



# EVIDENCE SEARCH RESULTS

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|-------------------------------------|--|
| <b>Question/subject of request:</b> | Evidence base for high intensity use/frequent attenders under 18, nationally and globally. |
| <b>Date requested:</b>              | 28 <sup>th</sup> August 2024   |
| <b>Date completed:</b>              | 19 <sup>th</sup> September 2024  |
| <b>Compiled by:</b>                 | Cate Newell – Knowledge & Library Service Manager  |

## CITING THIS SEARCH

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The citation format is:

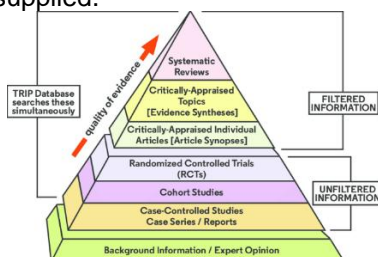
- Newell C., (2024). *Evidence summary: evidence based for high intensity users/frequent attenders aged 18 and under*. Taunton, UK: Somerset Foundation Trust Knowledge and Library Services.

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## Summary

As you had already identified a key systematic review on this topic ([Greenfield 2021](#)), I focused the search on what has been published since. The articles cover healthcare not only in the UK but also internationally.

Here is a summary of the key findings from the three [systematic reviews](#) identified:

### [Scott 2022](#)

- Study focused on frequent use of emergency medical services (EMS) rather than specifically in emergency departments.
- 12 papers included in the review from 7 countries.
- Paediatric frequent EMS users were:
  - More likely to use services for medical reasons rather than trauma
  - Such as: respiratory complaints, mental health and seizures.
- There was no consistency in definitions of either a paediatric patient, or frequent use.
- There is a broad range of reasons for frequent use, therefore a single intervention is unlikely to be effective at addressing the cause of frequent use – more research required.

### [Giannouchos 2021](#)

- Paediatric frequent emergency use in the United States.
- 15 studies included in the review.
- Most frequent paediatric emergency department users were:
  - Less than 5 years old
  - Had public health insurance
  - From disadvantaged areas
  - Having at least one chronic or complex conditions and history of hospitalisation
- Conclusion suggests that health systems should focus on educating caregivers and expanding access to providers in other settings.

### [Greenfield 2021](#)

- Participants were children younger than 21 years, attending hospital emergency departments frequently.
- 21 studies included.
- Frequent use defined as four or more visits a year.
- Frequent attenders were:
  - More likely to be less than 5 years old.
  - US – have public health insurance
  - More likely to be frequent users of primary care
  - Have long-term conditions.
  - Most common diagnoses were infections and gastroenteritis





- Conclusion: policies to reduce frequent attendance might focus on preschool children, and supporting primary care in responding to primary care oriented conditions.

In summary of the other studies (see – [General Articles](#)), the key indicators and characteristics of frequent attenders in children and young people appear to be:

- Age (younger children/infants more likely)
- [From lower income or deprived areas](#)
- [From less populated/rural areas](#)
- [Ethnicity](#)
- With [chronic health conditions](#) (e.g. respiratory such as asthma)
- With complex co-morbidities
- With [mental health conditions](#) (likely to be older children and YP)
- With limited access to [primary care services](#)
  - [Leigh 2020](#) explored the concept of integrating a GP into an emergency department, which had some positive impact.
- [Other factors](#) such as homelessness, child abuse/neglect.

I also found a selection of articles which discuss [parental factors](#) in frequent attendance, such as health literacy, knowledge of and access to primary care and parental psychological wellbeing, which may be of interest.

In terms of [tools, measures and management approaches](#), the article by [Seers 2024](#) describes a clinical prediction model for unplanned reattendance to the PED, which has been developed in the UK. The article by [Hedayioglu 2020](#) describes how a Frequent Service User Manager service was set up in West Kent, although this doesn't specifically mention children, it may have some useful learning points.

For general information and background, I have also included a report from the [British Red Cross](#) exploring high intensity use of accident and emergency services, and a summary from the [Health Equity Evidence Centre](#) on finding ways to better support people who frequently attend emergency departments. Neither of these specifically cover children and young people.

I hope this is helpful. Please do let us know if you need any further information.



The Knowledge & Library Service have a growing archive of completed evidence summaries on [inSPIRE](#) – the organisation's knowledge, research and evidence repository. You can browse the evidence summaries [here](#).

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Thank you.





# Systematic reviews

## [1. Paediatric frequent use of emergency medical services: a systematic review.](#)

**Authors:** Scott, Jason;Khanom, Ashrafunessa;Straw, Joanne;Strickland, Annette;Porter, Alison and Snooks, Helen

**Publication date:** 2022

**Journal:** Emergency Medicine Journal

**Abstract:** BACKGROUND: Frequent use of emergency medical services (EMS) is recognised to be a global phenomenon, although paediatric frequent use is poorly understood. This systematic review aimed to understand how paediatric frequent use of EMS is currently defined, identify factors associated with paediatric frequent use of EMS and determine effectiveness of interventions for paediatric patients who frequently use EMS. METHODS: Four electronic databases (Medline, CINAHL, Web of Science and PsycINFO) were searched to September 2022 for primary, peer-reviewed research studies published in English from January 2000. Studies were included that examined frequent use (>1 contact during study period) of EMS or other services with arrival via EMS. Paediatric patients were defined as : Four electronic databases (Medline, CINAHL, Web of Science and PsycINFO) were searched to September 2022 for primary, peer-reviewed research studies published in English from January 2000. Studies were included that examined frequent use (>1 contact during study period) of EMS or other services with arrival via EMS. Paediatric patients were defined as RESULTS: The search resulted in 4172 unique references, with 12 papers included in the review from 7 countries. Four were EMS studies, and eight Emergency Department with arrival via EMS. All studies used retrospective designs, with no interventional studies identified. Paediatric frequent EMS users were more likely to use services for medical reasons rather than trauma, including respiratory complaints, mental health and seizures, but data on gender and ethnicity were inconclusive and silent on socioeconomic status. There was no consistency in definitions of either a paediatric patient or of frequent use. CONCLUSION: The broad range of reasons for frequent use suggests that a single intervention is unlikely to be effective at addressing the causes of frequent use. There is a need for further research to better identify the underlying reasons for frequent EMS use among paediatric patients and to develop interventions in this population. Copyright © Author(s) (or their employer(s)) 2022. No commercial re-use. See rights and permissions. Published by BMJ.

Access or request full text: <https://libkey.io/10.1136/emered-2021-211701>

## [2. Frequent emergency department use in the paediatric population: A systematic literature review.](#)

**Authors:** Giannouchos, Theodoros V.;Washburn, David J.;Gary, Jodie C. and Foster, Margaret J.

**Publication date:** Feb ,2021

**Journal:** Journal of Evaluation in Clinical Practice 27(1), pp. 193–203

**Abstract:** OBJECTIVE: We systematically reviewed the literature on paediatric frequent emergency department (ED) users to identify and to synthesize characteristics and factors associated with frequent ED utilization among this population in the United States. METHODS: We searched Medline (Ovid), CINAHL (Ebsco), and Embase (Ovid) to identify all relevant studies after 1990. We focused on US studies analysing paediatric frequent ED (PFED) users excluding those focused on specific subgroups. Two reviewers independently selected articles and extracted data on predisposing, enabling, behavioural, need and reinforcing factors. RESULTS: Fifteen studies met the inclusion criteria. PFED users comprised 3% to 14% of all paediatric ED users and accounted for 9% to 42% of all paediatric ED visits in 11 studies that defined frequent use as four to six ED visits per year. Most PFED users were less than 5 years old who had public insurance coverage and a regular provider. Public insurance compared to private residency in disadvantaged areas, having at least one chronic



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or complex condition and a history of hospitalization, were associated with frequent use. Children who had a regular primary care provider were less likely to exhibit frequent ED use. **CONCLUSIONS:** Minimizing unnecessary ED visits by frequent utilizers is a quality improvement and cost-saving priority for health systems. Our findings indicate that many PFED users have greater healthcare needs and face barriers accessing care in a timely manner, even though some have regular providers. To better address the needs of this vulnerable group, health systems should focus on educating caregivers and expanding access to providers in other settings. Copyright © 2020 John Wiley & Sons, Ltd.

Access or request full text: <https://libkey.io/10.1111/jep.13382>

### **3. Characteristics of frequently attending children in hospital emergency departments: a systematic review**

**Authors:** Greenfield, Geva;Okoli, Olivia;Quezada-Yamamoto, Harumi;Blair, Mitch;Saxena, Sonia;Majeed, Azeem and Hayhoe, Benedict

**Publication date:** 2021

**Journal:** BMJ Open 11(10), pp. e051409

**Abstract:** Objective To summarise the literature on frequent attendances to hospital emergency departments (EDs) and describe sociodemographic and clinical characteristics of children who attend EDs frequently.

Setting Hospital EDs.

Participants Children <21 years, attending hospital EDs frequently.

Primary outcome measures Outcomes measures were defined separately in each study, and were predominantly the number of ED attendances per year.

Results We included 21 studies representing 6 513 627 children. Between 0.3% and 75% of all paediatric ED users were frequent users. Most studies defined four or more visits per year as a 'frequent ED' usage. Children who were frequent ED users were more likely to be less than 5 years old. In the USA, patients with public insurance were more likely to be frequent attenders. Frequent ED users more likely to be frequent users of primary care and have long-term conditions; the most common diagnoses were infections and gastroenteritis.

Conclusions The review included a wide range of information across various health systems, however, children who were frequent ED users have some universal characteristics in common. Policies to reduce frequent attendance might usefully focus on preschool children and supporting primary care in responding to primary care oriented conditions.

URL: <https://bmjopen.bmj.com/content/11/10/e051409>

## **General articles**

### **1. Examining the hospital costs of children born into relative deprivation in England**

**Authors:** Dale, Veronica;Gutacker, Nils;Bradshaw, Jonathan and Bloor, Karen

**Publication date:** -07-10 ,2024

**Journal:** Journal of Epidemiology and Community Health 78(8), pp. 493–499

**Abstract:** **OBJECTIVE:** To examine the association between being born into relative deprivation and hospital costs during childhood.

**DESIGN:** Retrospective cohort study.

**METHODS:** We created a birth cohort using Hospital Episode Statistics for children born in NHS hospitals in 2003/2004. The Index of Multiple Deprivation (IMD) rank at birth was missing from 75% of the baby records, so we linked mother and baby records to obtain the IMD decile from



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the mother's record. We aggregated and costed each child's hospital inpatient admissions, and outpatient and emergency department (ED) attendances up to 15 years of age. We used 2019/2020 NHS tariffs to assign costs. We constructed an additional cohort, all children born in 2013/2014, to explore any changes over time, comparing the utilisation and costs up to 5 years of age.

**RESULTS:** Our main cohort comprised 567 347 babies born in 2003/2004, of which we could include 91%. Up to the age of 15 years, children born into the most deprived areas used more hospital services than those born in the least deprived, reflected in higher costs of inpatient, outpatient and ED care. The highest costs and greatest differences are in the year following birth. Comparing this with the later cohort (up to age 5 years), the average cost per child increased across all deprivation deciles, but differences between the most and least deprived deciles appeared to narrow slightly.

**CONCLUSIONS:** Healthcare utilisation and costs are consistently higher for children who are born into the most deprived areas compared with the least.

**Access or request full text:** <https://libkey.io/10.1136/jech-2023-221175>

## 2. [Determinants of Persistent, Multi-Year, Frequent Emergency Department Use Among Children and Young Adults in Three US States.](#)

**Authors:** Giannouchos, Theodoros V.;Ukert, Benjamin;Pirrallo, Ronald G.;Smith, Jeremiah;Kum, Hye-Chung;Wright, Brad and Dietrich, Ann

**Publication date:** 2024

**Journal:** Academic Pediatrics 24(3), pp. 442–450

**Abstract: OBJECTIVE:** This study examines the factors associated with persistent, multi-year, and frequent emergency department (ED) use among children and young adults. **METHODS:** We conducted a retrospective secondary analysis using the 2012-2017 Healthcare Cost and Utilization Project State Emergency Department Databases for children and young adults aged 0-19 who visited any ED in Florida, Massachusetts, and New York. We estimated the association between persistent frequent ED use and individuals' characteristics using multivariable logistic regression models. **RESULTS:** Among 1.3 million patients with 1.8 million ED visits in 2012, 2.9% (37,558) exhibited frequent ED use ( $\geq 4$  visits in 2012) and accounted for 10.2% (181,138) of all ED visits. Longitudinal follow-up of frequent ED users indicated that 15.4% (5770) remained frequent users periodically over the next 1 or 2 years, while 2.2% (831) exhibited persistent frequent use over the next 3-5 years. Over the 6-year study period, persistent frequent users had 31,551 ED visits at an average of 38.0 (standard deviation = 16.2) visits. Persistent frequent ED use was associated with higher intensity of ED use in 2012, public health insurance coverage, inconsistent health insurance coverage over time, residence in non-metropolitan and lower-income areas, multimorbidity, and more ED visits for less medically urgent conditions. **CONCLUSIONS:** Clinicians and policymakers should consider the diverse characteristics and needs of pediatric persistent frequent ED users compared to broader definitions of frequent users when designing and implementing interventions to improve health outcomes and contain ED visit costs. Copyright © 2024. Published by Elsevier Inc.

**Access or request full text:** <https://libkey.io/10.1016/j.acap.2023.08.021>

## 3. [Predictors of Pediatric Frequent Emergency Department Use Among 7.6 million Pediatric Patients in New York.](#)

**Authors:** Anyatonwu, Sophia C.;Giannouchos, Theodoros V.;Washburn, David J.;Quinonez, Ricardo A.;Ohsfeldt, Robert L. and Kum, Hye-Chung

**Publication date:** 2022

**Journal:** Academic Pediatrics 22(6), pp. 1073–1080

**Abstract: OBJECTIVE:** This study examines the characteristics and factors associated with frequent emergency department (ED) utilization among the pediatric population. **METHODS:** We conducted a pooled cross-sectional secondary analysis using the Healthcare Cost and Utilization



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Project State Emergency and Inpatient Databases on ED visits to all hospitals in New York from 2011 to 2016 by patients aged 0 to 21. We used multivariable logistic and negative binomial regressions to investigate the predictors of multiple ED visits in the pediatric population. **RESULTS:** Overall, our study included 7.6 million pediatric patients who accounted for more than 12 million ED visits. Of those, 6.2% of patients were frequent ED users ( $\geq 4$  visits/year), accounting for 20.8% of all ED visits (5.4 ED visits/year on average). The strongest predictors of frequent ED use were having at least one ED visit related to asthma (aOR = 8.37 [95% CI: 6.34-11.04]), mental health disorders (aOR = 9.67 [95% CI: 8.60-10.89]), or multiple comorbidities compared to none. Larger shares of ED visits for not-emergent conditions were also associated with frequent ED use (aOR = 6.63 [95% CI = 5.08-8.65]). Being covered by Medicaid compared to private (aOR = 0.45 [95% CI: 0.42-0.47]) or no insurance (aOR = 0.41 [95% CI: 0.38-0.44]) were further associated with frequent ED use. The results from the negative binomial regression yielded consistent findings. **CONCLUSIONS:** Pediatric patients who exhibit increased ED use are more medically complex and have increased healthcare needs that are inextricably tied to social determinants of health. Better integrated health systems should emphasize connecting vulnerable patients to appropriate social and primary care services outside of emergency settings. Copyright © 2022 Academic Pediatric Association. Published by Elsevier Inc. All rights reserved.

**Access or request full text:** <https://libkey.io/10.1016/j.acap.2022.03.016>

#### [4. Describing the Patient Population of a Pediatric Emergency Department Based on Visit Frequency.](#)

**Item Type:** Journal Article

**Authors:** Hall, Jeanine E.;Pham, Phung K. and Liberman, Danica B.

**Publication date:** Oct 01 ,2022

**Journal:** Pediatric Emergency Care 38(10), pp. e1620–e1625

**Abstract: OBJECTIVE:** A small number of children in the United States use a disproportionate share of emergency healthcare services. Our study objective was to examine characteristics associated with frequent pediatric emergency department (PED) utilization. **METHODS:** A retrospective cohort-sequential study of patients seen in the PED of an urban children's hospital was conducted. Patients were categorized into 2 groups: infrequent users ( $\leq 4$  visits in 2017). Frequent PED users were further divided into persistent frequent ( $\geq 4$  visits in the year before and after 2017) and incidental frequent ( $\geq 4$  visits in 2017). Patient- and visit-level characteristics were analyzed for associations with PED utilization. **RESULTS:** In 2017, there were 82,361 visits by 56,767 patients to our PED. Frequent users comprised 4% of the total patient volume but accounted for 13% of visits. Compared with infrequent users, frequent users were younger, more likely publicly insured, and English speaking. Frequent user visits were more likely to occur outside clinic hours, be triaged as emergent, and involve subspecialists. Compared with visits by incidental frequent users, visits by persistent frequent users were more likely to be emergent or urgent, and involve subspecialists, diagnostic imaging, laboratory testing, and medication administration. **CONCLUSIONS:** Although the percentage of frequent users to a PED in 2017 was low, they made up a disproportionate share of total visits. Differences between persistent and incidental frequent PED users suggest that these subgroups may benefit from tailored interventions to reduce frequent PED utilization. Copyright © 2022 Wolters Kluwer Health, Inc. All rights reserved.

**Access or request full text:** <https://libkey.io/10.1097/PEC.0000000000002615>

#### [5. Age-varying effects of repeated emergency department presentations for children in Canada](#)

**Authors:** Rosychuk, Rhonda J.;Chen, Anqi A.;McRae, Andrew;McLane, Patrick;Ospina, Maria B. and Joan Hu, X.

**Publication date:** 2022a



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**Journal:** Journal of Health Services Research & Policy 27(4), pp. 278–286

**Abstract:** Objectives: Repeated presentations to emergency departments (EDs) may indicate a lack of access to other health care resources. Age is an important predictor of frequent ED use; however, age-varying effects are not generally investigated. This study examines the age-specific effects of predictors on ED presentation frequency for children in Alberta and Ontario, Canada. Methods: This retrospective study used population-based data during April 2010 to March 2017. Data were extracted from the National Ambulatory Care Reporting System for children aged <18 who were members of the top 10% of ED users in any one of the fiscal years 2011/2012 to 2015/2016 along with a comparison sample from the bottom 90%. A marginal regression model studied the age-varying associations on the frequency of ED presentations with province, sex, access to primary health care provider (for Ontario only), area of residence and lowest neighbourhood income quintile. Results: There were 2,481,172 patients who made 9,229,156 ED presentations. The effects of sex, lowest income quintile, rural residence, access to primary health care provider and province on the frequency of presentations varied by age. Notably, boys go from having more frequent presentations than girls when aged  $\leq 5$  (i.e. adjusted intensity ratio [IR]=1.04 at age 5, 95% confidence interval [CI] = 1.03,1.06) to less frequent for ages 8–11 years and beyond 14 (i.e. IR = 0.80 at age 15, 95% CI = 0.78,0.81). Adolescents aged  $\geq 15$  without access to a primary care provider had more frequent presentations compared to those with a primary care provider. Conclusions: When examining the frequency of ED presentations in children, age-varying effects of predictors should be considered. Our more nuanced examination of age provides insights into how health services might better target programmes for different ages to potentially reduce unnecessary ED use by providing other health care alternatives.

**Access or request full text:** <https://libkey.io/10.1177/13558196221094248>

## [6. Characteristics of Pediatric Frequent Users of Emergency Departments in Alberta and Ontario.](#)

**Authors:** Rosychuk, Rhonda J.;Chen, Anqi;McRae, Andrew;McLane, Patrick;Ospina, Maria B. and Stang, Antonia S.

**Publication date:** Mar 01 ,2022b

**Journal:** Pediatric Emergency Care 38(3), pp. 108–114

**Abstract: OBJECTIVES:** Emergency department (ED) volumes have drawn attention to frequent users but less attention has been paid to children. This study examined sociodemographic and ED presentation characteristics of pediatric high-system ED users (HSUs) in 2 provinces in Canada. **METHODS:** Cohorts of HSUs were created from the National Ambulatory Care Reporting System in 2015/2016 for children with the top 10% of ED presentations. Controls were random samples of non-HSU patients. Factors were explored in multivariable logistic regression models. **RESULTS:** There were 151,497 HSUs (51.7% girls, average age, 6.4 years) and 591,545 controls (53.1% girls; average age, 7.4 years). High-system ED users were more likely to be younger (adjusted odds ratio [aOR], 0.89 per 5 years; 95% confidence interval [CI], 0.88-0.89), live in less populated areas (aOR, 1.85; 95% CI, 1.82-1.88), and from lowest income neighborhoods (aOR, 1.51; 95% CI, 1.48-1.54) than controls. High-system ED users had higher proportions of presentations for pediatric complex chronic (aOR, 1.25 per 0.25 increase; 95% CI, 1.21-1.29), respiratory (aOR, 1.14 per 0.25; 95% CI, 1.12-1.15), and mental health (aOR, 1.14 per 0.25; 95% CI, 1.13-1.16) conditions than controls. **CONCLUSIONS:** Complex factors underlie pediatric health care utilization decisions. Findings identified conditions to target in interventions to improve health care access and utilization. Future work should engage children and families to design interventions. Copyright © 2021 Wolters Kluwer Health, Inc. All rights reserved.

**Access or request full text:** <https://libkey.io/10.1097/PEC.0000000000002569>





7. [Non-urgent emergency department attendances in children: a retrospective observational analysis](#)

**Authors:** Simpson, Rebecca M.; O'Keeffe, Colin; Jacques, Richard M.; Stone, Tony; Hassan, Abu and Mason, Suzanne M.

**Publication date:** 2022

**Journal:** Emergency Medicine Journal 39(1), pp. 17–22

**Abstract:** Abstract

**Introduction:** A significant proportion of ED attendances in children may be non-urgent attendances (NUAs), which could be better managed elsewhere. This study aimed to quantify NUAs and urgent attendances (UAs) in children to ED and determine which children present in this way and when.

**Methods:** Dataset extracted from the CUREd research database containing linked data on the provision of care in Yorkshire and Humber. Analysis focused on children's ED attendances (April 2014-March 2017). Summary statistics and odds ratios (OR) comparing NUAs and UAs were examined by: age, mode and time of arrival and deprivation alongside comparing summary statistics for waiting, treatment and total department times.

**Results:** NUAs were more likely in younger children: OR for NUA in children aged 1-4 years, 0.82 (95% CI: 0.80 to 0.83), age 15 years, 0.39 (95% CI: 0.38 to 0.40), when compared with those under 1 year. NUAs were more likely to arrive out of hours (OOHs) compared with in hours: OR 1.19 (95% CI 1.18 to 1.20), and OOHs arrivals were less common in older children compared with those under 1 year: age 1-4 years, 0.87 (95% CI: 0.84 to 0.89) age 15 years, 0.66 (95% CI: 0.63 to 0.69). NUAs also spent less total time in the ED, with a median (IQR) of 98 min (60-147) compared with 127 min (80-185) for UAs.

**Conclusion:** A substantial proportion of ED attendances in children are NUAs. Our data suggest there are particular groups of children for whom targeted interventions would be most beneficial. Children under 5 years would be such a group, particularly in providing accessible, timely care outside of usual community care opening hours.

**Access or request full text:** <https://libkey.io/10.1136/emered-2021-211431>

8. [Characteristics of pediatric emergency department frequent visitors and their risk of a return visit: A large observational study using electronic health record data.](#)

**Authors:** Vrijlandt, Sanne E. W.; Nieboer, Daan; Zachariasse, Joany M. and Oostenbrink, Rianne

**Publication date:** 2022

**Journal:** PLoS ONE [Electronic Resource] 17(1), pp. e0262432

**Abstract: BACKGROUND:** Among pediatric emergency department (ED) visits, a subgroup of children repeatedly visits the ED, making them frequent visitors (FVs). The aim of this study is to get insight into the group of pediatric ED FVs and to determine risk factors associated with a revisit. **METHODS AND FINDINGS:** Data of all children aged 0-18 years visiting the ED of a university hospital in the Netherlands between 2017 and 2020 were included in this observational study based on routine data extraction. Children with 4 or more ED visits within 365 days were classified as FVs. Descriptive analysis of the study cohort at patient- and visit-level were performed. Risk factors for a recurrent ED visit were determined using a Prentice Williams and Peterson gap time cox-based model. Our study population of 10,209 children with 16,397 ED visits contained 500 FVs (4.9%) accounting for 3,481 visits (21.2%). At patient-level, FVs were younger and more often suffered from chronic diseases (CDs). At visit-level, frequent visits were more often initiated by self-referral and were more often related to medical problems (compared to trauma's). Overall, FVs presented at the ED more often because of an infection (41.3%) compared to non-FVs (27.4%), either associated or not with the body system affected by the CD. We identified the presence of a comorbidity (non-complex CD HR 1.66; 1.52-1.81 and complex CD HR 2.00; 1.84-2.16) as determinants with the highest hazard for a return





visit. **CONCLUSION:** Pediatric ED FVs are a small group of children but account for a large amount of the total ED visits. FVs are younger patients, suffering from (complex) comorbidities and present more often with infectious conditions compared to non-FVs. Healthcare pathways, including safety-netting strategies for acute manifestations from their comorbidity, or for infectious conditions in general may contribute to support parents and redirect some patients from the ED.

**Access or request full text:** <https://libkey.io/10.1371/journal.pone.0262432>

### [9. Patterns of healthcare utilisation in children and young people: a retrospective cohort study using routinely collected healthcare data in Northwest London](#)

**Authors:** Beaney, Thomas;Clarke, Jonathan;Woodcock, Thomas;McCarthy, Rachel;Saravanakumar, Kavitha;Barahona, Mauricio;Blair, Mitch and Hargreaves, Dougal S.

**Publication date:** 2021

**Journal:** BMJ Open 11(12), pp. e050847

**Abstract:** With a growing role for health services in managing population health, there is a need for early identification of populations with high need. Segmentation approaches partition the population based on demographics, long-term conditions (LTCs) or healthcare utilisation but have mostly been applied to adults. Our study uses segmentation methods to distinguish patterns of healthcare utilisation in children and young people (CYP) and to explore predictors of segment membership. This article identifies six segments of healthcare utilisation in CYP and predictors of segment membership. Demographics and LTCs may not explain utilisation patterns as strongly as in adults, which may limit the use of routine data in predicting utilisation and suggest children have less well-defined trajectories of service use than adults.

### [10. Characteristics of frequent paediatric users of emergency departments in England: an observational study using routine national data.](#)

**Authors:** Greenfield, Geva;Blair, Mitch;Aylin, Paul P.;Saxena, Sonia;Majeed, Azeem and Bottle, Alex

**Publication date:** Feb ,2021

**Journal:** Emergency Medicine Journal 38(2), pp. 146–150

**Abstract: BACKGROUND:** Frequent attendances of the same users in emergency departments (ED) can intensify workload pressures and are common among children, yet little is known about the characteristics of paediatric frequent users in EDs. **AIM:** To describe the volume of frequent paediatric attendance in England and the demographics of frequent paediatric ED users in English hospitals. **METHOD:** We analysed the Hospital Episode Statistics dataset for April 2014–March 2017. The study included 2 308 816 children under 16 years old who attended an ED at least once. Children who attended four times or more in 2015/2016 were classified as frequent users. The preceding and subsequent years were used to capture attendances bordering with the current year. We used a mixed effects logistic regression with a random intercept to predict the odds of being a frequent user in children from different sociodemographic groups. **RESULTS:** One in 11 children (9.1%) who attended an ED attended four times or more in a year. Infants had a greater likelihood of being a frequent attender (OR 3.24, 95% CI 3.19 to 3.30 vs 5 to 9 years old). Children from more deprived areas had a greater likelihood of being a frequent attender (OR 1.57, 95% CI 1.54 to 1.59 vs least deprived). Boys had a slightly greater likelihood than girls (OR 1.05, 95% CI 1.04 to 1.06). Children of Asian and mixed ethnic groups were more likely to be frequent users than those from white ethnic groups, while children from black and 'other' had a lower likelihood (OR 1.03, 95% CI 1.01 to 1.05; OR 1.04, 95% CI 1.01 to 1.06; OR 0.88, 95% CI 0.86 to 0.90; OR 0.90, 95% CI 0.87 to 0.92, respectively). **CONCLUSION:** One in 11 children was a frequent attender. Interventions for reducing paediatric frequent attendance need to target infants and families living in deprived areas. Copyright © Author(s) (or their employer(s)) 2021. No commercial re-use. See rights and permissions. Published by BMJ.

**Access or request full text:** <https://libkey.io/10.1136/emmermed-2019-209122>



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## [11. Pediatric high users of Canadian hospitals and emergency departments.](#)

**Authors:** Tiller, Ryan;Chan, Kevin;Knight, John C. and Chafe, Roger

**Publication date:** 2021

**Journal:** PLoS ONE [Electronic Resource] 16(5), pp. e0251330

**Abstract:** **INTRODUCTION:** Few studies have examined the most frequent pediatric users of hospital services. Our objective was to determine the clinical diagnoses, demographic characteristics, and medical severity of high-use pediatric patients in Canada. **METHODS:** We conducted a retrospective analysis of patients : We conducted a retrospective analysis of patients **RESULTS:** 121 104 patients were identified as the most frequent hospital users and 459 998 patients as the most frequent ED users. High users were more likely to reside in a rural community, to be in a lower income quintile, and face more deprivation. The most frequent conditions for hospitalization for high use patients were disorders related to length of prematurity and fetal growth, respiratory and cardiovascular disorders specific to the perinatal period, and haemorrhagic and haematological disorders of fetus and newborn. For the most frequent ED users, the most common clinical diagnoses were acute upper respiratory infections, injuries to the head, and diseases of the middle ear and mastoid. **CONCLUSION:** Pediatric high users by frequency of hospital and ED services are a distinct population. Better understanding their characteristics will allow for more appropriate planning of children's health services and help identify areas for effective preventive or quality improvement initiatives.

# Chronic health conditions

## [1. A real-world evaluation of the effectiveness and Sufficiency of Current Emergency Department Preventative Strategies for Reducing Emergency Department revisits in a Canadian children's hospital: a retrospective cohort study.](#)

**Authors:** Haji, Tahereh;Lyzwinski, Lynnette;Dhaliwal, Cara;Leung, Garvin;Giangioppo, Sandra and Radhakrishnan, Dhenuka

**Publication date:** Jun 25 ,2024

**Journal:** Allergy, Asthma, & Clinical Immunology : Official Journal of the Canadian Society of Allergy & Clinical Immunology 20(1), pp. 37

**Abstract:** **BACKGROUND:** Despite asthma guidelines' recommended emergency department preventative strategies (EDPS), repeat asthma-related emergency department (ED) visits remain frequent. **METHODS:** We performed a retrospective cohort study of children aged 1-17 years presenting with asthma to the Children's Hospital of Eastern Ontario (CHEO) ED between September 1, 2014 - August 31, 2015. EDPS was defined as provision of education on trigger avoidance and medication technique plus documentation of an asthma action plan, a prescription for an inhaled controller medication or referral to a specialist. Logistic regression was used to identify factors associated with receipt of EDPS. We further compared the odds of repeat presentation to the ED within the following year among children who had received EDPS versus those who had not. **RESULTS:** 1301 patients were included, and the mean age of those who received EDPS was 5.0 years (SD = 3.7). Those with a moderate (OR = 3.67, 95% CI: 2.49, 5.52) to severe (OR = 3.69, 95% CI: 2.50, 5.45) asthma presentation were most likely to receive EDPS. Receiving EDPS did not significantly reduce the adjusted odds of repeat ED visits, (OR = 0.82, 95% CI: 0.56, 1.18, p = 0.28). **CONCLUSIONS:** Patients with higher severity asthma presentations to the ED were more likely to receive EDPS, but this did not appear to significantly decrease the proportion with a repeat asthma ED visit. These findings suggest that receipt of EDPS in the ED may not be sufficient to prevent repeat asthma ED visits in all children. Copyright © 2024. The Author(s).

**Access or request full text:** <https://libkey.io/10.1186/s13223-024-00900-z>



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# Mental health conditions

## [1. Emergency Department Use among Patients with Mental Health Problems: Profiles, Correlates, and Outcomes.](#)

**Authors:** Fleury, Marie-Josée; Cao, Zhirong and Grenier, Guy

**Publication date:** Jun 30, 2024

**Journal:** International Journal of Environmental Research & Public Health [Electronic Resource] 21(7)

**Abstract:** Patients with mental health (MH) problems are known to use emergency departments (EDs) frequently. This study identified profiles of ED users and associated these profiles with patient characteristics and outpatient service use, and with subsequent adverse outcomes. A 5-year cohort of 11,682 ED users was investigated (2012-2017), using Quebec (Canada) administrative databases. ED user profiles were identified through latent class analysis, and multinomial logistic regression used to associate patients' characteristics and their outpatient service use. Cox regressions were conducted to assess adverse outcomes 12 months after the last ED use. Four ED user profiles were identified: "Patients mostly using EDs for accessing MH services" (Profile 1, incident MDs); "Repeat ED users" (Profile 2); "High ED users" (Profile 3); "Very high and recurrent high ED users" (Profile 4). Profile 4 and 3 patients exhibited the highest ED use along with severe conditions yet received the most outpatient care. The risk of hospitalization and death was higher in these profiles. Their frequent ED use and adverse outcomes might stem from unmet needs and suboptimal care. Assertive community treatments and intensive case management could be recommended for Profiles 4 and 3, and more extensive team-based GP care for Profiles 2 and 1.

**Access or request full text:** <https://libkey.io/10.3390/ijerph21070864>

## [2. Predictors of mental health emergency department visits and psychiatric hospitalizations in children in foster care](#)

**Authors:** Vish, Nora L.; Budig, Kimberly; Stolfi, Adrienne; Elliston, Rebecca and Thackeray, Jonathan D.

**Publication date:** 2024

**Journal:** Children and Youth Services Review 158

**Abstract:** Background: Despite the promise of safe, nurturing environments, children in foster care are at significantly elevated risk of mental health disorders. Objective: To identify factors associated with increased mental health emergency department (ED) visits and psychiatric hospitalizations for children in foster care. Participants: Children aged 4–18 years in child welfare services custody who presented to a foster care clinic from December 2017 to January 2020 (N = 311). Methods: A descriptive cohort study was conducted to collect semi-structured data on a child's foster care placement history, trauma history, reported behavioral concerns, academic delay, and demographics after new foster care placement. Mental health ED visits and psychiatric hospitalizations within one year of the foster clinic visit were identified using a health information exchange platform. Simple and multiple logistic regression was used to determine unadjusted and adjusted odds ratios for associations of independent variables with mental health ED visits and psychiatric hospitalizations. Results: In the study population, most children (78.5 %) were placed with foster families, followed by group homes (18.3 %) and kinship care (3.2 %). Within one year of the foster clinic visit, 24.1 % and 7.4 % of patients had ≥1 ED visit for mental health concerns or ≥1 psychiatric hospitalization, respectively. While children with increased prior placements and group home placement had



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increased odds of  $\geq 1$  ED visit in univariate analyses, no significant association was seen in multivariable analysis. More than half of the children placed in group homes had at least one mental health ED visit compared to 17.4 % of children placed with foster families. Conclusions: Children placed into out-of-home care have high rates of mental health ED visits and psychiatric hospitalizations. Understanding predictors of poor mental health and associated service utilization can help guide the allocation of resources for better prevention. (PsycInfo Database Record (c) 2024 APA, all rights reserved) (Source: journal abstract)

**Access or request full text:** <https://libkey.io/10.1016/j.childyouth.2024.107485>

### **[3. Factors associated with repeat emergency department visits for mental health care in adolescents: A scoping review](#)**

**Authors:** Wilson, Rebecca;Jennings, Alice;Redaniel, Maria Theresa;Samarakoon, Kithsiri;Dawson, Sarah;Lyttle, Mark D.;Savovic, Jelena and Schofield, Behnaz

**Publication date:** Jul ,2024

**Journal:** American Journal of Emergency Medicine 81, pp. 23–34

**Abstract:** OBJECTIVES: The aim of this review was to identify factors associated with multiple visits to emergency department (ED) services for mental health care in adolescents. METHODS: Electronic databases (MEDLINE, PsycINFO, Embase, CINAHL, Web of Science and ProQuest Dissertations & Thesis Global) were searched for evidence that presented an association between risk factors or correlates of multiple visits to the emergency department for mental health care by 10-24 year olds. High impact use was defined as at least one return ED visit for mental health care. Primary studies of any quantitative design were included, with no exclusions based on language or country and all possible risk factors were considered. Data were extracted and synthesised using quantitative methods; frequencies of positive, negative and null associations were summarised for categories of potential risk factors. RESULTS: Sixty-five studies were included in the review. Most studies were from North America and reported a wide range of measures of high impact ED use, the most common being a binary indicator of multiple ED visits. Sex/gender and age were the most frequently reported risk factors. Measure of previous or concurrent access to mental health care was consistently positively associated with high impact use. Having private health insurance, compared with public or no insurance, was generally negatively associated with high impact use. Proxy measures of socioeconomic position (SEP) showed associations between lower SEP and more high impact use in a small number of studies. No other factors were consistently or uniformly associated with high impact use. CONCLUSIONS: The review identified a substantial evidence base but due to the variability in study design and measurement of both risk factors and outcomes, no consistent risk factors emerged. More research is needed, particularly outside North America, using robust methods and high quality routinely collected data. Copyright © 2024 The Authors. Published by Elsevier Inc. All rights reserved.

**Access or request full text:** <https://libkey.io/10.1016/j.ajem.2024.04.018>

### **[4. Emergency Department Utilization Among Youth with Autism Spectrum Disorder: Exploring the Role of Preventive Care, Medical Home, and Mental Health Access](#)**

**Authors:** Badgett, Natalie M.;Sadikova, Elenora;Menezes, Michelle and Mazurek, Micah O.

**Publication date:** 2023

**Journal:** Journal of Autism & Developmental Disorders 53(6), pp. 2274–2282

**Abstract:** The 2016–2018 National Surveys of Children's Health dataset was used to identify associations among preventive care, unmet health care needs, medical home access, and emergency department (ED) use among children and adolescents with autism spectrum disorder (ASD). Results indicated that youth with ASD had higher odds of using ED services if they had unmet mental health care needs (OR = 1.58, CI: 1.04–2.39) and lower odds of using ED services if they had



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access to a medical home (OR = 0.79, CI: 0.63–0.98). Findings suggest the importance of access to coordinated, comprehensive, and patient-centered care to address health care needs and prevent ED utilization among children and adolescents with ASD.

**Access or request full text:** <https://libkey.io/10.1007/s10803-022-05503-4>

### [5. Mental Health Revisits at US Pediatric Emergency Departments.](#)

**Authors:** Cushing, Anna M.;Liberman, Danica B.;Pham, Phung K.;Michelson, Kenneth A.;Festekjian, Ara;Chang, Todd P. and Chaudhari, Pradip P.

**Publication date:** 02 01 ,2023

**Journal:** JAMA Pediatrics 177(2), pp. 168–176

**Abstract:** Importance: Pediatric emergency department (ED) visits for mental health crises are increasing. Patients who frequently use the ED are of particular concern, as pediatric mental health ED visits are commonly repeat visits. Better understanding of trends and factors associated with mental health ED revisits is needed for optimal resource allocation and targeting of prevention efforts. Objective: To describe trends in pediatric mental health ED visits and revisits and to determine factors associated with revisits. Design, Setting, and Participants: In this cohort study, data were obtained from 38 US children's hospital EDs in the Pediatric Health Information System between October 1, 2015, and February 29, 2020. The cohort included patients aged 3 to 17 years with a mental health ED visit. Exposures: Characteristics of patients, encounters, hospitals, and communities. Main Outcomes and Measures: The primary outcome was a mental health ED revisit within 6 months of the index visit. Trends were assessed using cosinor analysis and factors associated with time to revisit using mixed-effects Cox proportional hazards regression. Results: There were 308264 mental health ED visits from 217865 unique patients, and 13.2% of patients had a mental health revisit within 6 months. Mental health visits increased by 8.0% annually (95% CI, 4.5%-11.4%), whereas all other ED visits increased by 1.5% annually (95% CI, 0.1%-2.9%). Factors associated with mental health ED revisits included psychiatric comorbidities, chemical restraint use, public insurance, higher area measures of child opportunity, and presence of an inpatient psychiatric unit at the presenting hospital. Patients with psychotic disorders (hazard ratio [HR], 1.42; 95% CI, 1.29-1.57), disruptive or impulse control disorders (HR, 1.36; 95% CI, 1.30-1.42), and neurodevelopmental disorders (HR, 1.22; 95% CI, 1.14-1.30) were more likely to revisit. Patients with substance use disorders (HR, 0.60; 95% CI, 0.55-0.66) were less likely to revisit. Conclusions and Relevance: Markers of disease severity and health care access were associated with mental health revisits. Directing hospital and community interventions toward identified high-risk patients is needed to help mitigate recurrent mental health ED use and improve mental health care delivery.

**Access or request full text:** <https://libkey.io/10.1001/jamapediatrics.2022.4885>

### [6. Patterns of emergency department presentations for a youth mental health cohort: Data-linkage cohort study](#)

**Authors:** Iorfino, Frank;McHugh, Catherine;Richards, Matthew;Skinner, Adam;Prodan, Ante;Occhipinti, Jo-an;Song, Yun Ju Christine;Chiu, Simon;Judkins, Simon;Scott, Elizabeth and Hickie, Ian B.

**Publication date:** 2023

**Journal:** BJPsych Open 9

**Abstract:** Background: Primary youth mental health services in Australia have increased access to care for young people, yet the longer-term outcomes and utilisation of other health services among these populations is unclear. Aims: To describe the emergency department presentation patterns of a help-seeking youth mental health cohort. Method: Data linkage was performed to extract Emergency Department Data Collection registry data (i.e. emergency department presentations, pattern of re-presentations) for a transdiagnostic cohort of 7024 youths (aged 12–30 years) who presented to



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mental health services. Outcome measures were pattern of presentations and reason for presentations (i.e. mental illness; suicidal behaviours and self-harm; alcohol and substance use; accident and injury; physical illness; and other). Results: During the follow-up period, 5372 (76.5%) had at least one emergency department presentation. The presentation rate was lower for males (IRR = 0.87, 95% CI 0.86–0.89) and highest among those aged 18 to 24 (IRR = 1.117, 95% CI 1.086–1.148). Almost one-third (31.12%) had an emergency department presentation that was directly associated with mental illness or substance use, and the most common reasons for presentation were for physical illness and accident or injury. Index visits for mental illness or substance use were associated with a higher rate of re-presentation. Conclusions: Most young people presenting to primary mental health services also utilised emergency services. The preventable and repeated nature of many presentations suggests that reducing the ongoing secondary risks of mental disorders (i.e. substance misuse, suicidality, physical illness) could substantially improve the mental and physical health outcomes of young people. (PsyInfo Database Record (c) 2023 APA, all rights reserved) (Source: journal abstract)

**Access or request full text:** <https://libkey.io/10.1192/bjo.2023.521>

### [7. The burden of mental and behavioral health visits to the pediatric ED: A 3-year tertiary care center experience](#)

**Authors:** Manuel, Matthias M.;Yen, Kenneth;Feng, Sing-Yi and Patel, Faisal Mohamed

**Publication date:** 2023

**Journal:** Child & Adolescent Mental Health 28(4), pp. 488–496

**Abstract:** Background: The shortage of mental health services across the United States has turned pediatric emergency departments (PEDs) into safety-nets for the increasing population of children with mental and behavioral health (MBH) needs. This study provides a descriptive characterization of MBH-related PED visits, the trends in visit, ED length of stay (EDLOS), and admission rate. Methods: We reviewed electronic health records of children  $\leq 18$  years with MBH needs, who visited the PED of a large tertiary hospital from January 2017 to December 2019. We performed descriptive statistics, chi-square ( $\chi^2$ ), and logistic regression analyses to evaluate trend in visit, EDLOS, admission rate, and predictors of prolonged EDLOS and inpatient admission. Results: Of 10,167 patients, 58.4% were females, median age was 13.8 years, and 86.1% were adolescents. On average, visits increased by 19.7% annually, with a 43.3% increase over 3 years. Common ED diagnoses include, suicidality (56.2%), depression (33.5%), overdose/poisoning, and substance use (18.8%), and agitation/aggression (10.7%). Median EDLOS was 5.3 hr, average admission rate was 26.3%, with 20.7% boarding in the ED for  $>10$  hr. Independent predictors of admission include depression (pOR: 1.5, CI: 1.3–1.7), bipolar disorder (pOR: 3.5, CI: 2.4–5.1), overdose/substance use disorder (pOR: 4.7, CI: 4.0–5.6), psychosis (pOR: 3.3, CI: 1.5–7.3), agitation/aggression (pOR: 1.8, CI: 1.5–2.1), and ADHD (pOR: 2.5, CI: 2.0–3.0). Principal independent driver of prolonged EDLOS was patient admission/transfer status (pOR: 5.3, CI: 4.6–6.1). Conclusions: Given the study results, MBH-related PED visits, ED length-of-stay, and admission rates continue to rise even in recent years. PEDs lack the resources and capability to provide high-quality care for the increasing population of children with MBH needs. Novel collaborative approaches and strategies are urgently needed to find lasting solutions.

**Access or request full text:** <https://libkey.io/10.1111/camh.12638>

### [8. Models of integrated care for young people experiencing medical emergencies related to mental illness: a realist systematic review](#)

**Authors:** Otis, Michaela;Barber, Susan;Amet, Mona and Nicholls, Dasha

**Publication date:** -12th ,2023

**Journal:** European Child & Adolescent Psychiatry 32(12), pp. 2439–2452



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**Abstract:** Mental illness heightens risk of medical emergencies, emergency hospitalisation, and readmissions. Innovations for integrated medical-psychiatric care within paediatric emergency settings may help adolescents with acute mental disorders to get well quicker and stay well enough to remain out of hospital. We assessed models of integrated acute care for adolescents experiencing medical emergencies related to mental illness (MHR). We conducted a systematic review by searching MEDLINE, PsychINFO, Embase, and Web of Science for quantitative studies within paediatric emergency medicine, internationally. We included populations aged 8-25 years. Our outcomes were length of hospital stay (LOS), emergency hospital admissions, and rehospitalisation. Limits were imposed on dates: 1990 to June 2021. We present a narrative synthesis. This study is registered on PROSPERO: 254,359. 1667 studies were screened, 22 met eligibility, comprising 39,346 patients. Emergency triage innovations reduced admissions between 4 and 16%, including multidisciplinary staffing and training for psychiatric assessment ( $F(3,42) = 4.6, P < 0.05, N = 682$ ), and telepsychiatry consultations (aOR = 0.41, 95% CI 0.28-0.58;  $P < 0.001, N = 597$ ). Psychological therapies delivered in emergency departments reduced admissions 8-40%, including psychoeducation (aOR = 0.35, 95% CI 0.17-0.71,  $P < 0.01, N = 212$ ), risk-reduction counselling for suicide prevention (OR = 2.78, 95% CI 0.55-14.10,  $N = 348$ ), and telephone follow-up (OR = 0.45, 95% CI 0.33-0.60,  $P < 0.001, N = 980$ ). Innovations on acute wards reduced readmissions, including guided meal supervision for eating disorders ( $P = 0.27$ ), therapeutic skills for anxiety disorders, and a dedicated psychiatric crisis unit (22.2 vs 8.5% ( $P = 0.008$ )). Integrated pathway innovations reduced readmissions between 8 and 37% including family-based therapy (FBT) for eating disorders ( $X^2(1,326) = 8.40, P = 0.004, N = 326$ ), and risk-targeted telephone follow-up or outpatients for all mental disorders (29.5 vs. 5%,  $P = 0.03, N = 1316$ ). Studies occurred in the USA, Canada, or Australia. Integrated care pathways to psychiatric consultations, psychological therapies, and multidisciplinary follow-up within emergency paediatric services prevented lengthy and repeat hospitalisation for MHR emergencies. Only six of 22 studies adjusted for illness severity and clinical history between before- and after-intervention cohorts and only one reported socio-demographic intervention effects.

**Access or request full text:** <https://libkey.io/10.1007/s00787-022-02085-5>

## [9. Emergency department use by children and youth with mental health conditions: A health equity agenda](#)

**Authors:** Hoge, Michael A.; Vanderploeg, Jeffrey; Paris, Manuel; Lang, Jason M. and Olezeski, Christy

**Publication date:** 2022

**Journal:** Community Mental Health Journal

**Abstract:** There are growing concerns regarding the referral of children and youth with mental health conditions to emergency departments (EDs). These focus on upward trends in utilization, uncertainty about benefits and negative effects of ED visits, and inequities surrounding this form of care. A review was conducted to identify and describe available types of data on ED use. The authors'™ interpretation of the literature is that it offers compelling evidence that children and youth in the U.S. are being sent to EDs for mental health conditions at increasing rates for reasons frequently judged as clinically inappropriate. As a major health inequity, it is infrequent that such children and youth are seen in EDs by a behavioral health professional or receive evidence-based assessment or treatment, even though they are kept in EDs far longer than those seen for reasons unrelated to mental health. The rate of increase in these referrals to EDs appears much greater for African American and Latinx children and youth than White children and is increasing for the publicly insured and uninsured while decreasing for the privately insured. A comprehensive set of strategies are recommended for improving healthcare quality and health equity. A fact sheet is provided for use by advocates in pressing this agenda. (Psycho Database Record (c) 2022 APA, all rights reserved) (Source: journal abstract)

**Access or request full text:** <https://libkey.io/10.1007/s10597-022-00937-7>



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## [10. "Could we have predicted this?" The association of a future mental health need in young people with a non-specific complaint and frequent emergency department visits.](#)

**Authors:** Fang, Andrea;Hersh, Melissa;Birgisson, Natalia;Saynina, Olga and Wang, Nancy E.

**Publication date:** Oct ,2021

**Journal:** Journal of the American College of Emergency Physicians Open 2(5), pp. e12556

**Abstract:** OBJECTIVE: Mental health emergencies among young people are increasing. There is growing pressure for emergency departments to screen patients for mental health needs even when it is not their chief complaint. We hypothesized that young people with an initial non-specific condition and emergency department (ED) revisits have increased mental health needs. METHODS: Retrospective, observational study of the California Office of Statewide Health Planning and Development Emergency Department Discharge Dataset (2010-2014) of young people (11-24 years) with an index visit for International Classification of Diseases, Ninth Revision diagnostic codes of "Symptoms, signs, and ill-defined conditions" (Non-Specific); "Diseases of the respiratory system" (Respiratory) and "Unintentional injury" (Trauma) who were discharged from a California ED. Patients were excluded if they had a prior mental health visit, chronic disease, or were pregnant. ED visit frequency was counted over 12 months. Regression models were created to analyze characteristics associated with a mental health visit. RESULTS: Patients in the Non-Specific category compared to the Respiratory category had 1.2 times the odds of a future mental health visit (OR 1.20; 95% CI 1.17-1.24). Patients with  $\geq 1$  ED revisit, regardless of diagnostic category, had 1.3 times the odds of a future mental health visit. Patients with both a Non-Specific index visit and 1, 2, and 3 or more revisits with non-specific diagnoses had increasing odds of a mental health visit (OR 1.38; 95% CI 1.29-1.47; OR 1.70; 95% CI 1.46-1.98; OR 2.20; 95% CI 1.70-2.87, respectively.). CONCLUSIONS: Young people who go to the ED for non-specific conditions and revisits may benefit from targeted ED mental health screening. Copyright © 2021 The Authors. JACEP Open published by Wiley Periodicals LLC on behalf of American College of Emergency Physicians.

**Access or request full text:** <https://libkey.io/10.1002/emp2.12556>

## Socio-economic factors

### [1. Association between emergency department attendances, sociodemographic factors and long-term health conditions in the population of Norfolk and Waveney, England: Cross sectional study.](#)

**Authors:** Jones, Charlotte E. L.;Shabuz, Zillur Rahman;Bachmann, Max;Burke, Amanda;Brainard, Julii;Cullum, Rachel;Saunders, Mike;Dalton, Alice M.;Enwo, Oby O. and Steel, Nick

**Publication date:** 2024

**Journal:** PLoS ONE [Electronic Resource] 19(5), pp. e0303270

**Abstract:** INTRODUCTION: Demand for urgent and emergency health care in England has grown over the last decade, for reasons that are not clear. Changes in population demographics may be a cause. This study investigated associations between individuals' characteristics (including socioeconomic deprivation and long term health conditions (LTC)) and the frequency of emergency department (ED) attendances, in the Norfolk and Waveney subregion of the East of England. METHODS: The study population was people who were registered with 91 of 106 Norfolk and Waveney general practices during one year from 1 April 2022 to 31 March 2023. Linked primary and secondary care and geographical data included each individual's sociodemographic characteristics, and number of ED attendances during the same year and, for some individuals, LTCs



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and number of general practice (GP) appointments. Associations between these factors and ED attendances were estimated using Poisson regression models. RESULTS: 1,027,422 individuals were included of whom 57.4% had GP data on the presence or absence of LTC, and 43.1% had both LTC and general practitioner appointment data. In the total population ED attendances were more frequent in individuals aged under five years, (adjusted Incidence Rate Ratio (IRR) 1.25, 95% confidence interval 1.23 to 1.28) compared to 15-35 years); living in more socioeconomically deprived areas (IRR 0.61 (0.60 to 0.63)) for least deprived compared to most deprived, and living closer to the nearest ED. Among individuals with LTC data, each additional LTC was also associated with increased ED attendances (IRR 1.16 (1.15 to 1.16)). Among individuals with LTC and GP appointment data, each additional GP appointment was also associated with increased ED attendances (IRR 1.03 (1.026 to 1.027)). CONCLUSIONS: In the Norfolk and Waveney population, ED attendance rates were higher for young children and individuals living in more deprived areas and closer to EDs. In individuals with LTC and GP appointment data, both factors were also associated with higher ED attendance.

**Access or request full text:** <https://libkey.io/10.1371/journal.pone.0303270>

## **2. Interactive association of chronic illness and food insecurity with emergency department utilization among school-age children in the United States: A cross-sectional study.**

**Authors:** Ghani, Farheen; Wang, Hao; Manning, Sydney E. and Sambamoorthi, Usha

**Publication date:** Feb ,2023

**Journal:** Health Science Reports 6(2), pp. e1123

**Abstract:** Background and Aims: Food insecurity combined with chronic disease conditions is a risk factor for Emergency Department (ED) utilization, an indicator of poor quality of care. However, such an association is not certain among school-age children with chronic conditions. Therefore, we aim to determine the association of food insecurity, chronic conditions, and ED utilization among school-age children in the United States. Methods: We analyzed the data from the 2017 Medical expenditure panel survey (MEPS) among children aged 6-17 years (N = 5518). MEPS data was released electronically by the Agency for Healthcare Research and Quality (AHRQ). We identified four groups of school-age children based on the presence of food security and chronic conditions: 1) with food insecurity and chronic conditions; 2) no food insecurity and chronic conditions; 3) with food insecurity and no chronic conditions; and 4) no food insecurity and no chronic conditions. We compared ED utilization among these four groups using incidence rate ratios (IRR) after adjusting children's age, sex, race and ethnicity, household income, insurance coverage, obesity, and geographic region using count data model, specifically multivariable Poisson regression. We used SAS 9.4 and STATA 14.2 for all the data analyses. Results: There were unweighted 5518 school-age children who represented weighted 50,479,419 school-age children in the final analysis. Overall, 6.0% had food insecurity with chronic conditions. These children had higher ED utilization (19.7%) than the other three groups (13.3%, 8.8%, and 7.2%, p < .001). There were unweighted 5518 school-age children who represented weighted 50,479,419 school-age children in the final analysis. Overall, 6.0% had food insecurity with chronic conditions. These children had higher ED utilization (19.7%) than the other three groups (13.3%, 8.8%, and 7.2%, p < .001). Conclusion: One in 16 school-age children has both food insecurity and chronic conditions. Food insecurity was positively associated with frequent ED visits in the presence of chronic conditions. Therefore, addressing food insecurity may reduce the risk of ED visits. Copyright © 2023 The Authors. Health Science Reports published by Wiley Periodicals LLC.

**Access or request full text:** <https://libkey.io/10.1002/hsr2.1123>

## **3. Social and ethnic group differences in healthcare use by children aged 0-14 years: a population-based cohort study in England from 2007 to 2017**

**Authors:** Coughlan, Charles Hamish; Ruzangi, Judith; Neale, Francesca K.; Nezatf Maldonado, Behrouz; Blair, Mitch; Bottle, Alex; Saxena, Sonia and Hargreaves, Dougal



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**Publication date:** -01st ,2022

**Journal:** Archives of Disease in Childhood 107(1), pp. 32–39

**Abstract:** OBJECTIVE: To describe social and ethnic group differences in children's use of healthcare services in England, from 2007 to 2017.

DESIGN: Population-based retrospective cohort study.

SETTING/PATIENTS: We performed individual-level linkage of electronic health records from general practices and hospitals in England by creating an open cohort linking data from the Clinical Practice Research Datalink and Hospital Episode Statistics. 1 484 455 children aged 0-14 years were assigned to five composite ethnic groups and five ordered groups based on postcode mapped to index of multiple deprivation.

MAIN OUTCOME MEASURES: Age-standardised annual general practitioner (GP) consultation, outpatient attendance, emergency department (ED) visit and emergency and elective hospital admission rates per 1000 child-years.

RESULTS: In 2016/2017, children from the most deprived group had fewer GP consultations (1765 vs 1854 per 1000 child-years) and outpatient attendances than children in the least deprived group (705 vs 741 per 1000 child-years). At the end of the study period, children from the most deprived group had more ED visits (447 vs 314 per 1000 child-years) and emergency admissions (100 vs 76 per 1000 child-years) than children from the least deprived group. In 2016/2017, children from black and Asian ethnic groups had more GP consultations than children from white ethnic groups (1961 and 2397 vs 1824 per 1000 child-years, respectively). However, outpatient attendances were lower in children from black ethnic groups than in children from white ethnic groups (732 vs 809 per 1000 child-years). By 2016/2017, there were no differences in outpatient, ED and in-patient activity between children from white and Asian ethnic groups.

CONCLUSIONS: Between 2007 and 2017, children living in more deprived areas of England made greater use of emergency services and received less scheduled care than children from affluent neighbourhoods. Children from Asian and black ethnic groups continued to consult GPs more frequently than children from white ethnic groups, though black children had significantly lower outpatient attendance rates than white children across the study period. Our findings suggest substantial levels of unmet need among children living in socioeconomically disadvantaged areas. Further work is needed to determine if healthcare utilisation among children from Asian and black ethnic groups is proportionate to need.

Access or request full text: <https://libkey.io/10.1136/archdischild-2020-321045>

#### [4. Neighborhood Child Opportunity and Emergency Department Utilization](#)

**Authors:** Kaiser, Sunitha V.;Hall, Matthew;Bettenhausen, Jessica L.;Sills, Marion R.;Hoffmann, Jennifer A.;Noelke, Clemens;Morse, Rustin B.;Lopez, Michelle A. and Parikh, Kavita

**Publication date:** 2022

**Journal:** Pediatrics 150(4), pp. 1–8

**Abstract:** BACKGROUND AND OBJECTIVES: The Child Opportunity Index (COI) is a multidimensional measure of structural neighborhood context that may influence a child's healthy development. Our objective was to determine if COI is associated with children's emergency department (ED) utilization using a national sample. METHODS: This was a retrospective cohort study of the Pediatric Health Information Systems, a database from 49 United States children's hospitals. We analyzed children aged 0 to 17 years with ED visits from January 1, 2018, to December 31, 2019. We modeled associations between COI and outcomes using generalized regression models that adjusted for patient characteristics (eg, age, clinical severity). Outcomes included: (1) low-resource intensity (LRI) ED visits (visits with no laboratories, imaging, procedures, or admission), (2)  $\geq 2$  or  $\geq 3$  ED visits, and (3) admission. RESULTS: We analyzed 6 810 864 ED visits by 3 999 880 children. LRI visits were more likely among children from very low compared with very high COI (1 LRI visit: odds ratio OR] 1.35 1.17-1.56];  $\geq 2$  LRI visits: OR 1.97 1.66-2.33];  $\geq 3$  LRI visits: OR 2.4 1.71-



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3.39]). ED utilization was more likely among children from very low compared with very high COI ( $\geq 2$  ED visits: OR 1.73 1.51-1.99;  $\geq 3$  ED visits: OR 2.22 1.69-2.91]). Risk of hospital admission from the ED was lower for children from very low compared with very high COI (OR 0.77 0.65-0.99]).  
**CONCLUSIONS:** Children from neighborhoods with low COI had higher ED utilization overall and more LRI visits, as well as visits more cost-effectively managed in primary care settings. Identifying neighborhood opportunity-related drivers can help us design interventions to optimize child health and decrease unnecessary ED utilization and costs.

**Access or request full text:** <https://libkey.io/10.1542/peds.2021-056098>

### **5. Distribution of Emergency Department Encounters and Subsequent Hospital Admissions for Children by Child Opportunity Index**

**Authors:** Ramgopal, Sriram; Attridge, Megan; Akande, Manzilat; Goodman, Denise M.; Heneghan, Julia A. and Macy, Michelle L.

**Publication date:** Nov, 2022

**Journal:** Academic Pediatrics 22(8), pp. 1468–1476

**Abstract:** Objective: To evaluate differences in emergency department (ED) utilization and subsequent admission among children by Child Opportunity Index (COI). **METHODS:** We performed a cross-sectional study of pediatric (<18 years) encounters to 194 EDs in Illinois from 2016 to 2020. Each encounter was assigned to quintiles of COI 2.0 by postal code. We described the difference in the percent of encounters between lower (Very Low and Low) and higher (Very High and High) COI overall and among diagnoses with overrepresentation from lower COI groups. We evaluated the association of diagnosis with COI in ordinal models adjusted for demographics. Results: There were 4,653,026 eligible ED encounters classified by COI as Very Low (28.6%), Low (24.8%), Moderate (20.3%), High (15.6%), and Very High (10.8%) (difference between low and high COI encounters 27.0%). Diagnoses with the greatest difference between low and high COI were eye infection, upper respiratory tract infections, and cough. The COI distribution for children admitted from the ED ( $n = 140,298$ ) was 29.1% Very Low, 19.3% Low, 18.2% Moderate, 17.7% High, and 15.7% Very High (percent difference 15.1%). Diagnoses with the greatest differences between low and high COI among admitted patients were sickle cell crisis, asthma, and influenza. All ED diagnoses and 7/12 admission diagnoses were associated with lower COI in multivariable ordinal models.  
**CONCLUSIONS:** Children from lower COI areas are overrepresented in ED and inpatient encounters overall and within certain diagnosis groups. Further research is required to examine how health outcomes may be influenced by the structural and contextual characteristics of a child's neighborhood.

**Access or request full text:** <https://libkey.io/10.1016/j.acap.2022.06.003>

### **6. Predictors of Elevated Social Risk in Pediatric Emergency Department Patients and Families.**

**Authors:** Rucker, Alexandra C.; Watson, Ar'Leon; Badolato, Gia; Boyle, Meleah; Hendrix, Christian; Jarvis, Lenore; Patel, Shilpa J. and Goyal, Monika K.

**Publication date:** Feb 01, 2022

**Journal:** Pediatric Emergency Care 38(2), pp. e910–e917

**Abstract:** **OBJECTIVE:** This study aimed to identify predictors of high unmet social needs among pediatric emergency department (ED) patients. We hypothesized that obesity, frequent nonurgent visits, reported food insecurity, or an at-risk chief complaint (CC) would predict elevated social risk. **METHODS:** We administered a tablet-based survey assessing unmet social needs in 13 domains to caregivers of patients aged 0 to 17 years presenting to an urban pediatric ED. Responses were used to tabulate a social risk score (SRS). We performed multivariable logistic regression to



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measure associations between a high SRS ( $\geq 3$ ) and obesity, frequent nonurgent visits, food insecurity, or an at-risk CC (physical abuse, sexual abuse, assault, mammalian bites, reproductive/sexual health complaints, intoxication, ingestion/poisoning, psychiatric/behavioral complaints, or any complaint triaged as "least urgent"). RESULTS: Five hundred seventy caregivers completed the survey. Eighty-one percent reported at least one unmet social need, and 33% identified  $\geq 3$  social needs. Caregivers of patients with an at-risk CC had twice the odds of a high SRS (adjusted odds ratio [aOR], 1.8; 95% confidence interval [CI], 1.0-3.3). Caregivers of patients reporting food insecurity had 4 times the odds of a high SRS (aOR, 4.3; 95% CI, 2.5-7.3). Neither obesity (aOR, 1.5; 95% CI, 0.9-2.6) nor frequent nonurgent visits (aOR, 0.9; 95% CI, 0.4-1.9) were predictive of a high SRS. CONCLUSIONS: Unmet social needs are prevalent among caregivers of pediatric ED patients, supporting universal screening in this population. Patients with an at-risk CC or reported food insecurity might benefit from proactive intervention. Future studies should examine optimal methods for ED-based interventions that address social determinants of health. Copyright © 2021 Wolters Kluwer Health, Inc. All rights reserved.

Access or request full text: <https://libkey.io/10.1097/PEC.0000000000002489>

## Primary Care

### [1. Children accessing accident and emergency department for non-urgent consultations: A cross-sectional study about parents' use of primary care services](#)

**Authors:** Dall'Oglio, Immacolata;Biagioli, Valentina;Pol, Alessandra;Gawronski, Orsola;Carlin, Claudia;Cirulli, Luisa;Piga, Simone;Stelitano, Rocco;Offidani, Caterina;Raucci, Umberto;Reale, Antonino;Tiozzo, Emanuela;Villani, Alberto and Raponi, Massimiliano

**Publication date:** 2024

**Journal:** International Emergency Nursing 74, pp. N.PAG

**Abstract:** • Most parents consult at least sometimes the primary care paediatrician. • Parents rarely use other primary care services. • Only a few parents know where the nearest community health centre is located. • Children previously admitted to the hospital use more community services. • Parents ask for more information about local healthcare services. Parents often take their children to the Paediatric Accident and Emergency Department (A&E) for non-urgent consultations rather than using community-based primary care services. This study describes the use of primary care services in parents taking their children to the A&E for non-urgent consultations. A cross-sectional study was conducted from July 2018 to June 2019, in a second-level Italian paediatric A&E of a tertiary-level children's academic research and hub hospital. Parents of children aged between 3 months and 6 years assigned with a white code at the triage were asked to complete a paper-and-pencil 40-item questionnaire after accessing the A&E for a non-urgent consultation. The questionnaire was completed by the parents of 237 children (males 58 %; median age = 2.3 years). Overall, 48.1 % (n = 114) of the parents reported consulting 'often/always' the primary care paediatrician, mainly when their child was sick and for check-ups (n = 182, 76.8 %). However, only 7.2 % (n = 17) of the parents 'often/always' used any other health service in the community. Most of them (n = 191, 82 %) did not even know where the community health centre was located. Parents accessing the A&E for non-urgent consultations should be better informed/educated on how to use community health services.

Access or request full text: <https://libkey.io/10.1016/j.ienj.2024.101436>

### [2. Assessing the Relationship Between Well-Care Visit and Emergency Department Utilization Among Adolescents and Young Adults](#)

**Authors:** Holland, Jennifer E.;Varni, Susan E.;Pulcini, Christian D.;Simon, Tamara D. and Harder, Valerie S.



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**Publication date:** 2022

**Journal:** Journal of Adolescent Health 70(1), pp. 64–69

**Abstract:** To investigate the association between adolescent and young adult (AYA) well-care visits and emergency department (ED) utilization. Vermont's all-payer claims data were used to evaluate visits for 49,089 AYAs (aged 12-21 years) with a health-care claim from January 1 through December 31, 2018. We performed multiple logistic regression analyses to determine the association between well-care visits and ED utilization, investigating potential moderating effects of age, insurance type, and medical complexity. Nearly half (49%) of AYAs who engaged with the health-care system did not attend a well-care visit in 2018. AYAs who did not attend a well-care visit had 24% greater odds (95% confidence interval CI]: 1.19–1.30) of going to the ED at least once in 2018, controlling for age, sex, insurance type, and medical complexity. Older age, female sex, Medicaid insurance, and greater medical complexity independently predicted greater ED utilization in the adjusted model. In stratified analyses, late adolescents and young adults (aged 18-21 years) who did not attend a well-care visit had 47% greater odds (95% CI: 1.37 - 1.58) of ED visits, middle adolescents (aged 15-17 years) had 9% greater odds (95% CI: 1.01–1.18), and early adolescents (aged 12-14 years) had 16% greater odds (95% CI: 1.06 - 1.26). Not attending well-care visits is associated with greater ED utilization among AYAs engaged in health care. Focus on key quality performance metrics such as well-care visit attendance, especially for 18- to 21-year-olds during their transition to adult health care, may help reduce ED utilization.

**Access or request full text:** <https://libkey.io/10.1016/j.jadohealth.2021.08.011>

### [3. Pediatric Primary Care Relationships and Non-Urgent Emergency Department Use in Children](#)

**Authors:** Kirby, Shannon;Wooten, William and Spanier, Adam J.

**Publication date:** 2021

**Journal:** Academic Pediatrics 21(5), pp. 900–906

**Abstract:** Non-urgent emergency department (ED) use contributes to healthcare costs and disrupts continuity of care. Factors influencing patient/guardian decision-making in non-urgent situations are poorly understood. We sought to determine the association of patient/guardian – primary care provider (PCP) relationship with non-urgent ED usage and explore related factors. In an urban practice, we recruited 218 parent-child pairs and administered a survey with the PCP relationship (PDRQ-9), caregiver knowledge of office resources, and care-seeking behavior. We performed a 12-month retrospective chart review to document non-urgent ED visits. We evaluated the association of PDRQ9 and non-urgent ED usage by regression analysis. Mean child age was  $7.0 \pm 5$  years, and 32.6% of children had at least one non-urgent ED visit. Mean PDRQ9 score was  $39.8 \pm 7.3$  and was not associated with non-urgent ED use ( $P = .46$ ). Lower child age ( $P < .001$ ) and shorter time coming to the PCP practice ( $P < .001$ ) were both associated with increased non-urgent ED use. Only 36.4% reported usually going to their PCP when they are sick. Knowledge of office resources was limited, and when prompted with acute, non-urgent medical scenarios, in 4 of 5 scenarios, 50% or more of participants chose to go to the ED over communicating with or going to their PCP. We did not find an association between patient-doctor relationship strength and non-urgent ED usage. Many patients/guardians were unaware of the practice's resources and selected the ED as first choice for acute, non-urgent medical scenarios. Additional work is needed to determine interventions to reduce non-urgent ED use.

**Access or request full text:** <https://libkey.io/10.1016/j.acap.2021.03.019>

### [4. Management of non-urgent paediatric emergency department attendances by GPs: a retrospective observational study](#)



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**Authors:** Leigh, Simon;Mehta, Bimal;Dummer, Lillian;Aird, Harriet;McSorley, Sinead;Oseyenum, Venessa;Cumbers, Anna;Ryan, Mary;Edwardson, Karl and Johnston, Phil

**Publication date:** 2021

**Journal:** British Journal of General Practice 71(702), pp. e22–e30

**Abstract:** Background: Non-urgent emergency department (ED) attendances are common among children. Primary care management may not only be more clinically appropriate, but may also improve patient experience and be more cost-effective.

**Aim:** To determine the impact on admissions, waiting times, antibiotic prescribing, and treatment costs of integrating a GP into a paediatric ED.

**Design and setting:** Retrospective cohort study explored non-urgent ED presentations in a paediatric ED in north-west England

## Parental factors

### [1. Factors associated with non-urgent presentations in the paediatric emergency department using Andersen's behavioural model: A cross-sectional descriptive study](#)

**Authors:** Montoro-Pérez, Néstor;Montejano-Lozoya, Raimunda;Escribano, Silvia and Richart-Martínez, Miguel

**Publication date:** 2024

**Journal:** Journal of Clinical Nursing (John Wiley & Sons, Inc.) 33(8), pp. 3172–3187

**Abstract:** Objectives: To explore the rate of NUPs and associated factors in the PED of the 'Hospital Universitario y Politécnico La Fe' in Valencia (Spain) using Andersen's Behavioural Model. Methods: We conducted a descriptive cross-sectional study using Andersen's Behavioural Model in parents visiting the PED with their children at the 'Hospital Universitario y Politécnico La Fe' in Valencia (Spain). Results: The study involved a total of 530 participants, of whom 419 (79%) had made an NUP. The predisposing factors identified were: (I) paediatric patients brought in by their fathers (OR = 0.460;  $p = 0.005$ ), (II) lower educational attainment (OR = 3.841;  $p = 0.000$ ), (III) first-time parenthood (OR = 2.335;  $p = 0.000$ ) and (IV) higher parental stress (OR = 1.974;  $p = 0.023$ ). The enabling factors included: (I) responsibility for a significant part of the childcare shared with others (OR = 0.348;  $p = 0.041$ ) and (II) the perception that PEDs provide better care than primary care (PC) services (OR = 1.628;  $p = 0.005$ ). The need factors were: (I) existing chronic illness in the child seeking care (OR = 0.343;  $p = 0.000$ ) and (II) the perceived severity of the urgency (OR = 0.440;  $p = 0.031$ ). Conclusions: The NUP rates found in this study are similar to those found internationally. In accordance with Andersen's Behavioural Model, we identify predisposing, enabling and need factors to explain the multifactorial nature of NUPs in PEDs. Implications for Practice: Identifying the factors associated with NUPs enables interventions to be targeted at those groups most likely to engage in NUPs, thereby optimising the functioning of the PED and improving the well-being of children and families. These interventions should focus on improving parental health literacy, providing education on making appropriate decisions about accessing health services and recognising severe symptoms in children, as well as improving access to high-quality PC services. Providing support to parents during the transition to parenthood would also be beneficial. Reporting Method: This paper adheres to the STROBE initiative guidelines. Contribution from patients or members of the public: Participants, who voluntarily agreed to take part, contributed to the study by completing a paper-based questionnaire containing all the study variables as prepared by the research team.

**Access or request full text:** <https://libkey.io/10.1111/jocn.17004>



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## [2. Evaluation of Parents' Use of a Child Health Care Information App and Their Health Literacy: Cross-Sectional Study.](#)

**Authors:** Sakamoto, Masahiko; Ishikawa, Hirono and Suzuki, Asuka

**Publication date:** Apr 11, 2024

**Journal:** JMIR Pediatrics and Parenting 7, pp. e48478

**Abstract:** Background: Recently, digital media, including internet websites and smartphone apps, have become popular resources for parents in searching for child health care information. Higher health literacy among parents in obtaining adequate health care information and making proper decisions may lead to improved child health outcomes and a reduction in the burden on health care professionals. However, few studies have examined the association between the provision of child health care information apps and parents' health literacy. Objective: This study aims to evaluate whether parents' use of an app that provides child health care information is associated with their health care knowledge, their health literacy, and emergency room visits for their children. Methods: Participants were recruited during checkups for their 1.5-year-old children at health centers within Saku City in 2022. Parents who agreed to participate were included in this study; individuals were excluded if they were not the mother or father of the child or did not have a smartphone. Participants were asked if they had used the Oshiete-Doctor app, which was distributed by Saku City free of charge to improve the home nursing skills of parents and guardians. Sociodemographic data of parents and children, data on health care knowledge about children, data on the frequency of emergency room visits in the past 6 months, and health literacy scores (HLSs) of parents (measured with the HLS-EU-Q47 [European Health Literacy Survey Questionnaire]) were collected from participants in this cross-sectional survey. Univariable and multivariable analyses were conducted to examine the associations of app use with health care knowledge, health literacy, and emergency room visits. Results: In total, 251 respondents completed the survey (response rate: 251/267, 94%). Although the proportion of health care workers was significantly higher among app users than among non-app users ( $P=.005$ ), no other participant attributes were significantly associated with the use of the app. The proportions of participants with higher health care knowledge and participants with higher total HLSs were significantly higher among app users than among non-app users ( $P=.001$  and  $P=.003$ , respectively). After adjusting for potentially confounding covariates, these proportions were still significantly higher among app users than among non-app users ( $P=.02$  and  $P=.007$ , respectively). Emergency room visits were significantly more frequent among app users than among non-app users ( $P=.007$ ) in the univariable analysis, but the association was not significant ( $P=.07$ ) after adjusting for sociodemographic variables. Conclusions: This study showed a significant association between parents' use of a child health care information app and higher child health care knowledge and health literacy. The use of the app may lead to more appropriate health decisions and behaviors in children's health care. Future studies are needed to evaluate the association between app use and emergency room visits. Copyright © Masahiko Sakamoto, Hirono Ishikawa, Asuka Suzuki. Originally published in JMIR Pediatrics and Parenting (<https://pediatrics.jmir.org>).

**Access or request full text:** <https://libkey.io/10.2196/48478>

## [3. Parents' decision-making about attending an emergency department with their child](#)

**Authors:** Richardson, Jim; Price, Jayne and Bolland, Rachael

**Publication date:** 2023

**Journal:** Nursing Children and Young People 35(6)

**Abstract:** There is a possibility that front-line services, particularly out-of-hours services, are not accessible to some parents. The aim of this service evaluation was to gain a better understanding about visits to one emergency department (ED) in the south of England by children and their parents or carers. The specific focus was to elucidate the reasons behind frequent ED attendance and indicate a potential redesign of services. Semi-structured interviews were conducted with 13 parents.



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The overarching theme emerging from the transcripts was parents' complex decision-making to ensure their children's healthcare needs were addressed. Parents highlighted the absence of consistent specialist community services to support them in caring for their children at home and to act as a resource for decision-making relating to their child's care. Telephone and online information services such as NHS 111 were perceived as not always helpful. Parents were able to identify models of out-of-hours care which they saw as potentially more accessible and useful, such as the provision of a specialist paediatrician at GP surgeries. Further evaluation is necessary to make it possible to integrate parents' views and needs into service design and delivery

#### **4. Maternal Psychological Well-Being and Infant Emergency Department Utilization**

**Authors:** Guyon-Harris, Katherine; Bogen, Debra L. and Huth-Bocks, Alissa

**Publication date:** 2021

**Journal:** Academic Pediatrics 21(5), pp. 885–891

**Abstract:** A mother's psychological well-being impacts her own and her infant's health. Challenges to maternal psychological well-being (eg, depression, anxiety) are associated with increased infant emergency department (ED) utilization. It is not known if other maternal psychological factors, such as relational health and past maltreatment during one's own childhood, are also associated with child ED utilization. Examine maternal psychological factors (ie, childhood maltreatment, mental health, and relational health) associated with infant ED utilization in the first year of life. Participants included 120 economically disadvantaged women recruited into a prospective longitudinal study during pregnancy and followed across the first year of their child's life. Mothers reported number of infant ED visits from birth to 1 year (assessed 12-months postpartum), as well as on their own childhood maltreatment, relational health, and mental health (assessed prenatally). Associations between maternal experiences and infant ED utilization were assessed via bivariate correlations and regression analyses. Infants attended on average 0.79 ED visits (range 0–6). Maltreatment during the mother's own childhood, poor relational health, and prenatal mental health symptoms were each associated with greater infant ED visits; maternal age, income, and education were not. In a Poisson regression, childhood sexual abuse was the strongest predictor of infant ED utilization, followed by low acceptance from the mother's father figure and prenatal depression. Prenatal assessment of psychosocial factors may help identify risk for higher ED use. Women with psychosocial risk factors may need additional support establishing supportive primary and behavioral health care before and after birth.

**Access or request full text:** <https://libkey.io/10.1016/j.acap.2021.01.021>

#### **5. Association of limited English proficiency and increased pediatric emergency department revisits**

**Authors:** Portillo, Elyse N.; Stack, Anne M.; Monuteaux, Michael C.; Curt, Alexa; Perron, Catherine and Lee, Lois K.

**Publication date:** 2021

**Journal:** Academic Emergency Medicine 28(9), pp. 1001–1011

**Abstract:** Objective: Limited English proficiency (LEP) is a risk factor for health care inequity and an important focus for improving communication and care quality. This study examines the association between LEP and pediatric emergency department (ED) revisits. Methods: This was a retrospective, cross-sectional study of patients 0 to 21 years old discharged home after an initial visit from an academic, tertiary care pediatric ED from January 1, 2017, to June 30, 2018. We calculated rates of ED revisits within 72 h resulting in discharge or hospitalization and assessed rate differences between LEP and English-proficient (EP) patients. Multivariable logistic regression models examined the association between revisits and LEP status controlling for age, race, ethnicity, triage acuity, clinical complexity, and ED arrival time. Sensitivity models including insurance were also conducted. Results:



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There were 63,601 index visits in the study period; 12,986 (20%) were by patients with LEP. There were 2,387 (3.8%) revisits within 72 h of initial ED visit. Among LEP and EP patient visits, there were 4.53 and 3.55 revisits/100 initial ED visits, respectively (rate difference = 0.97, 95% confidence interval CI] = 0.58 to 1.37). In the multivariable analyses, LEP was associated with increased odds of revisits resulting in discharge (odds ratio OR] = 1.15, 95% CI = 1.01 to 1.30) and in hospitalization (OR = 1.28, 95% CI = 1.03 to 1.58). Sensitivity analyses additionally adjusting for insurance status attenuated these results. Conclusions: These results suggest that LEP was associated with increased pediatric ED revisits. Improved understanding of language barrier effects on clinical care is important for decreasing health care disparities in the ED.

Access or request full text: <https://libkey.io/10.1111/acem.14359>

## **6. 'Clinically unnecessary' use of emergency and urgent care: A realist review of patients' decision making**

**Authors:** O'Cathain, Alicia;Connell, Janice;Long, Jaqui and Coster, Joanne

**Publication date:** 2020

**Journal:** Health Expectations 23(1), pp. 19–40

**Abstract: Background:** Demand is labelled 'clinically unnecessary' when patients do not need the levels of clinical care or urgency provided by the service they contact.

**Objective:** To identify programme theories which seek to explain why patients make use of emergency and urgent care that is subsequently judged as clinically unnecessary.

**Design:** Realist review.

**Methods:** Papers from four recent systematic reviews of demand for emergency and urgent care, and an updated search to January 2017. Programme theories developed using Context-Mechanism-Outcome chains identified from 32 qualitative studies and tested by exploring their relationship with existing health behaviour theories and 29 quantitative studies.

**Results:** Six mechanisms, based on ten interrelated programme theories, explained why patients made clinically unnecessary use of emergency and urgent care: (a) need for risk minimization, for example heightened anxiety due to previous experiences of traumatic events; (b) need for speed, for example caused by need to function normally to attend to responsibilities; (c) need for low treatment-seeking burden, caused by inability to cope due to complex or stressful lives; (d) compliance, because family or health services had advised such action; (e) consumer satisfaction, because emergency departments were perceived to offer the desired tests and expertise when contrasted with primary care; and (f) frustration, where patients had attempted and failed to obtain a general practitioner appointment in the desired timeframe. Multiple mechanisms could operate for an individual.

**Conclusions:** Rather than only focusing on individuals' behaviour, interventions could include changes to health service configuration and accessibility, and societal changes to increase coping ability.

## **Other factors**

### **1. Exploring clinicians' knowledge and attitudes toward the care needs of complex adult users of an Emergency Department: A descriptive mixed methods study**

**Authors:** Binnie, Vicki and Johnston, Amy N. B.

**Publication date:** 2024

**Journal:** International Emergency Nursing 75, pp. N.PAG



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**Abstract:** • Clinicians frequently understood that adverse childhood experiences are common among adult frequent ED attenders. • Clinicians were more aware of the adult psychosocial impacts of childhood adversity than the risks to physical health. • Clinicians believed it was important to ask about childhood adversity, but most never asked, citing a variety of barriers. • The healthcare needs of frequent attenders with a childhood adversity history were often seen to be ineffectively met. • Gaps in clinicians' knowledge regarding trauma-informed care were common and a desire for education was identified. Adults who frequently present (FPAs) to emergency departments (EDs) often have a history of adverse childhood experiences (ACEs) and related adult health sequelae. Implications for ED care of this group remains poorly understood. This study explored clinicians' knowledge and attitudes toward the care needs of FPAs who have an ACEs history, providing preliminary evidence to inform further research and interventions. A purposive sample of ED clinicians completed an investigator developed mixed-methods survey. Descriptive statistics and content analysis were applied. Forty-three ED clinicians completed the survey. Most perceived that ACEs were common among FPAs and influenced their ED presentations. Clinicians were more aware of the psychosocial impacts of ACEs than the risks to physical health. While most clinicians agreed that FPAs should be asked about ACEs for management planning, most never asked, describing multiple barriers to doing so. Consumer's healthcare needs were often described as unmet by clinicians who desired additional support to provide care for this group. This study highlights clinicians' perceptions of gaps in healthcare for this patient group and introduces requirements for appropriate knowledge and resources to partner with consumers to provide patient-centred and trauma-informed health care responses.

**Access or request full text:** <https://libkey.io/10.1016/j.ienj.2024.101481>

## **2. Associations of Homelessness With Primary Care and Acute Care Utilization Among Medicaid-Enrolled Youth.**

**Authors:** Yue, Dahai;Chuang, Emmeline;Zhou, Weihao;Essien, Elsie A.;Lee, Youngeun;O'Masta, Brenna and Pourat, Nadereh

**Publication date:** Oct 01 ,2024

**Journal:** Medical Care 62(10), pp. 631–638

**Abstract:** BACKGROUND: Youth comprise one-third of the US homeless population. However, little is known about how homelessness affects health care utilization. OBJECTIVE: Examine associations of homelessness with hospitalization, primary care, and ED visits, varying by race/ethnicity, among Medicaid-enrolled youth. RESEARCH DESIGN: A cross-sectional analysis was conducted using California Medicaid claims data on youth beneficiaries with complex needs. We examined the number of hospitalizations, preventable and nonpreventable ED, and primary care visits using a multivariate regression. We further explored the differential associations by race/ethnicity. RESULTS: Approximately 17% of our sampled youth experienced homelessness in 2018 (N=90,202). Compared with their housed counterparts, youth experiencing homelessness had a 1.9 percentage point (pp) higher likelihood of frequent ED visits (95% CI: 1.7-2.2) but a 2.9 pp lower probability of any primary care visits (95% CI: -3.9 to -1.9). Homelessness was associated with 221 more ED visits (95% CI: 182-260), 100 more preventable ED visits (95% CI: 84-116), 19.9 more hospitalizations (95% CI: 12-27), but 56 fewer primary care visits (95% CI: -104 to -7), per 1000 youth. The associations of homelessness with total ED visits, preventable ED visits, and needed and nonpreventable ED visits were all higher among Whites and, particularly, Blacks than for Hispanics and Asians. CONCLUSIONS: Medicaid-enrolled youth who experienced homelessness had more overall ED, preventable ED, and hospital visits, but fewer primary care visits than their housed peers. Our results suggest promoting primary care use should be considered among strategies to improve health and reduce costs. Copyright © 2024 Wolters Kluwer Health, Inc. All rights reserved.

**Access or request full text:** <https://libkey.io/10.1097/MLR.0000000000002009>



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### [3. Association of Homelessness With Emergency Department Use Among Children in New York](#)

**Authors:** Chang, Lawrence; Stewart, Amanda M.; Kester, Katherine; Routhier, Giselle and Michelson, Kenneth A.

**Publication date:** 2023

**Journal:** JAMA Pediatrics 177(6), pp. 637–640

**Abstract:** This cross-sectional study uses statewide data to evaluate the association of homelessness with emergency department use patterns of children in New York.

**Access or request full text:** <https://libkey.io/10.1001/jamapediatrics.2023.0478>

### [4. Excess Hospital Burden Among Young People in Contact With Homelessness Services in South Australia: A Prospective Linked Data Study](#)

**Authors:** Goddard, Joshua; Montgomerie, Alicia; Gialamas, Angela; Haag, Dandara; Anderson, Jemma and Lynch, John

**Publication date:** 2023

**Journal:** Journal of Adolescent Health 73(3), pp. 519–526

**Abstract:** Youth homelessness remains an ongoing public health issue worldwide. We aimed to describe the burden of emergency department (ED) presentations and hospitalizations among a South Australian population of young people in contact with specialist homelessness services (SHS). This whole-of-population study used de-identified, linked administrative data from the Better Evidence Better Outcomes Linked Data (BEBOLD) platform on all individuals born between 1996 and 1998 (N = 57,509). The Homelessness2Home data collection was used to identify 2,269 young people in contact with SHS at ages 16–17 years. We followed these 57,509 individuals to age 18–19 years and compared ED presentations and hospital separations related to mental health, self-harm, drug and alcohol, injury, oral health, respiratory conditions, diabetes, pregnancy, and potentially preventable hospitalizations between those in contact and not in contact with SHS. Four percent of young people had contact with SHS at ages 16–17 years. Young people who had contact with SHS were 2 and 3 times more likely to have presented to an ED and hospital respectively, compared to those who did not contact SHS. This accounted for 13% of all ED presentations and 16% of all hospitalizations in this age group. Excess burden causes included mental health, self-harm, drug and alcohol, diabetes, and pregnancy. On average, young people in contact with SHS experienced an increased length of stay in ED (+0.6 hours) and hospital (+0.7 days) per presentation, and were more likely to not wait for treatment in ED and to self-discharge from hospital. The 4% of young people who contacted SHS at ages 16–17 years accounted for 13% and 16% of all ED presentations and hospitalizations respectively at age 18–19 years. Prioritizing access to stable housing and primary health-care services for adolescents in contact with SHS in Australia could improve health outcomes and reduce health-care costs.

**Access or request full text:** <https://libkey.io/10.1016/j.jadohealth.2023.04.018>

### [5. The relationship between adverse childhood experiences, the frequency and acuity of emergency department utilization and primary care engagement](#)

**Authors:** Diaz, Robert; Walker, Rebekah J.; Lu, Kaiwei; Weston, Benjamin W.; Young, Nicholas; Fumo, Nicole and Hilgeman, Brian

**Publication date:** 2022

**Journal:** Child Abuse & Neglect 124

**Abstract:** Introduction: A history of adverse child experiences (ACEs) is associated with increased



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high-risk adult behaviors, morbidity, mortality, and use of the emergency department. This study was designed to understand the relationship between ACEs and the characteristics of emergency department use and primary care engagement. Methods: An in-person survey was conducted at an academic emergency department (ED) assessing ACE score, emergency department utilization and acuity, and primary care engagement. Results: The prevalence of ACEs was 71.1% with 1+ ACE and 32.5% with 4+ ACE. ACE scores of four or more were associated with three or more ED visits in the past year compared those with an ACE score of zero (OR 3.22;  $p < 0.05$ ) and when adjusted for sociodemographic factors (OR 3.22;  $p < 0.10$ ). Higher ACE scores were associated with lower acuity presentations as indicated by the Emergency Severity Index before (ACE score 1 OR 3.91  $p < 0.05$ ; ACE score 2–3 OR 2.35  $p < 0.05$ ; ACE score 4+ OR 3.95  $p < 0.05$ ) and after adjustment (ACE score 1 OR 3.80  $p < 0.10$ ; ACE 2–3 OR 3.50  $p < 0.10$ ; ACE 4+ OR 4.36  $p < 0.05$ ). There was no association between ACE score and having a primary care provider (PCP), frequency of PCP visits, or PCP rating. Conclusion: Higher ACE scores were associated with higher emergency department utilization and lower acuity presentations but not associated with levels of primary care engagement. Additional investigations are needed to adequately characterize the discrete causal mechanisms behind these current findings. (PsycInfo Database Record (c) 2022 APA, all rights reserved) (Source: journal abstract)

**Access or request full text:** <https://libkey.io/10.1016/j.chiabu.2021.105479>

## **6. Do children evaluated for maltreatment have higher subsequent emergency department and inpatient care utilization compared to a general pediatric sample?**

**Authors:** Liu, Yuerong;Shepherd-Banigan, Megan;Evans, Kelly E.;Stilwell, Laura;Terrell, Lindsay;Hurst, Jillian H. and Gifford, Elizabeth J.

**Publication date:** 2022

**Journal:** Child Abuse & Neglect 134

**Abstract:** Background: Child maltreatment leads to substantial adverse health outcomes, but little is known about acute health care utilization patterns after children are evaluated for a concern of maltreatment at a child abuse and neglect medical evaluation clinic. Objective: To quantify the association of having a child maltreatment evaluation with subsequent acute health care utilization among children from birth to age three. Participants and setting: Children who received a maltreatment evaluation (N = 367) at a child abuse and neglect subspecialty clinic in an academic health system in the United States and the general pediatric population (N = 21,231). Methods: We conducted a retrospective cohort study that compared acute health care utilization over 18 months between the two samples using data from electronic health records. Outcomes were time to first emergency department (ED) visit or inpatient hospitalization, maltreatment-related ED use or inpatient hospitalization, and ED use or inpatient hospitalization for ambulatory care sensitive conditions (ACSCs). Multilevel survival analyses were performed. Results: Children who received a maltreatment evaluation had an increased hazard for a subsequent ED visit or inpatient hospitalization (hazard ratio [HR]: 1.3, 95 % confidence interval [CI]: 1.1, 1.5) and a maltreatment-related visit (HR: 4.4, 95 % CI: 2.3, 8.2) relative to the general pediatric population. A maltreatment evaluation was not associated with a higher hazard of health care use for ACSCs (HR: 1.0, 95 % CI: 0.7, 1.3). Conclusion: This work can inform targeted anticipatory guidance to aid high-risk families in preventing future harm or minimizing complications from previous maltreatment. (PsycInfo Database Record (c) 2023 APA, all rights reserved) (Source: journal abstract)

**Access or request full text:** <https://libkey.io/10.1016/j.chiabu.2022.105938>





# Tools and measures

## [1. Managing the needs of frequent attenders of urgent care services: a case management approach](#)

**Authors:** Hedayioglu, Julie;Whibley, Jill;Bottle, Laura and Sackree, Amy

**Publication date:** 2024

**Journal:** Emergency Nurse 32(4)

**Abstract:** Frequent service users, frequent attenders and high intensity users comprise a small proportion of emergency department (ED) visits but have a significant effect on cost and workload and are often ineffectively managed in healthcare settings. A new frequent service user manager (FSUM) service was set up in west Kent. This service used a case management approach to address the issue of frequent ED attendance and to support the well-being of these patients.

## [2. Development and Internal Validation of a Multivariable Prediction Model to Predict Repeat Attendances in the Pediatric Emergency Department: A Retrospective Cohort Study.](#)

**Authors:** Seers, Tim;Reynard, Charles;Martin, Glen P. and Body, Richard

**Publication date:** Jan 01 ,2024

**Journal:** Pediatric Emergency Care 40(1), pp. 16–21

**Abstract:** **OBJECTIVE:** Unplanned reattendances to the pediatric emergency department (PED) occur commonly in clinical practice. Multiple factors influence the decision to return to care, and understanding risk factors may allow for better design of clinical services. We developed a clinical prediction model to predict return to the PED within 72 hours from the index visit. **METHODS:** We retrospectively reviewed all attendances to the PED of Royal Manchester Children's Hospital between 2009 and 2019. Attendances were excluded if they were admitted to hospital, aged older than 16 years or died in the PED. Variables were collected from Electronic Health Records reflecting triage codes. Data were split temporally into a training (80%) set for model development and a test (20%) set for internal validation. We developed the prediction model using LASSO penalized logistic regression. **RESULTS:** A total of 308,573 attendances were included in the study. There were 14,276 (4.63%) returns within 72 hours of index visit. The final model had an area under the receiver operating characteristic curve of 0.64 (95% confidence interval, 0.63-0.65) on temporal validation. The calibration of the model was good, although with some evidence of miscalibration at the high extremes of the risk distribution. After-visit diagnoses codes reflecting a nonspecific problem ("unwell child") were more common in children who went on to reattend. **CONCLUSIONS:** We developed and internally validated a clinical prediction model for unplanned reattendance to the PED using routinely collected clinical data, including markers of socioeconomic deprivation. This model allows for easy identification of children at the greatest risk of return to PED. Copyright © 2023 Wolters Kluwer Health, Inc. All rights reserved.

**Access or request full text:** <https://libkey.io/10.1097/PEC.0000000000002975>

# Reports

## [1. What works: Finding ways to better support people who frequently attend emergency departments](#)

Item Type: Report

**Authors:** Gkiouleka, A., Dehn Lunn, A., Engamba, S., Blythe, J. and Ford, J.

**Publication date:** 2024

Accessed: Sep 16, 2024



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**Abstract:** People who visit emergency departments more frequently than the average often experience multiple socioeconomic difficulties and health problems. In this brief we summarise evidence on how health care services can better support these patients. Meeting these patients' needs requires an integrated approach that cuts across different health care services but may also involve local authorities and the voluntary sector.

**[2. Nowhere else to turn: exploring high intensity use of accident and emergency services \(summary report\)](#)**

Item Type: Report

**Authors:** British Red, C.

Accessed: 19<sup>th</sup> September 2024



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## FOR OFFICE USE ONLY

| DATABASES AND INFORMATION SOURCES USED |         |   |                            |   |                   |
|--|---------|---|----------------------------|---|-------------------|
|  | Pubmed  | X | HMIC                       |   | BMJ Best Practice |
| X                                      | Medline |   | Social Policy and Practice | X | Cochrane Library  |
|  | Emcare  | X | CINAHL                     |   | TRIP              |
|  | Embase  | X | PsycINFO                   | X | Grey Literature   |
|  | AMED    |   | UpToDate                   |   | Other             |

| PURPOSE OF SEARCH |                                  |   |   |
|-------------------|----------------------------------|---|---|
|                   | Patient info/health & well being | X | Clinical decision making (inc. patient care)      |
|                   | Executive Team support           | X | Research/Education/Professional development       |
|                   | Quality Improvement              |   | Primary Care & Neighbourhoods Directorate support |
| X                 | KM/Management decision making    |   | Other   |

| USER CATEGORY OF REQUESTOR |                             |  |                             |
|----------------------------|-----------------------------|--|-----------------------------|
|                            | Medical students            |  | Patients/public             |
|                            | Nursing/midwifery students  |  | Physician Associates        |
|                            | Junior doctors              |  | Public Health (Somerset CC) |
| X                          | Nurses/Midwives             |  | Other                       |
|                            | Allied Health professionals |  |                             |

| HAS PERMISSION TO SHARE THE RESULTS BEEN OBTAINED FROM THE REQUESTOR? |             |  |                   |
|---|-------------|--|-------------------|
| X   | YES - share |  | NO – do not share |





| KEY WORDS/SEARCH STRATEGY INCLUDING MESH HEADINGS   | LIMITS USED                                      |
|---|--|
| <p>I adapted the search strategy from the <a href="#">Greenfield systematic review</a>.</p> <p>Ovid MEDLINE(R) ALL &lt;1946 to September 18, 2024&gt;</p> <p>1 exp Emergency Service, Hospital/ 104613<br/> 2 ((emergency or trauma) adj3 (ward* or unit* or department* or room*)).mp. 173387<br/> 3 (accident adj2 emergency).mp 6344<br/> 4 1 or 2 or 3 213621<br/> 5 (frequent adj3 (user* or attend* or usage* or admission* or visit*)).mp. 7675<br/> 6 (repeat adj3 (user* or attend* or usage* or admission* or visit*)).mp. 1435<br/> 7 (heavy adj3 (user* or attend* or usage* or admission* or visit*)).mp. 1612<br/> 8 (high adj3 (intensity* or intensive*)).mp. 54513<br/> 9 5 or 6 or 7 or 8 65117<br/> 10 4 and 9 2158<br/> 11 (adolescen* or child* or infant*).mp. 4686251<br/> 12 adolescent/ or exp Child/ or exp Infant/ 4089542<br/> 13 p?ediatric*.mp. 558170<br/> 14 (youth or young person or young people).mp. 137786<br/> 15 11 or 12 or 13 or 14 4785379<br/> 16 10 and 15 718<br/> 17 limit 16 to yr="2021 -Current" 153</p> | <p>Under 21 years of age</p> <p>Last 5 years</p> |

