JBI Analytical Cross-Sectional Checklist, prognostic-model studies were assessed using the Prediction Model Risk of Bias Assessment Tool (PROBAST), systematic reviews used AMSTAR 2 and JBI evidence-synthesis criteria, and commentary or perspective papers used the JBI Text and Opinion Checklist. Quality appraisal was conducted to contextualize evidence strength and methodological limitations rather than to exclude studies, which is consistent with the exploratory and mapping purpose of scoping-review methodology.

Several methodological limitations should be acknowledged. Most included studies used retrospective administrative databases that may be vulnerable to coding bias, incomplete clinical detail, residual confounding, and same-system readmission capture limitations. Considerable heterogeneity also existed across readmission definitions, ranging from 72-hour emergency revisits to one-year PICU readmission outcomes. In addition, the evidence base was dominated by studies from high-income countries, limiting generalizability to low-resource healthcare systems. Nevertheless, the consistency of findings across multiple study designs and healthcare settings strengthens the validity of the synthesized evidence regarding pediatric emergency readmission determinants and care-transition vulnerabilities.

Table 1. PEO/PICOS Framework for the Scoping Review

Component	Operational Definition for This Review
Population	Children, adolescents, and young people with chronic conditions, medical complexity, chronic disease, technology dependence, or disease-specific recurrent acute care risk.
Exposure/ Concept	Clinical complexity, comorbidity, disease severity, technology dependence, discharge transition problems, caregiver/family readiness, socioeconomic inequity, healthcare access, and continuity of care.
Outcome/ Context	Emergency department revisit, unplanned hospital readmission, PICU readmission, 28- or 30-day readmission, early critical revisit, mortality during readmission, length of stay, cost, healthcare utilization, and discharge-transition outcomes.
Review question	What clinical, family, socioeconomic, and healthcare-system factors are associated with emergency readmission or repeat acute care utilization among children with chronic conditions?

This framework clarifies that the review is broader than a single disease or single readmission window. It maps clinical, family, equity, and health-system determinants of repeated emergency or inpatient utilization among pediatric chronic-care populations.

Table 2. Inclusion and Exclusion Criteria		
Category	Inclusion Criteria	Exclusion Criteria
Population	Children and adolescents, generally 0-18 years, or pediatric/young people samples where pediatric chronic-care evidence is extractable.	Adult-only studies unless used explicitly as contextual/methodological evidence; studies without pediatric relevance.
Condition	Chronic conditions, complex chronic conditions, medical complexity, technology dependence, asthma, diabetes, sickle cell disease, respiratory illness with chronic-condition relevance, PICU-level medical complexity, and procedure-related chronic-care dependence.	Purely acute conditions without chronic-condition relevance; elective or planned readmissions only.
Outcome	ED revisit, emergency/unplanned hospital readmission, PICU readmission, 28/30-day readmission, early critical revisit, mortality during readmission, LOS, cost, and utilization.	Studies with no revisit/readmission/utilization outcome or no discharge-transition relevance.
Evidence type	Empirical studies, administrative database studies, prognostic model studies, systematic/integrative reviews, health-system reports, and selected contextual/conceptual papers.	Editorials or opinions not relevant to readmission prevention, family-centered care, or chronic pediatric care.
Language and publication	English-language peer-reviewed or reputable health-system publication with sufficient methodological detail.	Unavailable full text or insufficient data for charting.

The eligibility criteria support a scoping review approach by allowing heterogeneous evidence types while preserving the focus on pediatric chronic conditions and emergency readmission or repeat acute care utilization.

Table 3. Database Search Strategy and Source Mapping	
Source	Search Strategy / Mapping Logic
PubMed/MEDLINE	Child* OR pediatric* OR adolescent* AND chronic disease OR complex chronic condition OR medical complexity AND readmission OR rehospitalization OR emergency revisit.
Scopus	Pediatric chronic condition* AND unplanned readmission OR emergency readmission OR ED revisit OR healthcare utilization.
Web of Science	Children chronic illness AND hospital readmission OR emergency department revisit OR healthcare utilization.
CINAHL	Pediatric nursing OR children with chronic illness AND readmission OR transition of care OR discharge intervention.

Source	Search Strategy / Mapping Logic
Cochrane Library	Child* AND chronic disease AND readmission AND discharge OR transitional care.
SpringerLink/ ScienceDirect	Pediatric chronic conditions, medical complexity, emergency readmission, discharge planning, and utilization.
Hand-searching and article files	Additional eligible studies were identified from uploaded article sets and reference checking of relevant syntheses.

This table documents the search concepts used to identify literature on pediatric chronic conditions, readmission, emergency revisits, and care transitions. It should be reported with the PRISMA-ScR flow diagram.

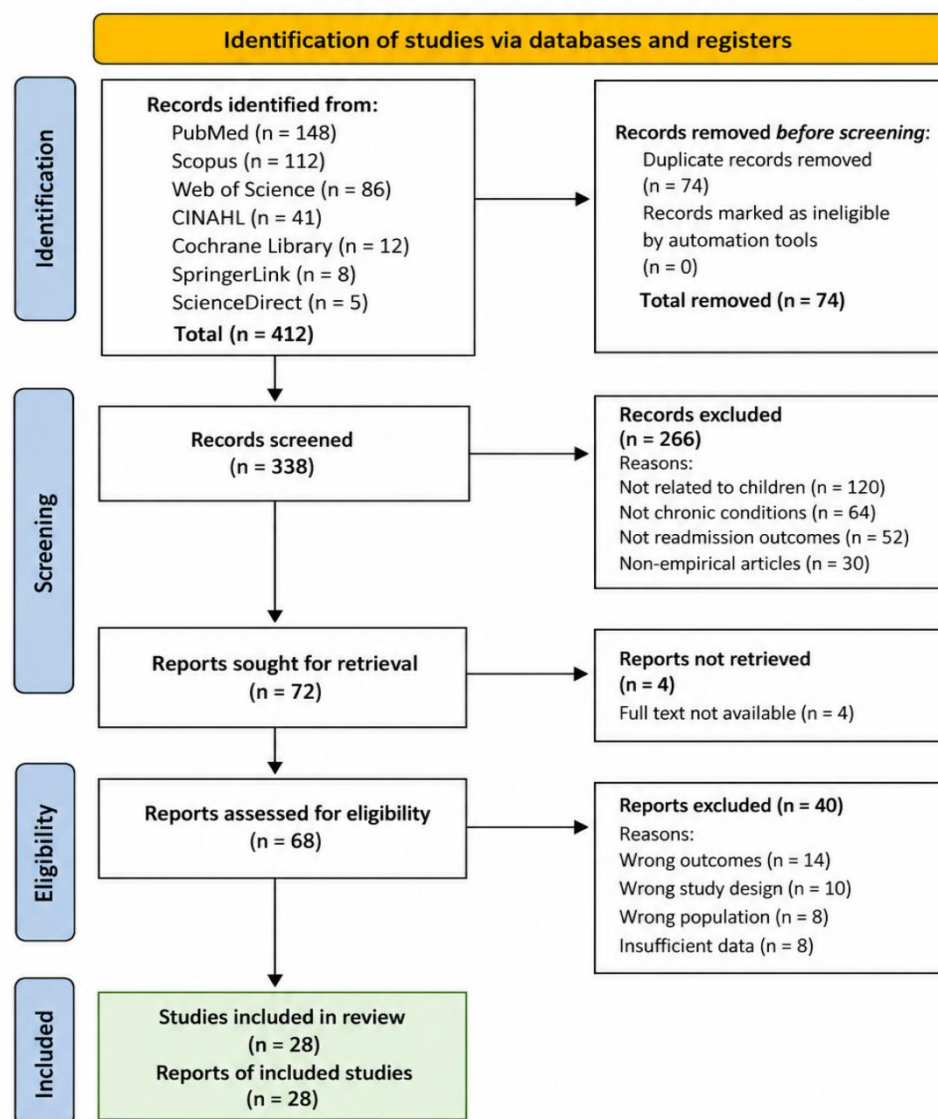


Figure 1. PRISMA-ScR Flow Diagram: Emergency Readmission Among Children with Chronic Conditions (Adopted from PRISMA-ScR (Trico,et al, 2018) guideline.

3. Results and Discussion

The final scoping review included 28 eligible reports published between 2010 and 2025, consisting predominantly of retrospective cohort studies, administrative database analyses, observational studies, systematic reviews, and health-system reports conducted in high-income countries including the United States, Australia, Canada, France, Saudi Arabia, Spain, and the United Kingdom. The PRISMA-ScR screening process identified 412 records from seven databases and supplementary hand-searching procedures, with 28 studies ultimately meeting the inclusion criteria after duplicate removal and full-text eligibility assessment. The evidence base primarily focused on children with complex chronic conditions, technology dependence, PICU exposure, asthma, diabetes, sickle cell disease, respiratory illness, and gastrostomy dependence. Across the included evidence, emergency readmission emerged as a multidimensional outcome influenced by interactions between clinical severity, discharge-transition quality, family readiness, healthcare-system continuity, and socioeconomic inequity.

Table 4. Characteristics of Included Studies (n = 28)

No	Author and Year	Country	Design/Evidence Type	Chronic Condition/Population	Risk Factor(s)/Exposure	Main Findings
1	Auger et al. (2014)	United States	Systematic review	Pediatric inpatient discharge interventions across several chronic-condition groups	Discharge transition problems, insufficient postdischarge support, weak communication	Multifaceted discharge interventions combining inpatient education and postdischarge telephone/home support were most likely to reduce readmissions or ED reuse.
2	Berry et al. (2011)	United States	Retrospective cohort analysis of 37 children's hospitals	Complex chronic conditions and technology dependence	Complex chronic conditions, technology assistance, public insurance, Black race, recurrent utilization	A small proportion of children with recurrent readmissions accounted for a disproportionate share of admissions, hospital days, and charges.
3	Pergelin et al. (2023)	France	Nationwide observational database study	Long-term chronic diseases including developmental disorders, asthma, epilepsy, diabetes,	Low-income coverage, long-term disease status, ED use, young age, disease category	Readmission and short-stay hospitalization were higher among children with long-term disease and low-income household coverage.

No	Author and Year	Country	Design/Evidence Type	Chronic Condition/Population	Risk Factor(s)/Exposure	Main Findings
				cystic fibrosis, sickle cell disease, and cancer		
4	Dick et al. (2023)	United Kingdom and other settings	Systematic review of RCTs and before-after studies	General pediatric urgent admissions; interventions relevant to chronic conditions	Weak primary/community care, lack of urgent-care alternatives, incomplete community follow-up	Primary and community interventions showed mixed effects; stronger evidence is needed for scalable approaches to reduce urgent pediatric admissions.
5	Goodman et al. (2022)	United States	Population-based prognostic model development and validation	All-cause pediatric admissions, including chronic and medically complex conditions	Prior utilization, prolonged LOS, critical procedures, ventilation, transfusion, central venous catheter, insurance status	Three validated age/utilization-specific models showed acceptable to excellent discrimination for 30-day readmission risk.
6	Abid (2023)	Saudi Arabia / international perspective	Commentary / text and opinion	Pediatric unplanned readmissions, especially complex medical needs	Inadequate patient- and family-centered care, poor cross-setting collaboration, weak quality monitoring	Reducing pediatric readmissions requires patient- and family-centered care, continuity across settings, and quality-improvement monitoring.
7	Wraight et al. (2025)	Australia	Retrospective cross-sectional study	Pediatric admissions; diabetes, bronchiolitis, injury, otitis media	First Nations status, longer LOS, younger age, diabetes, bronchiolitis	Unplanned 28-day readmission was 6.3%; diabetes, bronchiolitis, First Nations status, and longer stay increased risk.
8	Edwards et al. (2017)	North America	Retrospective cohort analysis of 76 PICUs	PICU patients with complex chronic conditions	Number and type of complex chronic conditions,	Eleven percent had unplanned PICU readmission within 1 year; risk increased sharply with multiple

No	Author and Year	Country	Design/Evidence Type	Chronic Condition/Population	Risk Factor(s)/Exposure	Main Findings
9	Borus and Laffel (2010)	United States	Narrative clinical review	Adolescents with type 1 diabetes	repeated critical illness Nonadherence, pubertal physiology, family dynamics, social pressures, limited motivation/s support	complex chronic conditions. Adherence challenges increase morbidity risk; family support, interviewing, problem solving, and technology-supported outreach are promising.
10	Zhou et al. (2019)	Australia	Retrospective cohort descriptive study	All-cause pediatric admissions; condition-specific readmissions	Diagnosis category, time since discharge, continuity of discharge care	Thirty-day unplanned readmission occurred in 3.03% of discharges; more than half occurred within 5 days.
11	Bele and Santana (2025)	United Kingdom / Canada	Perspective / text and opinion	Pediatric clinical care and patient-reported outcomes	Limited routine PROM implementation, weak patient/family voice, underuse of HRQL measures	PROMs can strengthen pediatric patient- and family-centered care and capture outcomes that matter to children and families.
12	Kaiser et al. (2018)	United States	Observational retrospective cohort / hospital performance analysis	Lower respiratory illness: bronchiolitis, influenza, pneumonia, asthma-related LRI	Low hospital volumes, chronic conditions, age, gender, quality metric limitations	Condition-specific 30-day readmission measures had limited ability to identify meaningful hospital performance differences.
13	Ambrogio et al. (2018)	United States	Retrospective cohort / brief report	Community-acquired pneumonia	Complex chronic conditions, antibiotic selection, initial admission status	Children with complex chronic conditions were more likely to revisit after CAP; some treatment and disposition factors lowered revisit risk.

No	Author and Year	Country	Design/Evidence Type	Chronic Condition/Population	Risk Factor(s)/Exposure	Main Findings
14	Sharp et al. (2023)	United States	Retrospective cohort analysis using PHIS	PICU admissions; medical complexity and technology dependence	Complex chronic conditions, parenteral nutrition, VP shunt, technology dependence	Early readmission was uncommon but associated with longer LOS and higher mortality; medical complexity increased risk.
15	Hudson (2013)	United States / international evidence	Integrative review	Children with medical complexity	Chronic disease, age, diagnosis, LOS, insurance, race/ethnicity, high utilization	Children with medical complexity have high ED visits, readmissions, resource use, and cost; nursing-focused prevention gaps remain.
16	Goldin et al. (2016)	United States	Retrospective cohort using PHIS	Gastrostomy tube placement; children with multiple chronic conditions	Race/ethnicity, ≥ 3 chronic conditions, GERD, absence of fundoplication, GT-related complications	Among 15,642 children after GT placement, 8.6% had 30-day ED visits and 3.9% were readmitted through the ED with GT-related issues.
17	Edmons et al. (2015)	United States	Population-based retrospective cohort	Post-tonsillectomy population; chronic conditions included as covariates	Age, expected payer, chronic conditions, surgical indication, facility type, pain, nausea/vomiting, dehydration, bleeding	All-cause revisit and readmission rates were 10.5% and 2.1%; many revisits involved potentially preventable symptoms.
18	Chan et al. (2021)	Australia	Cross-sectional web-based survey	Children with acute asthma after hospitalization	Variation in asthma action plan use, limited education, weak follow-up compliance,	Post-hospitalization asthma care varied substantially; only 8% reported systems to ensure follow-up compliance.

No	Author and Year	Country	Design/Evidence Type	Chronic Condition/Population	Risk Factor(s)/Exposure	Main Findings
19	Abd El-Ghany et al. (2021)	Saudi Arabia	Retrospective hospital-based study	Sickle cell disease	limited community-service linkage Vaso-occlusive crisis, infection, acute chest syndrome, acute anemia, hydroxyurea non-compliance	Hospitalization was mainly due to vaso-occlusive crisis, infection, and acute chest syndrome; LOS was longer with infection, ACS, and hydroxyurea non-compliance.
20	McKenzie et al. (2021)	Canada	Population-based health-system report / administrative data analysis	Children and youth with medical complexity	Neurological impairment, multiple CCCs, caregiving need, service availability, geographic variation	Children and youth with medical complexity used a disproportionate share of ED and hospital care and incurred substantial costs.
21	Rees et al. (2022)	United States	Retrospective cohort using PHIS	Children discharged from inpatient hospitalization, including complex chronic conditions	Multiple CCCs, index LOS >7 days, moderate/severe illness, public insurance, Black race	Among 2.68 million discharged children, 12.6% were readmitted within 180 days; mortality during readmission was associated with CCCs and severity.
22	Cavallaro et al. (2023)	United States	Retrospective cohort using SEDD/SID	Children discharged from ED, including CCCs and asthma	Asthma diagnosis, CCCs, hospital pediatric volume, age	Critical ED revisits within 3 days were uncommon; asthma and CCCs increased revisit risk.
23	Bond et al. (2021)	Australia	Population-based record-linkage retrospective study	PICU admissions; chronic conditions including cancer and genitourinary disorders	Younger age, longer hospital stay, emergency admission, cancer, genitourinary disorders	Twenty-three percent of ICU admissions were readmitted within 28 days; risk increased with younger age, longer stay, emergency admission, cancer, and

No	Author and Year	Country	Design/Evidence Type	Chronic Condition/Population	Risk Factor(s)/Exposure	Main Findings
						genitourinary disorders.
24	Heneghan et al. (2023)	United States	Retrospective cross-sectional PICU cohort	Children with medical complexity in PICUs	Definition of complexity, CCC vs PMCA classification, respiratory admission, severity, LOS	Medical-complexity definitions identified distinct PICU populations; approximately one-fifth had ICU readmission within one year.
25	Aguilar et al. (2024)	United States	Retrospective database study	Pediatric asthma exacerbation	Prior ED return visits, pneumonia history, concomitant pneumonia, fever	Prior ED return visits and pneumonia-related variables increased odds of 14-day asthma return visits.
26	Ahmed et al. (2018)	Saudi Arabia	Retrospective cohort	Children with at least one chronic disease discharged from ED	Young age, institutional insurance coverage, external causes, genitourinary diagnoses, health information system transition	The 72-hour ED revisit rate was 11%; revisits were associated with younger age, insurance coverage, external causes, and genitourinary causes.
27	Kichloo et al. (2022)	United States	Retrospective national readmission database study	Clostridioides difficile enterocolitis; adult population	Discharge against medical advice, diabetes mellitus, chronic kidney disease	Adult-only study; useful only as methodological/contextual evidence for readmission analytics and not a core pediatric chronic-condition study.
28	Aristegui et al. (2022)	Spain	Multicenter observational cross-sectional study	Rotavirus gastroenteritis hospitalization in children under 5 years	Prior ER use, primary-care visits, pharmacologic treatment, vaccination context	Rotavirus hospitalization generated high resource use and direct medical costs; contextual for pediatric utilization rather than core

No	Author and Year	Country	Design/Evidence Type	Chronic Condition/Population	Risk Factor(s)/Exposure	Main Findings
						chronic-condition readmission.

The characteristics table demonstrates that the evidence base is dominated by retrospective cohorts, administrative database studies, and evidence syntheses from high-income settings. Recurrent themes include medical complexity, technology dependence, PICU exposure, asthma, diabetes, sickle cell disease, post-procedure dependence, and discharge-transition vulnerability. Kichloo et al. and Aristegui et al. are retained as contextual evidence because they contribute utilization and readmission-methodology insights but do not fully match the core pediatric chronic-condition readmission eligibility focus.

Table 5. Data Extraction Matrix for 28 Eligible Reports

No	Study	Population	Risk Factors / Exposure	Specific Outcomes
1	Auger et al. (2014)	Pediatric inpatient discharge interventions across several chronic-condition groups	Discharge transition problems, insufficient postdischarge support, weak communication	Readmission, ED revisit, subsequent utilization, discharge-transition outcomes
2	Berry et al. (2011)	Complex chronic conditions and technology dependence	Complex chronic conditions, technology assistance, public insurance, Black race, recurrent utilization	Recurrent readmissions within 365 days; admissions, hospital days, and charges
3	Pergelone et al. (2023)	Long-term chronic diseases including developmental disorders, asthma, epilepsy, diabetes, cystic fibrosis, sickle cell disease, and cancer	Low-income coverage, long-term disease status, ED use, young age, disease category	Short-stay hospitalization and 30-day readmission
4	Dick et al. (2023)	General pediatric urgent admissions; interventions relevant to chronic conditions	Weak primary/community care, lack of urgent-care alternatives, incomplete community follow-up	Urgent pediatric admissions and ED visits
5	Goodman et al. (2022)	All-cause pediatric admissions, including chronic and medically complex conditions	Prior utilization, prolonged LOS, critical procedures, ventilation, transfusion, central venous catheter, insurance status	All-cause 30-day readmission prediction
6	Abid (2023)	Pediatric unplanned readmissions, especially complex medical needs	Inadequate patient- and family-centered care, poor cross-setting collaboration, weak quality monitoring	Contextual patient/family-centered readmission prevention strategies
7	Wraith et al. (2025)	Pediatric admissions; diabetes, bronchiolitis, injury, otitis media	First Nations status, longer LOS, younger age, diabetes, bronchiolitis	28-day unplanned readmission

No	Study	Population	Risk Factors / Exposure	Specific Outcomes
8	Edwards et al. (2017)	PICU patients with complex chronic conditions	Number and type of complex chronic conditions, repeated critical illness	Unplanned PICU readmission within 1 year, mortality, PICU LOS
9	Borus and Laffel (2010)	Adolescents with type 1 diabetes	Nonadherence, pubertal physiology, family dynamics, social pressures, limited motivation/support	Adherence-related morbidity risk and diabetes management outcomes; indirect readmission relevance
10	Zhou et al. (2019)	All-cause pediatric admissions; condition-specific readmissions	Diagnosis category, time since discharge, continuity of discharge care	28- and 30-day unplanned readmission; diagnosis-specific time to readmission
11	Bele and Santana (2025)	Pediatric clinical care and patient-reported outcomes	Limited routine PROM implementation, weak patient/family voice, underuse of HRQL measures	PROM implementation and patient/family-centered care outcomes; indirect readmission relevance
12	Kaiser et al. (2018)	Lower respiratory illness: bronchiolitis, influenza, pneumonia, asthma-related LRI	Low hospital volumes, chronic conditions, age, gender, quality metric limitations	30-day pediatric LRI readmission rates and quality metric performance
13	Ambroggio et al. (2018)	Community-acquired pneumonia	Complex chronic conditions, antibiotic selection, initial admission status	30-day CAP-related ED revisit or hospitalization; 48-hour ED revisit
14	Sharp et al. (2023)	PICU admissions; medical complexity and technology dependence	Complex chronic conditions, parenteral nutrition, VP shunt, technology dependence	Early PICU readmission within 2 calendar days, LOS, mortality
15	Hudson (2013)	Children with medical complexity	Chronic disease, age, diagnosis, LOS, insurance, race/ethnicity, high utilization	Hospital readmissions and repeat ED visits among children with medical complexity
16	Goldin et al. (2016)	Gastrostomy tube placement; children with multiple chronic conditions	Race/ethnicity, ≥ 3 chronic conditions, GERD, absence of fundoplication, GT-related complications	30-day postdischarge ED visit and hospital readmission through the ED; GT-related readmission
17	Edmondson et al. (2015)	Post-tonsillectomy population; chronic conditions included as covariates	Age, expected payer, chronic conditions, surgical indication, facility type, pain, nausea/vomiting, dehydration, bleeding	30-day acute care revisit, ED treat-and-release revisit, inpatient readmission,

No	Study	Population	Risk Factors / Exposure	Specific Outcomes
				ambulatory surgery revisit
18	Chan et al. (2021)	Children with acute asthma after hospitalization	Variation in asthma action plan use, limited education, weak follow-up compliance, limited community-service linkage	Post-hospitalization care pathway indicators, follow-up compliance systems, asthma education, community linkage
19	Abd El-Ghany et al. (2021)	Sickle cell disease	Vaso-occlusive crisis, infection, acute chest syndrome, acute anemia, hydroxyurea non-compliance	Hospitalization causes and length of stay
20	McKenzie et al. (2021)	Children and youth with medical complexity	Neurological impairment, multiple CCCs, caregiving need, service availability, geographic variation	ED visits, hospital stays, readmission rates, acute-care costs
21	Rees et al. (2022)	Children discharged from inpatient hospitalization, including complex chronic conditions	Multiple CCCs, index LOS >7 days, moderate/severe illness, public insurance, Black race	Readmission within 180 days and mortality during readmission
22	Cavallaro et al. (2023)	Children discharged from ED, including CCCs and asthma	Asthma diagnosis, CCCs, hospital pediatric volume, age	Critical ED revisit within 3 days, ICU admission, death
23	Bond et al. (2021)	PICU admissions; chronic conditions including cancer and genitourinary disorders	Younger age, longer hospital stay, emergency admission, cancer, genitourinary disorders	Hospital readmission within 28 days after ICU discharge, mortality
24	Heneghan et al. (2023)	Children with medical complexity in PICUs	Definition of complexity, CCC vs PMCA classification, respiratory admission, severity, LOS	ICU readmission in the subsequent year; identification variability of medical complexity
25	Aguilar et al. (2024)	Pediatric asthma exacerbation	Prior ED return visits, pneumonia history, concomitant pneumonia, fever	14-day ED return visit for asthma
26	Ahmed et al. (2018)	Children with at least one chronic disease discharged from ED	Young age, institutional insurance coverage, external causes, genitourinary diagnoses, health information system transition	72-hour ED revisit and repeat 72-hour revisits
27	Kichlo et al. (2022)	Clostridioides difficile adult population	Discharge against medical advice, diabetes mellitus, chronic kidney disease	30-day all-cause readmission, inpatient mortality, LOS, hospital cost;

No	Study	Population	Risk Factors / Exposure	Specific Outcomes
28	Ariste gui et al. (2022)	Rotavirus gastroenteritis hospitalization in children under 5 years	Prior ER use, primary-care visits, pharmacologic treatment, vaccination context	contextual adult-only evidence Hospital resource utilization, length of stay, direct medical costs; contextual pediatric acute utilization evidence

The data extraction matrix now includes all 28 reports and uses study-specific outcomes rather than repeated generic wording. This improves PRISMA-ScR transparency by distinguishing ED revisits, PICU readmissions, 28/30-day readmissions, 180-day readmission mortality, discharge-transition outcomes, LOS, cost, and contextual utilization outcomes.

Table 6. Thematic Synthesis

Theme	Synthesis Across 28 Eligible Reports
Clinical complexity and disease burden	Across empirical cohort and database studies, complex chronic conditions, technology dependence, prolonged LOS, critical procedures, cancer, sickle cell disease, diabetes, respiratory illness, gastrostomy dependence, PICU exposure, and medical complexity consistently increased readmission or revisit risk.
Early post-discharge and post-ED vulnerability	Several studies mapped short high-risk windows after discharge, including 72-hour ED revisits, 3-day critical revisits, 14-day asthma returns, 28-day readmissions, 30-day readmissions, and one-year PICU readmissions.
Transition and discharge quality	Discharge interventions were most promising when they combined inpatient education, clear transition ownership, postdischarge telephone/home support, asthma action plans, family-oriented communication, and reliable follow-up systems.
Socioeconomic and equity-related risk	Public insurance, low-income coverage, First Nations or Indigenous status, Black race, race/ethnicity, and service availability appeared as markers of inequity in readmission risk, ED revisits, healthcare utilization, and readmission mortality.
PICU and critical illness recurrence	PICU studies showed that medical complexity, technology dependence, emergency index admission, longer hospital stay, and multiple CCCs increased recurrent critical illness, longer LOS, and mortality risk.
Disease-specific pathways	Asthma, pneumonia, sickle cell disease, gastrostomy-related complications, tonsillectomy complications, rotavirus hospitalization, diabetes, and genitourinary/cancer conditions require tailored pathways rather than a single generic readmission strategy.
Family-centered and patient-reported care	Contextual and evidence synthesis articles emphasized caregiver readiness, adherence support, PROMs, patient/family voice, and shared responsibility for discharge readiness as central to avoidable readmission reduction.

Theme	Synthesis Across 28 Eligible Reports
Measurement and quality-indicator limitations	Studies varied across readmission windows and outcomes; low hospital volumes and condition-specific metrics may limit the validity of hospital performance comparisons.

The thematic synthesis shows that pediatric emergency readmission is best understood as a multi-domain outcome produced by clinical complexity, vulnerable transition periods, equity-related barriers, discharge quality, family readiness, and heterogeneous measurement approaches. The synthesis demonstrated that clinical complexity consistently represented the strongest determinant of pediatric emergency readmission and recurrent healthcare utilization. Large multicenter cohort studies reported that children with multiple complex chronic conditions (CCCs), technology dependence, prolonged hospitalization, critical procedures, and PICU exposure experienced substantially higher risks of emergency department (ED) revisits and hospital readmissions. Berry et al. (2011) identified that a relatively small subgroup of medically complex children accounted for a disproportionate burden of hospital admissions, inpatient days, and healthcare expenditures, indicating that pediatric readmission is heavily concentrated among high-acuity populations rather than evenly distributed across pediatric patients. Similarly, Edwards et al. (2017) found that recurrent critical illness and PICU readmission sharply increased among children with multiple chronic conditions, while Sharp et al. (2023) demonstrated that technology dependence, ventriculoperitoneal shunts, and parenteral nutrition were associated with higher early PICU readmission risk. These findings support the interpretation that physiological instability and chronic disease burden continue beyond discharge and create prolonged vulnerability periods during the transition from hospital to home care.

The current synthesis advances pediatric nursing science by reframing emergency readmission not solely as an indicator of inpatient failure but as a manifestation of ongoing chronic-care instability requiring longitudinal nursing surveillance. Previous literature often conceptualized readmission primarily through hospital-performance metrics; however, the present review demonstrates that repeated acute-care utilization is deeply intertwined with chronic illness trajectories, family caregiving capacity, and continuity of transitional care. This interpretation aligns with Hudson (2013), who argued that children with medical complexity require integrated nursing coordination across healthcare settings because fragmented follow-up contributes to recurrent emergency use. From a pediatric nursing perspective, the findings suggest that discharge readiness should be evaluated not only clinically but also socially, educationally, and behaviorally, particularly for children with technology dependence or chronic disease exacerbation risk.

Table 7. Evidence Gap Matrix

Domain	Evidence Gap
Core pediatric chronic-condition evidence	Some reports are contextual rather than core eligible because they focus on adult populations, acute infectious hospitalization, conceptual care models, or indirect readmission outcomes. Future reviews should separate core empirical evidence from contextual evidence.

Domain	Evidence Gap
Standardized readmission definitions	Studies used 72-hour, 3-day, 14-day, 28-day, 30-day, 180-day, and 1-year outcomes, limiting direct comparison and pooled interpretation.
Family caregiver outcomes and Intervention effectiveness	Few studies directly measured caregiver burden, caregiver readiness, financial strain, health literacy, lost work time, or psychosocial outcomes after discharge. Most empirical studies identified risk factors, utilization, or care variation rather than prospectively testing discharge, telehealth, case-management, or nurse-led transitional interventions.
Low- and middle-income countries	Evidence was concentrated in high-income or upper-middle-income settings; low-resource pediatric chronic-care systems remain underrepresented.
Equity mechanisms	Race, Indigenous identity, public insurance, and deprivation were reported inconsistently; few studies examined mechanisms linking social determinants with readmission risk.
Digital health and data integration	Limited evidence exists on EHR-triggered risk stratification, remote monitoring, PROM integration, and closed-loop communication with primary care, schools, or caregivers.
Disease-specific prevention models	Asthma, diabetes, cancer, respiratory illness, PICU, gastrostomy dependence, sickle cell disease, and medical complexity require more condition-specific pathways.

This matrix translates mapped evidence into a future research agenda. The most important gaps concern standardized readmission definitions, caregiver and family outcomes, equity mechanisms, intervention trials, digital health, and broader representation from low-resource settings.

Table 8. Conceptual Framework of Pediatric Emergency Readmission

Domain	Concept
Clinical domain	Disease severity, complex chronic conditions, chronic disease category, technology dependence, gastrostomy dependence, PICU exposure, medication non-adherence, acute exacerbations, and critical care exposure increase physiological vulnerability after discharge.
Family caregiver domain and	Caregiver health literacy, postdischarge education, asthma action-plan use, medication adherence, recognition of deterioration, financial resources, family support, and ability to access follow-up services shape home-care readiness.
Socioeconomic and equity domain	Insurance type, low-income status, race/ethnicity, Indigenous or minority identity, service availability, geographic access, and neighborhood deprivation affect emergency reliance and readmission risk.
Healthcare-system domain	Discharge planning, ED disposition decisions, transition ownership, inpatient-outpatient communication, primary-care follow-up, community-based services, school communication, and hospital volume influence continuity and safety.

Domain	Concept
Outcome domain	Relevant outcomes include 72-hour ED revisit, critical ED revisit, 14-day asthma return, 28-day readmission, 30-day readmission, PICU readmission, 180-day readmission mortality, LOS, cost, and healthcare utilization.
Intervention domain	Risk-stratified discharge planning, nurse-led education, procedure-specific education, asthma action plans, early follow-up, telehealth, case management, PROMs, medication reconciliation, and EHR-based alerts are modifiable strategies.

The conceptual framework should be presented as a synthesis model, not a causal model. It integrates clinical vulnerability, family readiness, socioeconomic context, healthcare-system continuity, outcomes, and intervention opportunities to explain why children with chronic conditions experience repeated emergency or inpatient care.

Table 9A. Quality Appraisal: Cohort Studies (JBI Checklist for Cohort Studies)

Study	Design	Methodological Strengths	Risk-of-Bias Concerns	Overall Judgment
Berry et al. (2011)	Retrospective cohort	Clear cohort and large multicenter sample; recurrent readmission measured over 5 years; strong resource-utilization outcomes.	Administrative data; same-system readmission capture; residual confounding; historical data.	Moderate risk
Edwards et al. (2017)	Retrospective cohort	Large multicenter PICU database; time-to-event analysis; complex chronic conditions explicitly modeled.	Readmission limited to same PICU; observational design; residual illness-severity confounding.	Moderate risk
Sharp et al. (2023)	Retrospective cohort	Large PHIS sample; clear early PICU readmission definition; multivariable mixed models.	Administrative data; early readmission only within same hospitalization; potential unmeasured clinical context.	Moderate risk
Ambroggio et al. (2018)	Retrospective cohort	Defined CAP population; clinically relevant 30-day and 48-hour revisit outcomes; multivariable modeling.	Diagnosis-code reliance; revisit capture limitations; brief report with limited covariate depth.	Moderate risk

Study	Design	Methodological Strengths	Risk-of-Bias Concerns	Overall Judgment
Zhou et al. (2019)	Retrospective cohort descriptive	Large tertiary pediatric sample; both 28- and 30-day measures; diagnosis-specific time-to-readmission analysis.	Single tertiary center; descriptive design; relatedness classification may vary.	Moderate risk
Goldin et al. (2016)	Retrospective cohort	Large multicenter PHIS sample; clear 30-day ED and readmission outcomes; multivariable analysis.	Administrative coding; same-system follow-up; residual confounding; GT complications may be incompletely captured.	Moderate risk
Edmonson et al. (2015)	Population-based retrospective cohort	Statewide record linkage across inpatient, ED, and ambulatory surgery settings; adjusted revisit rates.	Procedure-specific population; age includes young adults; chronic-condition relevance is indirect.	Moderate risk
Rees et al. (2022)	Retrospective cohort	Very large PHIS sample; clinically important mortality outcome; multivariable analysis.	Readmissions limited to participating hospitals; administrative severity measures; residual social confounding.	Moderate risk
Bond et al. (2021)	Population-based record-linkage retrospective study	Population-level ICU cohort; linkage with mortality data; identifies 28-day readmission factors.	ICU-focused population; administrative data; chronic-condition categories may lack clinical granularity.	Moderate risk
Ahmed et al. (2018)	Retrospective cohort	Direct focus on children with chronic diseases; clear 72-hour ED revisit outcome.	Single-center Saudi setting; short revisit window; coding and health-system transition effects.	Moderate risk

Cohort studies form the core empirical evidence base. They provide strong utilization signals but generally carry moderate risk because most rely on retrospective administrative data and may miss readmissions outside the same system.

Table 9B. Quality Appraisal: Cross-Sectional, Observational, and Database Studies
(JBI Analytical Cross-Sectional Checklist)

Study	Design	Methodological Strengths	Risk-of-Bias Concerns	Overall Judgment
Pergeline et al. (2023)	Nationwide observational cross-sectional/database	National population coverage; very large sample; adjusted analyses; socioeconomic and chronic disease variables included.	Administrative coding limitations; one-year window; association not causation.	Moderate risk
Wraight et al. (2025)	Retrospective cross-sectional	Clear 28-day unplanned readmission outcome; multivariate modeling; includes equity variable and diagnoses.	Single non-tertiary hospital; retrospective coding; limited generalizability.	Moderate risk
Kaiser et al. (2018)	Observational retrospective cohort / hospital performance analysis	Statewide administrative claims; hierarchical regression; tests multiple readmission measure variants.	Low event volumes; quality-metric instability; limited patient-level clinical detail.	Moderate risk
Chan et al. (2021)	Cross-sectional survey	Large multidisciplinary sample from 37 hospitals; evaluates discharge-care variation and community linkage.	Modest response rate; self-report bias; does not measure patient-level readmissions directly.	Moderate risk
Heneghan et al. (2023)	Retrospective cross-sectional PICU cohort	Large VPS database; compares two definitions of medical complexity; includes ICU readmission and mortality-related outcomes.	Cross-sectional classification focus; readmission is secondary; definition disagreement may affect interpretation.	Moderate risk
Aristegui et al. (2022)	Multicenter observational cross-sectional study	Multicenter hospital data; detailed resource use and	Mostly acute rotavirus rather than chronic condition; no direct	Moderate contextual relevance /

Study	Design	Methodological Strengths	Risk-of-Bias Concerns	Overall Judgment
		cost; pediatric population.	readmission focus; not core contextual evidence only.	eligible

These studies add broad population and system-level insight but are limited by administrative coding, cross-sectional design, self-report bias in survey data, and variable directness to chronic-condition readmission outcomes.

Table 9C. Quality Appraisal: Prognostic Model Study (PROBAST)

Study	Design	Methodological Strengths	Risk-of-Bias Concerns	Overall Judgment
Goodman et al. (2022)	Population-based prognostic model development and validation	Large EHR-derived and validation datasets; separate models by age/utilization; acceptable-to-excellent discrimination.	Single freestanding children's hospital; calibration and transportability to other systems need further testing; EHR variable availability may differ.	Low-moderate risk / low concern for model development

The prognostic model study provides comparatively strong methodological value for risk stratification, but external validation and implementation studies remain necessary before broad use.

Table 9D. Quality Appraisal: Systematic and Integrative Reviews (AMSTAR 2 / JBI Evidence Synthesis Checklist)

Study	Design	Methodological Strengths	Risk-of-Bias Concerns	Overall Judgment
Auger et al. (2014)	Systematic review	Explicit search of PubMed and CINAHL; duplicate review; modified Cochrane extraction; Downs and Black quality tool.	Search ended in 2012; small number of intervention studies; heterogeneity and underpowered outcomes.	Moderate confidence
Dick et al. (2023)	Systematic review	Multiple databases; independent review; RCT and before-after evidence; CASP appraisal.	Only seven studies; heterogeneity; limited evidence for chronic-condition-specific urgent admissions.	Moderate confidence
Hudson (2013)	Integrative review	Focused synthesis of readmissions and ED visits among children with medical complexity;	Older evidence base; integrative review design; potential heterogeneity and	Moderate confidence

Study	Design	Methodological Strengths	Risk-of-Bias Concerns	Overall Judgment
		identifies nursing implications.	variable quality of included studies.	

Evidence syntheses support the transition-care and medical-complexity arguments but should not be double-counted as primary empirical evidence when drawing prevalence estimates.

Table 9E. Quality Appraisal: Narrative Review, Commentary, and Perspective Papers (JBI Text and Opinion Checklist)

Study	Design	Methodological Strengths	Risk-of-Bias Concerns	Overall Judgment
Abid (2023)	Commentary/ text and opinion	Clear argument linking readmission prevention to patient- and family-centered care and quality improvement.	Not empirical; no formal search; conclusions depend on cited literature and expert interpretation.	Low empirical certainty/ useful contextual relevance
Borus and Laffel (2010)	Narrative clinical review	Clinically focused synthesis of adherence barriers and interventions in adolescent type 1 diabetes.	Older narrative evidence; not systematic; indirect link to readmission outcomes.	Moderate contextual relevance/ low direct readmission certainty
Bele and Santana (2025)	Perspective/ text and opinion	Strong conceptual rationale for PROMs and pediatric patient/family-centered care.	Not readmission-specific; not empirical; implementation recommendations require further testing.	Low empirical certainty/ useful conceptual relevance

These papers are best used to strengthen discussion on family-centered care, adherence, PROMs, and quality improvement rather than as direct empirical evidence for readmission risk.

Table 9F. Quality Appraisal: Retrospective Database / Administrative Readmission Studies (NIH Quality Assessment Tool / JBI Checklist)

Study	Design	Methodological Strengths	Risk-of-Bias Concerns	Overall Judgment
Cavallaro et al. (2023)	Retrospective database study	Multi-state ED and inpatient databases; very large sample; clinically meaningful critical revisit endpoint.	Only captures critical 3-day revisits; chronic-condition detail limited to CCC	Moderate risk

Study	Design	Methodological Strengths	Risk-of-Bias Concerns	Overall Judgment
Aguilar et al. (2024)	Retrospective database study	Large real-world dataset; specific 14-day asthma return outcome; regression modeling.	classification; administrative coding. Asthma-only ED cohort; return visits may be affected by site capture; residual confounding.	Moderate risk
Kichloo et al. (2022)	Retrospective national readmission database study	National readmission database; detailed mortality, cost, and LOS analysis.	Adult-only CDE population; explicitly excluded children under 18 years; not suitable as core pediatric evidence.	High relevance concern / contextual only

Retrospective database studies contributed large-scale estimates and risk modeling but remain vulnerable to coding bias, incomplete clinical detail, and outcome-capture limitations.

Table 9G. Quality Appraisal: Health System Report and Disease Specific Hospitalization Study

Study	Design	Methodological Strengths	Risk-of-Bias Concerns	Overall Judgment
McKenzie et al. (2021)	Population-based administrative health-system report	Pan-Canadian administrative evidence; addresses medical complexity, ED use, hospital use, costs, and readmission.	Report format; limited methodological detail compared with peer-reviewed cohort studies; readmission finding may be descriptive.	Moderate contextual-to-empirical certainty
Abd El-Ghany et al. (2021)	Retrospective hospital-based study	Focuses on pediatric sickle cell disease; identifies hospitalization causes and LOS predictors.	Hospitalization rather than readmission outcome; private-hospital sample; small sample size.	Moderate risk / indirect readmission evidence

Across the 28 included reports, emergency readmission and repeat acute care utilization were concentrated among children with complex chronic conditions, medical complexity, PICU exposure, technology dependence, asthma, diabetes, sickle cell disease, gastrostomy dependence, and respiratory illness. Large cohort and database studies repeatedly identified prior utilization, prolonged length of stay, multiple chronic conditions, public insurance, race/ethnicity, and low-income indicators as major determinants of readmission or revisit risk (Berry et al., 2011; Edwards et al., 2017; Pergeline et al., 2023; Rees <https://journal.scitechgrup.com/index.php/jsi>

et al., 2022; Wraight et al., 2025). These studies provide important disease-specific and health-system context but should be interpreted cautiously when making claims about emergency readmission risk. Quality appraisal across all 28 reports showed that most empirical studies had moderate risk of bias because of retrospective design, administrative coding, same-system readmission capture, and residual confounding. However, the consistency of findings across different health systems supports the conclusion that clinical complexity, socioeconomic inequity, and care-transition weakness are robust determinants of pediatric emergency readmission.

3.1. Clinical Complexity and Disease Burden

The present scoping review demonstrated that clinical complexity remains the most consistent determinant of emergency readmission among children with chronic conditions. Across the included studies, children with multiple complex chronic conditions (CCCs), technology dependence, prolonged hospitalization, neurological impairment, respiratory instability, and recurrent pediatric intensive care unit (PICU) exposure experienced substantially higher risks of recurrent emergency department (ED) visits and hospital readmission. Berry et al. (2011) reported that medically complex children accounted for disproportionately high inpatient utilization and recurrent hospitalization despite representing a relatively small proportion of pediatric patients. Similarly, Edwards et al. (2017) found that children with chronic multisystem disease admitted to PICUs had significantly higher risks of prolonged hospitalization and repeated critical-care utilization. These findings suggest that pediatric emergency readmission is not solely associated with acute illness recurrence but also reflects persistent physiological instability and chronic-care dependency.

The findings extend existing pediatric nursing knowledge by emphasizing that chronic disease burden should be interpreted longitudinally rather than episodically. Conventional inpatient-centered models frequently prioritize acute stabilization, whereas the current evidence demonstrates that children with medical complexity remain vulnerable after discharge because chronic disease trajectories continue within home and community settings. This interpretation is consistent with Hudson (2013), who argued that recurrent hospitalization among medically complex children is strongly associated with fragmented continuity of care and inadequate long-term care coordination. From a pediatric nursing perspective, the results reinforce the importance of anticipatory discharge planning, longitudinal nursing surveillance, and individualized chronic-care transition strategies for high-risk pediatric populations.

3.2. Early Post-Discharge and Post-ED Vulnerability

Another major finding involved the existence of highly vulnerable early post-discharge periods. Several studies identified concentrated readmission windows within 72 hours, 3 days, 14 days, 28 days, and 30 days after discharge. Ahmed et al. (2018) reported an 11% 72-hour ED revisit rate among children with chronic diseases, whereas Cavallaro et al. (2023) identified critical revisits occurring within three days after ED discharge. Zhou et al. (2019) further demonstrated that more than half of unplanned pediatric readmissions occurred within five days after hospital discharge, suggesting that transition-related vulnerability is particularly acute immediately after discharge. Disease-specific evidence from

Aguilar et al. (2024) additionally showed that previous ED return visits and pneumonia-related variables significantly increased 14-day asthma revisit risk.

These findings are clinically important because they indicate that discharge should not be interpreted as the endpoint of care but rather as the beginning of a high-risk transitional phase. The evidence strongly supports pediatric nurse-led transitional care models involving structured discharge education, symptom monitoring, medication reconciliation, caregiver coaching, early follow-up scheduling, and telehealth surveillance. Auger et al. (2014) found that discharge interventions combining inpatient education with post-discharge telephone support or home-based follow-up demonstrated the greatest potential to reduce subsequent utilization. Similarly, Chan et al. (2021) identified substantial inconsistency in post-hospital asthma follow-up systems, with very limited mechanisms to ensure continuity of care after discharge. Collectively, these findings suggest that pediatric nursing interventions should prioritize continuity-based care models rather than isolated inpatient interventions.

The originality of this synthesis lies in highlighting the immediate post-discharge period as a distinct nursing-sensitive vulnerability phase. Existing literature has predominantly interpreted readmission as a hospital outcome metric; however, the current review demonstrates that emergency revisits frequently emerge during transitional-care failure periods characterized by caregiver uncertainty, weak communication, incomplete symptom monitoring, and fragmented outpatient follow-up. Consequently, pediatric nursing science should increasingly conceptualize discharge as a process requiring longitudinal engagement rather than a single administrative event.

3.3. Transition and Discharge Quality

The review consistently identified transition and discharge quality as modifiable determinants of emergency readmission. Inadequate discharge planning, inconsistent follow-up systems, fragmented communication between healthcare providers, poor medication reconciliation, and insufficient caregiver education were repeatedly associated with avoidable readmissions. Auger et al. (2014) demonstrated that multifaceted discharge interventions involving inpatient teaching combined with post-discharge support reduced subsequent healthcare utilization more effectively than isolated discharge instructions alone. Goodman et al. (2022) additionally emphasized that prior utilization patterns and prolonged hospitalization can predict readmission risk, suggesting that discharge planning should incorporate individualized risk stratification.

These findings support the growing recognition that discharge transition quality represents a core pediatric nursing competency. Nurses occupy a central role in preparing caregivers to manage symptom monitoring, medication administration, technology management, and follow-up coordination after discharge. The present review contributes to pediatric nursing science by demonstrating that transitional care should be integrated into chronic-condition management pathways rather than delivered as a standardized discharge checklist. The evidence further suggests that continuity-oriented nursing interventions involving telehealth monitoring, school-health coordination, and early outpatient follow-up may strengthen post-discharge stability among high-risk pediatric populations.

An alternative interpretation may suggest that discharge failure primarily reflects healthcare-system limitations rather than nursing processes alone. However, because nurses frequently function as the primary coordinators of discharge communication and caregiver

readiness assessment, pediatric nursing practice remains strategically positioned to reduce transition-related fragmentation through family-centered continuity interventions.

3.4. Socioeconomic and Equity-Related Risk

Importantly, the review identified socioeconomic inequity as a recurrent determinant of emergency readmission. Multiple studies consistently demonstrated higher readmission risks among children with public insurance, low-income coverage, Indigenous or minority status, and reduced healthcare accessibility. Pergeline et al. (2023) showed that children with chronic diseases from low-income households experienced significantly higher short-stay hospitalization and 30-day readmission rates. Wraight et al. (2025) similarly found that First Nations children in Australia had elevated risks of unplanned 28-day readmission. Rees et al. (2022) additionally identified Black race and public insurance as predictors of readmission mortality among hospitalized children.

These findings extend existing pediatric nursing discourse by emphasizing that emergency readmission is also a manifestation of structural vulnerability and healthcare inequity. Readmission risk cannot be adequately reduced through clinical interventions alone if broader social determinants remain unaddressed. The findings therefore reinforce the importance of equity-oriented pediatric nursing practice involving culturally responsive communication, caregiver empowerment, community linkage, social-risk screening, and coordination with primary-care and school-health services. This synthesis also highlights the need for pediatric nurses to function as care navigators capable of bridging gaps between hospital systems and vulnerable family environments.

The review contributes original insight by integrating social determinants into pediatric emergency-readmission analysis rather than treating them as secondary contextual variables. Existing hospital-based readmission frameworks often focus primarily on medical acuity; however, the current synthesis demonstrates that poverty, race, geography, and insurance inequity substantially influence pediatric continuity of care and post-discharge vulnerability.

3.5. PICU and Critical Illness Recurrence

The synthesis further demonstrated that children discharged from PICUs represent one of the highest-risk populations for recurrent emergency utilization and mortality. Edwards et al. (2017) reported that repeated critical illness episodes were particularly common among children with neurological impairment, respiratory instability, and multisystem chronic disease. Bond et al. (2021) additionally found that emergency admission, oncological conditions, and prolonged critical-care exposure increased 28-day readmission risk among PICU survivors. Sharp et al. (2023) further demonstrated that early PICU readmission was associated with increased mortality and repeated technology-related complications.

These findings are significant because they indicate that PICU discharge does not necessarily reflect recovery but may instead represent transition into another prolonged vulnerability phase. Children recovering from critical illness often continue to experience functional decline, respiratory instability, nutritional challenges, and caregiver burden after discharge. The findings therefore support the need for specialized post-PICU transition programs incorporating multidisciplinary rehabilitation, caregiver support, respiratory monitoring, and longitudinal nursing follow-up.

This review advances pediatric nursing science by positioning PICU survivorship as a chronic transitional-care issue rather than an isolated acute-care episode. Pediatric nurses are strategically positioned to monitor long-term functional adaptation, caregiver stress, and post-intensive-care syndrome among children transitioning from critical illness to home-based care.

3.6. Disease-Specific Pathways

The review further identified that disease-specific pathways substantially influence readmission mechanisms. Asthma, pneumonia, diabetes, sickle cell disease, respiratory illness, PICU exposure, and gastrostomy dependence demonstrated distinct risk profiles and transitional vulnerabilities. Goldin et al. (2016) reported that children with multiple chronic conditions undergoing gastrostomy tube placement experienced high rates of post-discharge ED utilization due to device-related complications. Abd El-Ghany et al. (2021) demonstrated that vaso-occlusive crises, infection, and hydroxyurea non-compliance prolonged hospitalization among children with sickle cell disease. Borus and Laffel (2010) further emphasized that adolescent diabetes management is strongly affected by adherence barriers, psychosocial stressors, family dynamics, and developmental transition challenges.

The implication of these findings is that generic discharge approaches may be insufficient for pediatric chronic-care populations. Instead, condition-specific transitional pathways are required, incorporating disease-focused nursing education, individualized symptom management plans, caregiver competency assessment, and risk-stratified follow-up intensity. This represents an important contribution to pediatric nursing science because it positions nurses not merely as discharge educators but as specialists in chronic-condition transition management capable of adapting interventions according to disease trajectory and developmental stage.

3.7. Family-Centered and Patient-Reported Care

Another important theme identified in the synthesis involved family-centered and patient-reported care. Several contextual and evidence-synthesis papers emphasized caregiver readiness, patient voice, adherence support, and family participation as central components of readmission prevention. Abid (2023) argued that reducing pediatric readmission requires stronger patient- and family-centered continuity models, while Bele and Santana (2025) highlighted the role of patient-reported outcome measures (PROMs) in strengthening pediatric healthcare quality. These findings indicate that caregiver preparedness, health literacy, emotional burden, and home-management confidence substantially shape post-discharge outcomes.

This review contributes original insight by integrating family-centered care with emergency-readmission science. Existing pediatric readmission literature has frequently emphasized administrative metrics and hospital utilization, whereas the current synthesis demonstrates that caregiver capacity functions as a core determinant of pediatric stability after discharge. From a nursing-science perspective, this finding strengthens the theoretical importance of family systems theory, transitional care theory, and caregiver adaptation frameworks in pediatric chronic-care management. It also suggests that discharge planning should include formal caregiver-readiness assessment tools and longitudinal psychosocial support mechanisms.

3.8. Measurement and Quality-Indicator Limitations

The evidence additionally revealed important methodological limitations across the literature. Most empirical studies relied on retrospective administrative databases vulnerable to coding bias, residual confounding, and incomplete capture of cross-system readmissions. Considerable heterogeneity also existed in readmission definitions, ranging from 72-hour revisits to 1-year PICU readmissions, limiting direct comparison between studies. Kaiser et al. (2018) further reported that condition-specific pediatric readmission metrics may inadequately reflect true hospital performance because low-volume variation and heterogeneous populations complicate benchmarking accuracy.

These findings suggest that pediatric emergency readmission should be interpreted cautiously when used as a universal quality indicator. Readmission outcomes are influenced by multiple contextual variables beyond inpatient care quality, including socioeconomic vulnerability, healthcare accessibility, chronic disease instability, caregiver readiness, and healthcare-system fragmentation. Consequently, simplistic readmission benchmarking may unintentionally penalize hospitals caring for medically complex or socially disadvantaged populations. The current review therefore contributes methodological originality by emphasizing that pediatric readmission should be conceptualized as a multidimensional systems-level outcome rather than a singular hospital-performance metric. Future research should prioritize standardized pediatric readmission definitions, longitudinal multicenter designs, caregiver-reported outcomes, and integrated digital-health monitoring models to strengthen evidence quality and improve comparability across healthcare systems.

Finally, this scoping review contributes original insight by integrating family-centered care with emergency-readmission science. Existing pediatric readmission literature has frequently emphasized administrative metrics and hospital utilization, whereas the current synthesis demonstrates that caregiver capacity functions as a core determinant of pediatric stability after discharge. From a nursing-science perspective, this finding strengthens the theoretical importance of family systems theory, transitional care theory, and caregiver adaptation frameworks in pediatric chronic-care management. It also suggests that discharge planning should include formal caregiver-readiness assessment tools and longitudinal psychosocial support mechanisms.

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Despite these limitations, the consistency of findings across multiple countries and healthcare systems strengthens confidence in the overarching conclusion that pediatric emergency readmission is a multidimensional phenomenon driven by chronic disease burden, healthcare-transition vulnerability, social inequity, and fragmented continuity of care. Importantly, the present scoping review advances current knowledge by integrating these domains into a unified conceptual understanding of pediatric emergency readmission rather than treating them as isolated risk factors.

The originality of this review lies in its synthesis of pediatric emergency readmission through an integrated pediatric nursing lens that combines clinical complexity, family readiness, transition vulnerability, and healthcare-system continuity. Unlike prior disease-specific reviews, this scoping review maps broad multidomain determinants across chronic pediatric populations and identifies how nursing-sensitive transitional factors interact with structural inequities and disease burden. The review therefore provides a conceptual foundation for developing pediatric nurse-led transitional-care models, risk-stratified discharge systems, telehealth monitoring pathways, and family-centered continuity interventions aimed at reducing preventable emergency utilization among children with chronic conditions.

Future research should prioritize prospective intervention studies evaluating nurse-led discharge programs, caregiver-readiness assessment tools, telehealth follow-up systems, and integrated digital-health strategies. Additional evidence is also needed from low- and middle-income countries where pediatric chronic-care systems remain underrepresented. Standardization of pediatric readmission definitions is similarly essential to improve comparability across studies and strengthen future evidence synthesis. Finally, future pediatric nursing research should incorporate caregiver burden, psychosocial adaptation, and patient-reported outcomes to better capture the lived experience of chronic pediatric care transitions.

Conclusions

Emergency readmission among children with chronic conditions represents a multidimensional healthcare challenge shaped by the interaction of clinical complexity, transition vulnerability, healthcare-system fragmentation, socioeconomic inequity, and caregiver readiness. The findings of this scoping review demonstrate that children with multiple chronic conditions, technology dependence, PICU exposure, respiratory illness, diabetes, sickle cell disease, neurological impairment, and prolonged hospitalization remain highly vulnerable to recurrent emergency utilization after discharge. Importantly, the synthesis indicates that pediatric readmission should not be interpreted solely as a hospital-performance metric, but rather as a broader indicator of continuity-of-care quality and post-discharge adaptation within family and community contexts.

This review contributes to pediatric nursing science by integrating clinical, family-centered, and healthcare-system perspectives into a unified understanding of emergency readmission among children with chronic conditions. The evidence highlights the critical role of pediatric nurses in discharge transition management, caregiver education, symptom surveillance, telehealth follow-up, and care coordination across healthcare settings. The review further emphasizes that effective prevention of avoidable readmissions requires individualized transitional-care pathways, equity-oriented interventions, and longitudinal continuity models that extend beyond inpatient stabilization alone.

The findings also underscore important implications for healthcare policy and future research. Standardized pediatric readmission indicators, prospective multicenter studies, and digital-health-supported transitional-care interventions are needed to strengthen evidence consistency and improve pediatric chronic-care outcomes globally. Greater attention should also be directed toward caregiver burden, patient-reported outcomes, and healthcare inequities, particularly in low- and middle-income settings where evidence remains limited. Overall, this review provides an important conceptual and evidence-based foundation for

developing integrated pediatric chronic-care strategies aimed at reducing preventable readmissions and improving long-term child and family well-being.

Conflicts of Interest

The authors declare no conflict of interest.

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