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Variations in vaccination coverage by social care need: a scoping review

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ABSTRACT

Background: Vaccination rates vary in the UK population but are vital in maintaining public health. Social care needs (SCN) refer to the promotion of independence and wellbeing, particularly in those who may have a disability, be socially isolated, or endure economic stress. Variations in SCN may impact vaccine uptake, thereby affecting vaccination coverage, but this is poorly understood.

Aim: We aim in our study to collate and interpret existing evidence on the variations in vaccination coverage among individuals with SCN.

Methods: Searches were conducted using Medline, Embase, Cochrane, CINAHL, and Bielefeld Academic Search Engine (BASE) from inception to June 27, 2024. Grey literature was also searched. Two authors independently screened and extracted relevant papers, with disagreements resolved by a third author. The search terms used included: "vaccination AND social need AND immunisation", and variations of these terms.

Results: We identified 606 articles with 32 meeting the inclusion criteria following full-text screening. Studies originated from various regions, with most conducted in the USA. Key SCN identified as barriers to vaccination included access issues, limited information, social vulnerability, and economic deprivation. Vaccines most affected included influenza, pneumonia, and HPV.

Conclusions: Our review collated evidence on vaccination uptake variations in relation to SCN, finding a limited body of research, primarily from the USA. Most studies indicated lower vaccine uptake among individuals with SCN. Greater understanding of these variations could inform improved vaccination uptake, especially in high-risk groups. Further research is needed to identify effective interventions to address these disparities in vaccination coverage.

1. Introduction

The United Kingdom implements a range of vaccination programs designed to target individuals at different stages of life, with particular emphasis on those at increased risk of infection or co-morbidities. However, the uptake of these programs varies significantly across demographic groups [1]. For instance, in the 2023–2024 period, 77.8 % of GP-registered individuals aged 65 and older in England received the seasonal influenza vaccine, while only 32.1 % of pregnant women participated in the same program [2]. Vaccine uptake can also fluctuate over time, as seen with the childhood measles, mumps, and rubella (MMR) vaccine, where coverage for the first dose decreased from 95.3 % to 92.9 % between 2016 and 2023 [3]. Moreover, in the 2022–2023 period, vaccination rates for all childhood vaccines administered to children under five in the UK fell below the World Health Organization's (WHO) target of 95 % [4].

Vaccination programs are essential for reducing the mortality, morbidity [5], and disability associated with infectious diseases [6]. High vaccination rates not only improve individual health outcomes but also contribute to public health goals, such as disease eradication. When vaccination rates are sufficient, the basic reproduction number (R0) of infectious diseases can be reduced below 1 which is the threshold necessary to achieve herd immunity [7]. The required proportion of the population to reach this threshold can be calculated using the formula $Vc = (1–1/R0)$ [7].

Social care needs (SCN) encompass a wide range of personal and supportive services aimed at promoting independence and well-being, particularly for individuals experiencing frailty, disability, social isolation, or economic instability [8]. These factors often hinder individuals' ability to perform daily activities, engage in community life, and maintain social connections [8]. SCN may remain unmet due to individual-level barriers, such as lack of awareness or reluctance to seek

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help, and systemic barriers, where services fail to reach or effectively support the target population [8].

Fulfilling SCN may involve personal care, management of chronic conditions such as diabetes and neurological conditions like cerebral palsy, as well as community engagement and mental health support [8]. Unmet SCN can be population or service driven. The former describes a reluctance or lack of awareness of the individual to access care, while the latter refers to service not reaching the target population and failing to hold them in the social care system [8]. More specifically, individuals with SCN may face barriers to vaccine uptake, contributing to variations in vaccine coverage across the UK. Barriers may include social vulnerability, lack of access and economic stress. Accordingly, in this study we aimed to summarise evidence on variations in vaccination coverage among people with social care needs (SCN).

Individuals with SCN often face unique challenges to vaccine uptake, contributing to disparities in vaccination coverage. Barriers such as social vulnerability, limited access to healthcare services, and economic pressures can all impede vaccination participation. In this study, we aim to collate and interpret existing evidence on the variations in vaccination coverage among individuals with SCN in the UK.

2. Methods

2.1. Review approach

Our study followed the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines for scoping reviews [9].

2.2. Search strategy

Systematic electronic searches were conducted from database inception to the 7th of June 2024 on Medline, Web of Science (WoS), The Cochrane Library, CINAHL and Bielefeld Academic Search Engine (BASE). For searches of electronic databases, free-text terms were used in relation to 'vaccination' and 'social care need' based on previously published search terms, shown in Table 1. Hand-searching of bibliographies was also carried out alongside discussion with subject experts.

2.3. Inclusion/exclusion criteria

Eligible articles had to be published in the English language and examined both vaccination coverage and social care needs. We did not apply restrictions based on population age or study design. Quality assessment criteria were not applied, as this is not a standard approach in scoping reviews [10], therefore extracted articles were not excluded on this basis.

2.4. Study selection and data extraction

All articles were imported into the Rayyan web-based review software for screening. Duplicate articles were removed using Rayyan autoresolver, set at 95 % overlap and using text normalisation. The Rayyan's auto-resolver was chosen as independent testing found it had the highest performance of any duplicate resolvers, with sensitivity of 0.96 and specificity of 0.97 [11]. Those excluded were screened manually to ensure they were true duplicates, with the same happening for those included. This led to 1 further paper to be removed due to being a duplicate. Having removed the duplicates, the reviewers screened the articles in blinding mode, preventing oversight among the reviewers during the screening process. The titles and abstracts were initially screened, with the relevance of each article assessed against the study's inclusion and exclusion criteria. Next, full-text versions of abstracts considered to be potentially relevant to the study were retrieved for more detailed assessment. The screening processes for the full-text articles were conducted independently by two reviewers, with any disagreements resolved through discussion. Data extraction was performed by both reviewers, and each independently reviewed the other's work, with disagreements equally resolved through discussion. For title and abstract screening, the independent reviewer was involved only in resolving disagreements that prior discussion between reviewers had not resolved. A data charting form was used to organise the studies and document a range of 'key characteristics' for each relevant study (Appendix A). To this end, the reviewers extracted the article reference and date, the stated aim of the study, methods, results, social care need indicators, key findings and study limitations. Lastly, a final screening of the most relevant articles was undertaken, with disagreements between reviewers resolved through consultation with an independent reviewer. The independent reviewer further verified the papers included and excluded at the stage of full text screening.

Table 1
Search terms used and number of results, those that meet inclusion criteria in **bold**.

Database	Terms Used	Results (English)
BASE	vaccination AND social need AND immunisation	209 (**162**)
CINAHL	(vaccin* or immunis* or immuniz*) AND ("social care need*" or "social need*" or "care need*")	132 (**128**)
Cochrane Library	vaccination OR immunisation OR immunization AND social care OR social care need OR care need	139 (**139**)
Medline	(vaccin* or immunis* or immuniz*) AND ("social care need*" or "social need*" or "care need*")	284 (**274**)
Web of Science	(vaccin* or immunis* or immuniz*) AND ("social care need*" or "social need*" or "care need*")	270 (**264**)

2.5. Summarising and analysis

Using standard analytical processes for scoping reviews, the data analysis was conducted iteratively, combining quantitative counts and qualitative methods from extracted data by the reviewers to characterize and interpret the evidence [9]. The qualitative technique used focused on basic coding of data into categories (e.g., location, study design, population, and outcomes), in line with established methodological guidelines for scoping reviews [12]. Use of this technique allowed for quantitative frequency counts to quantify the coverage of identified characteristics within included studies, providing an overview of the breadth and distribution of the evidence base for each category established in relation to the research question [13]. The qualitative technique of coding data into categories further allowed us to better determine how different types of SCN had variations in uptake, in turn demonstrating areas for further research and intervention as shown by Table 2.

To manage the data, the team applied the data charting technique, a commonly utilized method in scoping reviews that enables the extraction, identification and structuring of key data from the included studies [9,13]. The data was extracted from the included full-text articles into a MS Excel spreadsheet. Characteristics included year, geographical location, setting, sample type and study design, methodology, primary aim of the study, and findings/results as well as limitations. Data charting in this manner allowed systematic extraction and analysis of relevant information to the focus of this review [12]. Data charting was performed by both reviewers, with each reviewer verifying the other's work. This process ensured consistency and enabled comparative analysis across the extracted sources.

The interpretation of findings involved the creation of a qualitative framework represented by a data extraction and summary table of the collected material to identify patterns, themes and gaps within the evidence [14]. The creation of a data extraction table allowed our findings to be logically organised, where thematic analysis was applied using excerpts from identified themes of each article such as vaccination impact, social care need, barriers to vaccination, study designs and

Table 2
A summary of SCN themes, example populations, and vaccine impact.

SCN Theme	Associated Barriers	Example Populations	Vaccine Impact	Study Context	Key Studies
Disability/Chronic Illness	Limited access to health services and care giver burden	Low vision, cerebral palsy, general chronic illness	Mixed (↓ DTaP, HPV; ↑ in specific proactive practices)	Focus on children/adolescents; some small-scale settings. Variable results depending on care engagement	20, 21, 27, 44, 46
Socioeconomic Deprivation	Economic burden, transportation issues, under resourced services	Children and adults affected by high economic burden	↓ Influenza, DTaP, MMR, HPV	Predominantly USA-based, mostly cross-sectional studies in primary/ social care	16, 17, 18, 24, 26, 31, 32, 33, 39, 45
Ethnic Minority Groups	Healthcare distrust, systemic racism, misinformation	Black, Māori, Gypsy, refugee or migrant communities	↓ MMR, DTaP, Polio, HPV	Mostly self-reported data with a focus on culturally specific barriers and enablers	24, 25, 28
Foster & Social Care	Disrupted care continuity, non-birth caregivers, institutional gaps	Children in foster care or social services	↓ MMR, DTaP, meningococcal	Tertiary/secondary settings, limited follow-up, small samples	29, 36, 37, 43
Substance Use & Domestic Abuse	Health system disengagement, stigma, childcare, fear of abuser	IV drug users, victims of domestic violence	↓ General uptake; ↑ Hepatitis A/B in drug users	Highly vulnerable populations and effect of primary care contact explored	34, 38, 40
Migrant & Refugee Status	Language barriers, lack of entitlement, limited info, travel cost	Recent migrants and refugees	↓ Influenza, general preventive vaccines	Legal/structural exclusion; cross-border variation, accessibility issues	17, 28
Healthcare System Distrust	Access to care, caregiver availability, cultural and structural barriers	Minorities and socioeconomically deprived groups	↓ Across multiple vaccines	Emphasized in ethnic minority populations, few studies explored solutions like cultural humility	25, 40
Potential Enablers to Vaccine Uptake	Community outreach, flexible service delivery, culturally competent care	Various populations with SCN	Potential ↑ uptake were applied	Suggested in limited studies - often proposed but not empirically tested	18, 25
Universal Themes	Access to care, caregiver availability, cultural and structural barriers	All SCN groups	Consistently lower uptake in SCN groups	Gaps in UK-based studies, mostly USA, no formal quality appraisal, heterogeneity across designs	All included studies

populations (Appendix, A). This analytical phase was critical to contextualizing the results within the broader research field and identifying areas requiring further investigation. Table 2 shows a summary of the extracted data categorised into themes and key findings.

3. Results

3.1. Screening, inclusion, and exclusion of studies

A total of 967 articles were initially identified during the review and a final 32 included. Fig. 1 depicts a flowchart of the screening process, including reasons for inclusion/exclusion of articles during the review process.

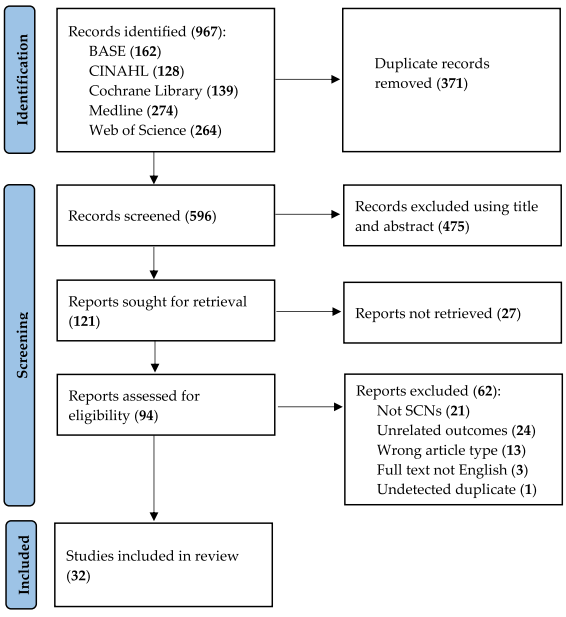

Fig. 1. Adapted PRISMA flowchart showing the screening process, and the final number of articles included.

3.2. Characteristics of included studies

A final 32 studies were included, and these were published between 1993 and 2024. The majority of studies ($n = 17$, 53 %) took place in the USA [21–23,25–27,30–34,39–41,44–46]., then Australia ($n = 3$) [16,20,27]. Study designs included cross-sectional ($n = 24$) [15,16,19,21–26,30–34,37–46], mixed methods ($n = 1$) [18], literature reviews (n = 2) [17,35], audits (n = 1) [20], cohort (n = 2) [27,36] and case-control (n = 2) [28,29].

Most studies were set within primary or social care, and a few in a secondary or tertiary care facility ($n = 4$) [15,29,38,41]. Most focus on children or adolescents ($n = 18$) [15,16,18–22,26–29,31,35–38,43,46]. The remaining studies looked at adults although age was not always specified. There was one study exclusively examining people >65 years [45]. The main population groups examined in the studies included individuals with specific health needs or chronic medical conditions ($n = 8$) [20–22,26,27,35,44,46], seven of which were studies of paediatric patients [20–22,26,27,35,46]. The chronic medical conditions of focus were: blindness and low vision [44], cerebral palsy and other neurological conditions [20,46], as well as broadly "chronic health conditions" [21,22,26,27,35] The other populations examined included children placed in social services or foster care, ($n = 4$) [29,36,37,43], ethnic minority groups/migrant communities (n = 4) [17, 24, 28, 42], and socioeconomically deprived and vulnerable adults ($n = 10$) [31–34,38–42,44]. Most of the examined populations were white but we did find a few studies exploring vaccination uptake issues among ethnic minorities including black, Māori and Gypsy children – all of whom had lower immunization rates [24,25,28]. Frugé et al. explored barriers to vaccination coverage in these groups including healthcare access, attitudes or beliefs, perception of racism within the healthcare system and socio-economic status [25].

3.3. Social care needs

Aspects of SCN were considered in the context of language barriers/ the lack of access to healthcare endured by migrants and refugees [17, 28]; social welfare such as Medicaid [31,41]; social vulnerability related to domestic violence and/or intravenous drug abuse [34,38,40]; the

influence of foster care [29,36,37,43], and financial strain [16, 17, 24, 26, 31, 32, 33, 39, 45] such as living below the federal poverty level in individual USA states.

3.4. Vaccinations

The vaccination coverage considered across the included studies, are: influenza, measles, tetanus, meningococcal, human papillomavirus (HPV), hepatitis, pneumonia, shingles, and diphtheria, tetanus, and pertussis (DTaP).

The largest demographic identified in this review was children and adolescents (n = 18) [15,16,18,19,20,21,22,26,27,28,29,31,35,36, 37,42,43,46], and so childhood vaccinations feature heavily including missed vaccination for DTaP ($n = 9$) [19,21,26–29,35,42,43] MMR ($n = 6$) [19,21,22,26,27,29], polio ($n = 5$) [21,26,27,29,42] and HPV ($n = 3$) [20,22,35]. In the adult population, among included studies influenza ($n = 7$) [17, 26, 33, 39, 41, 44, 45], followed by tetanus (n = 3) [17, 34, 38] were reported. Other adult vaccines included hepatitis, pneumonia, HPV, and shingles. In studies focussed on socially vulnerable individuals and intravenous drug users, the vaccines heavily featured included hepatitis A and B [34,38].

3.5. Social care needs and variation in immunization

Many studies showed an inverse association between SCN and vaccination coverage. Ilesanmi, et al. showed increased rates of vaccination among affluent individuals compared with those more deprived, in Saskatchewan, Canada [18]. Similar results were found in other studies, displaying decreased use of preventive healthcare and reduced vaccine uptake in lower income groups, or those using income-linked public health insurance [31,39,41]. Ilesanmi, et al. identified many barriers to immunization including transportation issues (both poor infrastructure and rural setting), anxiety over time away from work, and shrinking healthcare system funds that would be spent towards public education [18]. However, the study was limited in that it did not collect data from every region in Saskatchewan, and that data were collected between 2002 and 2013. Moreover, the study also found enablers to immunization such as community engagement, increasing communication and flexible service delivery [18]. The researchers suggested a holistic approach to improve vaccine uptake, alongside targeted population interventions that would be context and specific to regions in a country [18]. However, the study was limited in that it did not collect data from every region in Saskatchewan, and that data were collected between 2002 and 2013. Other more recent studies covering income-linked vaccine uptake showed similar results, but without exploring the factors causing this, or potential solutions to increase uptake [31,39,41].

In relation to children in social care, Breneol, S. et al. found no significant association between this SCN and up-to-date immunization status [29]. However, it is important to note that Breneol, S. et al. conducted the study in one tertiary care facility over one year [29]. Being in social care as a child reduced the uptake of vaccines such as DTaP and meningitis C, according to other studies [36,37,43]. Other findings showed small percentages of youth and adults with special healthcare needs such as cerebral palsy and HPV being up to date with vaccines including tetanus, meningococcal and HPV [20–22,30]. In contrast, Samuels et al. demonstrated high rates of immunization for diphtheria, tetanus, and pertussis (DTaP); polio; and measles, mumps, and rubella (MMR), in children with special healthcare needs, and that any intervention to increase vaccine uptake did not improve these already elevated rates [27]. However, the study investigated immunizations for children with special healthcare needs in a small selection of GP practices across Massachusetts, which were inherently more interested in providing care to this population of children, and the results are likely to differ when generalized over a wider range of GP practices that are less proactive in encouraging vaccination uptake [27]. One interesting finding was that children with special health care needs cared for by non-birth parents were less likely to be up to date with vaccinations since these caregivers would have less time to fully immunize a child by the age of two years old [27].

Furthermore, minorities such as black individuals, Māori and Gypsy children all had lower immunization rates [24,25,28]. Frugé et al. identified barriers for vaccine uptake in ethnically black populations such as healthcare access, distrust for the healthcare system, racism within the healthcare system and socio-economic status [25]. Subsequently, it was suggested that actions such as diversifying the healthcare workforce would instil cultural humility, thereby reducing institutional racism [25]. The results from above study are derived from self-reported healthcare behaviors by participants, which may provide inaccuracy as some participants may misreport their healthcare engagement [25].

Social vulnerability was also linked with vaccine coverage where it was shown that intravenous drug users reported higher receipt of preventative health vaccinations, compared to other services such as colonoscopy. The highest rates of vaccination were reported against hepatitis A and B [34]. However, the likelihood of receiving preventative healthcare vaccinations was dependent on whether the drug user had seen their primary care practitioner in the last year and if their primary care practitioner was aware of the individual's drug use to begin with [34]. Domestic violence can reduce vaccine coverage in children of affected partners [40]. Major barriers identified were the lack of transportation, fear of the abuser, financial hardship, and no childcare [40]. Preventive healthcare was also strongly correlated with other variables such as low income, despite the availability of federal safety net programs such as Medicaid [40]. Being a migrant or refugee also presents barriers against immunization such as language issues, a lack of access to accurate information regarding vaccines, the financial strain involved in traveling to a vaccination center while missing work, and the questionable entitlement of migrants to vaccines according to various national vaccine policies [17,28].

Overall, common barriers to immunization were identified among all population groups, some of which included service access/utilization, socioeconomic deprivation, chronic disease or illness, and being in some form of social care as a child. Further, the barriers to immunization are very broad as they are associated with a wide range of SCN groups, each of which experiences a different range or combination of barriers to immunization.

4. Discussion

4.1. Key findings

Our scoping review aimed to collate and interpret existing evidence on the variations in vaccination coverage among individuals with SCN in the UK. We found that several studies have examined variations in vaccination coverage by considering a range of SCN including economic deprivation, children in social care, intravenous drug users, victims of domestic violence, and youth with special healthcare needs. We identified common barriers to immunization among population groups with SCN such as lack of awareness, distrust of healthcare services, service accessibility, socio-economic instability, and having an additional chronic healthcare need.

4.2. Strengths and limitations

To our knowledge, this is the first review to systematically examine vaccine coverage in individuals with SCN. Our review has several strengths and limitations. As this is a scoping review, we aimed to identify, collate and chart the range and types of existing evidence available to provide an overview of this topic. The methodology used in our scoping review allowed for a rapid and extensive search of existing literature, and consistent key terms were also used across databases to increase the internal validity of results. These methods yielded a similar

number of studies from each database, with some overlap of articles between databases. The flexibility of our scoping review has allowed for the inclusion of a diverse range of study designs, many study populations, and a mixture of qualitative and quantitative data. Most importantly, our exploration of the literature has highlighted important gaps in the evidence base on vaccine coverage in those with SCN.

Our review has limitations regarding the accepted definition of social care needs itself. There is no universally accepted definition of social care needs, and the concept is subject to debate in the existing literature. A review by Simpson, G. et al. addressed the discrepancies in the concept of SCN and sought to broaden the definition to not only include functional care needs, but also psycho-social, socio-economic and service-driven needs [8]. This article formed the foundation for the definition of SCN, which was used to map the literature around this topic. Overall, it can be difficult to determine which aspects of care need constitute SCN and therefore what to include in this study was equally hard to define. We did however find that through using search terms around "care needs" and "social care needs", a broad spectrum of expected factors relating to SCNs were included and felt therefore that the definition and search terms used were adequate for the purpose of this scoping review. It identified what we feel are several gaps in existing research, as will be discussed in the conclusion. Despite this, the search strategy employed could have been expanded. Broader search terms and more detailed search approaches might have uncovered additional relevant studies or nuanced findings that were not captured within our current parameters. There are other studies which have focussed on SCN applied to contexts outside of vaccine delivery and have used their own search terms. For example, a review into the impact of SCN on access to palliative services utilized search terms such as "access to healthcare", "inequity" and "obstacle" [47]. Another review into the barriers of healthcare against children in social care used the terms "child welfare", "foster care", "utility" and "barrier" [48]. These reviews highlight the importance of using a more varied approach when constructing search terms to cover a wider demographic, and elicit more themes related to vaccine coverage among SCN populations.

Most papers we found were in the USA; therefore, care must be taken when extrapolating our findings to other international contexts. Further limitations exist in the search terms and strategy used. We did not use MesH terms as not all databases used had this facility, and we aimed to have common search terms with a consistent search strategy across each database. By adopting this approach, we may have missed some papers mapped under MesH subject headings. Furthermore, some of our searches yielded articles in foreign languages. These articles were not included in our review but may have contained data relevant to our study's aims.

The screening of articles was conducted independently, and any conflicts resolved by a third party, increasing the validity of our screening process. Although we followed independent screening, as this was a scoping review, a formal quality appraisal process of included works was not conducted. Therefore, we recognize that more research may be required for example, in the form of a systematic review, to undertake a more comprehensive synthesis and assessment of the available international evidence to gain a greater understanding of this subject. Furthermore, broader searches across a wider range of other academic and policy databases may have yielded important additional evidence.

5. Conclusion

Most studies show that vaccine uptake is lower in groups who have SCN. The literature on this subject was limited, with no studies looking broadly at SCN across all dimensions. This is important as SCN in individuals is often critical to effective holistic care management of chronic health conditions. Current research focuses on specific aspects, such as income or disability, and often does not include confounding variables that constitute other aspects of SCN. Additionally, more studies need to be conducted into vaccine uptake in high-risk and vulnerable groups. Furthermore, research examining what interventions can be designed and implemented to increase vaccine uptake in those with SCN is also an important next step in global research.

Overall, our findings indicate the need for more in-depth investigation, possibly in the form of a full systematic review of the literature on this topic, which can expand the evidence base of vaccination coverage to UK-based populations and elsewhere in the world, beyond the USA. Furthermore, there is scope for future research to explore, in greater detail, the factors and specific barriers against vaccination coverage in individuals with SCN. For example, the impact of SCN on vaccine delivery could be explored further by utilising broader and more varied definitions or subcategories that may fall under the umbrella of SCN, such as child welfare, foster care, inequity, and physical impairment. A full systematic review could be combined with a meta-analysis, which may quantify and compare the uptake of vaccines among different populations. This could lay the foundations for observational studies that could investigate this topic further with national primary care data, relating to vaccination uptake in populations with a SCN, compared with control patient groups.

CRediT authorship contribution statement

Arun Dahil: Writing – review & editing, Writing – original draft, Visualization, Validation, Software, Resources, Project administration, Methodology, Investigation, Formal analysis, Data curation, Conceptualization. **David Hardisty:** Writing – review & editing, Writing – original draft, Visualization, Validation, Software, Resources, Project administration, Methodology, Investigation, Formal analysis, Data curation, Conceptualization. **Glenn Simpson:** Writing – review & editing, Supervision, Resources, Project administration, Methodology, Conceptualization. **Hajira Dambha-Miller:** Writing – review & editing, Writing – original draft, Supervision, Project administration, Methodology, Conceptualization.

Ethics approval and consent to participate

Ethical approval was not required for this scoping review and therefore not applicable.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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None.

Author's information

None.

Consent to publish.

Not applicable.

Appendix A. Appendix

Title	First author	Year	Geographical location	Setting	Sample Type	Study Design	Source of data	Method	Primary Aim	Findings/Results	Limitations
Determination of immunization status of children between 2 and 5 years of age who attending to teaching institute with concern to both national immunization schedule and optional vaccines	Hanshila, V.	2024	India	Secondary care	Paediatric patients aged between 2 and 5 years of age who are attending a teaching health care centre with concern to both National immunization Schedule and Optional vaccines.	Cross-sectional study	Primary research	Questionnaire	The primary aim of this study was to determine the immunization status of children between 2 and 5 years of age who were attendees of a teaching health care centre with concern to both National immunization Schedule and Optional vaccines.	The results showed that 70.4 % of children received all recommended vaccinations. Lack of information, rural background, low socioeconomic status and ignorance were identified as significant contributors to under-immunization.	It is a hospital-based study of only 16-months duration, hence the study protocol and outcomes may not imply to the other areas.
Barriers to childhood immunization: Findings from the Longitudinal Study of Australian Children	Pearce, A.	2015	Australia	Social care	Children registered on the Medicare database born between 2003 and 2004 and their parents	Cross-sectional analysis of secondary data	Primary research	Interview	The aim of this study was to examine the barriers against childhood immunization experienced by parents in Australia.	From the subsection of children with parents who did not disagree with immunization, 8 % of the children in question were incompletely immunized. The main barriers identified against immunization included psychological distress, childhood concern, and low social contact/ service information.	"LSAC children were sampled from the Medicare database, which at the time included 98 % of children by the time they reached age 12 months. However just 57 % of those contacted agreed to take part in the survey. It was not possible to determine whether Immunization was timely for fully immunized infants; similarly, under-immunized infants may have subsequently caught up"
Defining drivers of under-immunization and vaccine hesitancy in refugee and migrant populations to support strategies to strengthen uptake of COVID-19 vaccines: a rapid review.	Deal, A.	2023	Global	Social care	Global refugee and migrant communities	Rapid review of published and grey literature pertaining to refugee and migrant communities globally.	Secondary analysis	Rapid review of published and grey literature	This study aimed to explore the reasons for under-immunization among migrant and refugee populations.	Following the inclusion of 66 papers, data were collected from asylum seekers, refugees and migrant populations in 22 countries, and range of factors underlying under immunization were identified such as access issues and awareness.	"The limitations of this research include that, as a rapid review, quality assessments were not done for included literature; therefore, the quality of the available evidence is not certain. It is also important to note that the scope of the results presented is limited by the availability and quality of published

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Title	First author	Year	Geographical location	Setting	Sample Type	Study Design	Source of data	Method	Primary Aim	Findings/Results	Limitations
											literature, in which we have identified major gaps, such as the availability of published data on vaccine hesitancy in migrants from LMICs."
Trends, barriers and enablers to measles immunization coverage in Saskatchewan, Canada: A mixed methods study.	Ilesanmi, M. M.	2022	Canada	Social care	Quantitative data from children under 2 years of age on the Saskatchewan immunization Management System (SIMS) registry. Qualitative data from front line officers and individuals with policy roles in their respective regional health authorities.	Explanatory sequential mixed methods (quantitative data analysis and interviews)	Secondary analysis and primary research	Quantitative analysis of data and interviews	This study examined measles immunization coverage trends across the regional health authorities in Saskatchewan and explored the barriers and enablers to measles immunization coverage from frontline and policy maker's perspectives.	There was a 16.89 %-point increase in measles immunization coverage in the province from 56.32 % to 73.21 % between 2002 and 2013. There was also a persistently higher coverage among the affluent (66.95% – 82.37 %) than the most deprived individuals (45.79 % - 62.60 %) in the study period. Access-related issues, caregivers' fears, hesitancy, anti-vaccination challenges, and resource limitations were barriers to immunization. The study found that improving community engagement, flexible service delivery, targeted social responses and increasing media role, could address the uptake of measles and other vaccine-preventable diseases immunization.	"Firstly, only 10 of the 13 RHAs participated in the study. While these 10 RHAs represent 96.5 % of the study population, the specific context, and characteristics of the non-participating RHAs may have been missed. Secondly, the Saskatchewan Immunization Management System (SIMS) data used for the quantitative strand of the study was between 2002 and 2013—which could be considered relatively dated, although this range represented the entire dataset that was available in that system before Saskatchewan transitioned to the Panorama Gateway in 2014. An apparent limitation of interview data analysis is information recall bias. It should also be noted that data were not available for ethnicity and immigration status. Future studies are needed to explore patterns of measles Immunization among other sub-populations which frequently exhibit

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Title	First author	Year	Geographical location	Setting	Sample Type	Study Design	Source of data	Method	Primary Aim	Findings/Results	Limitations
											health inequities such as immigrants and indigenous populations. “
Influence of the COVID-19 pandemic on caregiver beliefs and experiences of routine childhood immunization in Indonesia.	Randell, M.	2024	Indonesia	Social care	Caregivers of children between 0 and 24 months of age	Cross-sectional survey	Primary research	Survey	This primary aim was to investigate the influence of the pandemic on the beliefs and experiences of caregivers of children related to routine immunization.	The majority of caregivers (95.7 %) reported wanting their child to receive all recommended routine immunizations, only 40.3 % of children aged 2–24 months were up-to-date with all vaccines for age. Factors associated with up-to-date included higher parental education, higher household income, and caregivers who found it moderately or very easy to get immunizations.	“Due to the cross-sectional nature of the study, we were only able to measure associations, rather than cause and effect, between caregiver-reported influences on routine Immunization uptake at a given point of time. The study results cannot be generalized to all of Indonesia as it was conducted in two provinces with unique contexts in addition to the considerable heterogeneity that exists between provinces in Indonesia.”
Immunization coverage in children with cerebral palsy compared with the general population.	Greenwood, V. J.	2013	Australia	Social care	Records of children under the age of 7 with cerebral palsy, extracted from the Victorian Cerebral Palsy Register	Retrospective audit	Primary research	Retrospective audit quantitative data analysis	The objective of this study was to evaluate the overall immunization coverage in children with cerebral palsy, including missed vaccines, in an Australian state cohort.	The results showed that 19.2 % of children with cerebral palsy were not up to date with the Australian immunization schedule, this result was greater than the general population percentage (6–8 %).	“This study had several limitations. It was a retrospective review; however, comprehensive ACIR records were obtained in 96 % of the original cohort, after exclusion of children who had died. It was based on ACIR data, which is not entirely accurate due to under-reporting of Immunization encounters by providers, estimated to be 2.7–5 %. 3 Other limitations included the inability to establish if any children had an immunodeficiency that would change

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Title	First author	Year	Geographical location	Setting	Sample Type	Study Design	Source of data	Method	Primary Aim	Findings/Results	Limitations
											the recommended vaccinations."
Correlates of receiving recommended adolescent vaccines among youth with special health care needs: Findings from a statewide survey.	Reiter, P.L.	2016	USA	Social care	Parents with an 11- to 17-year-old child with a special health care need from the 2010–2012 North Carolina Child Health Assessment and Monitoring Program	Retrospective analysis of data from cross-sectional survey	Secondary analysis	Survey	This study sought to examine the correlates of adolescent vaccination among youth with special healthcare needs.	12 % of youth with special healthcare needs received all three vaccines including tetanus, meningococcal and HPV. Youth with special healthcare needs had received the tetanus vaccine more so than the others. From this sample, children whose households contained a person with at least some college education had received fewer vaccines.	"Study limitations include a cross-sectional design and reliance on parent-reported vaccination status. Most parents can accurately recall whether or not their adolescent children have received tetanus booster vaccine and HPV vaccine, but meningococcal vaccination is often underreported by parents."
Receipt of Recommended Adolescent Vaccines Among Youth With Special Health Care Needs	McRee, A. L.	2017	USA	Social care	Adolescents with healthcare needs as reported by their parents.	Retrospective analysis of data from cross-sectional survey	Secondary analysis	Survey	This research paper examined the vaccination coverage among youth with special health care needs (YSHCN) using data from parents of adolescents (11–17 years) who responded to a statewide survey in 2010–2012.	12 % of the youth with special healthcare needs had received all three vaccines, namely tetanus, meningococcal and HPV. Overall vaccine coverage was similar between youth with and without healthcare needs, except for the HPV vaccination.	"Limitations include a cross-sectional design, which limits our ability to infer causality, and measures of vaccine receipt based on parental report. Although the CSHCN Screener is a validated and widely-used tool that identifies most YSHCN,23 it may not identify all children who meet the MCHB definition of having special health care needs. Finally, data are from a single geographic area and generalizability to YSHCN from other areas is not yet known; however, YSHCN in North Carolina are similar to other YSCHN in the United States with regard to many sociodemographic

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											and health characteristics, including gender, race/ethnicity, household income, insurance coverage, and receipt of preventive care."
Association Between Unmet Essential Social Needs and Influenza Vaccination in US Adults.	Parente, D.J.	2022	USA	Primary care	Persons completing ambulatory visits in a primary care department at a midwestern, urban, multispecialty, academic medical center between July 2017 and July 2019	Retrospective, cross-sectional, multivariable logistic regression.	Secondary analysis	Cross-sectional data analysis	This paper analysed the relationship between current-year and any-year influenza vaccination uptake and 11 domains of social needs among US, English-speaking adults seeking primary care.	Individuals with issues regarding transportation were less likely to be vaccinated against influenza in both the current and any year. Poor health literacy promoted any-year, but not current-year, influenza vaccination. Older age, female sex, diabetes, more comorbidities, and more frequent primary care visits were associated with greater influenza vaccination. Persons who were Black or other/ multiple race and current smokers were less frequently vaccinated.	"This study has several limitations. First, data were collected at a single, tertiary care, urban, midwestern, academic medical center. Caution should be exercised when extending these results to community-based clinics and in sub-urban or rural areas. Second, social needs responses are self-reported. The rate of unfulfilled social needs may therefore be under-reported due to the perceived stigma of acknowledging a need for assistance. Third, any screening instrument evaluating social needs can simultaneously satisfy only two of the following three criteria: brief, multidomain, or detailed. By selecting a brief (11-item), multidomain screening instrument, each social needs domain was afforded only one question."
Hauora Māori - Māori health: a right to equal outcomes in primary care.	Sheridan, N.	2024	New Zealand	Primary care	Māori patients attending Aotearoa GP practices	Cross sectional, observational study	Secondary analysis and primary research	Observation, survey	The aim of this study was to determine whether health outcomes for Māori varied across models of primary care.	Māori practices had: no significant association with HbA1c testing, ambulatory sensitive	"When describing preventive care we did not have the data to identify eligible populations meeting the complex

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										hospitalisations or ED attendances, and a significant association with lower polypharmacy (3.7 % points) and lower childhood immunizations (13.4 % points).	recommendations of guidelines. While our numerators are accurate, denominators likely included persons who were not eligible, making calculated rates lower than a 'true' measure."
Race and gender disparities in preventive health activity engagement of older adults in the southeastern United States.	Frugé, A. D.	2024	USA	Social care	Community-dwelling older adults participating in student-led health screenings in east Alabama	Cross-sectional study	Primary research	Questionnaire	This study determined preventive-health-activity engagement in community-dwelling older adults participating in student-led health screenings in east Alabama.	Black clients had lower uptake of influenza, shingles, and pneumonia vaccinations as well as lower dental visits when compared to white adults. Black males in particular had the lowest count of all preventative health measures compared to all other race/sex combinations. White males had the highest rates of influenza and pneumonia vaccinations and white females had the highest rate of shingles vaccinations.	"The use of a convenience sample, while practical, introduces the potential for selection bias, making it challenging to generalize the findings to broader populations or other communities. Our study relied on participants self-reporting their health behaviors, which can be inaccurate as clients might tend to over-report health activity engagement in order to impress or satisfy the health professionals assessing them. Students from diverse health disciplines collected these data, which may have resulted in inconsistencies or errors in data collection."
The impact of gaps in health insurance coverage on immunization status for young children.	Blewett, L. A.	2008	USA	Social care	Children aged 19–35 months with healthcare needs compared to those without	Cross-sectional study	Secondary analysis	Survey	The aim was to analyse the impact of health insurance coverage on the immunization coverage rates for very young children (age 19–35 months). The impact of full-year and part-year health insurance coverage on immunization status	Children with public full-year coverage were significantly more likely to be up to date for two series of recommended vaccines, (4:3:1:3) and (4:3:1:3:3), compared with children with	"One limitation with our study is that we identified approximately 8 % of the sample that was not linkable and 15 % that did not have adequate provider verification data. We conducted comparative analysis

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									for a nationally representative sample of young children was specifically addressed.	private full-year coverage.	on the demographics of the analytic file that was used and the observations we could not use, and found very few statistically significant differences between the samples for the demographic characteristics or health insurance coverage variables, our main focus."
Immunizations in children with special health care needs in a medical home model of care.	Samuels, R. C.	2007	USA	Primary care	Children with special healthcare needs attending GP practices in Eastern Massachusetts	Retrospective cross-sectional study	Primary research	Survey and data collection	To examine the effect of the PACC (Paediatric Alliance for Coordinated Care) model on primary care services, the immunization rates of children with special healthcare needs within the PACC would be assessed. The aim was also to evaluate whether the intervention that took place in establishing the PACC improved immunization rates.	The immunization rates of children with special healthcare needs in the practices before the intervention was 83.4 % for DTaP, polio and MMR and 80 % if HIB and HepB were added. The intervention did not improve these already high rates. Children with late onset disorders were more likely not to be up-to-date by 2 years of age. Children with special healthcare needs cared for by non-birth parents and those whose family incomes were greater than $40,000 per year were also more likely not to be up to date with immunization, as were patients of providers not satisfied with any aspect of serving patients.	"Despite repeated efforts, immunization data for influenza vaccine was so incomplete that it is not presented despite influenza's importance to special needs populations. When we re-examined a selection of charts, it was apparent that the usual vaccination record in most offices simply does not have room to adequately accommodate yearly flu vaccines, causing documentation to often be illegible. Additionally, this study represents data from six self-selected practices, which provide care to a large number of CSHCN and may not be representative of practices more generally."
Traveller Gypsies and childhood	Feder, G. S.	1993	UK	Primary care	Children of Traveller Gypsies presenting to	Case-control study	Primary research	Interview and survey	The primary aim was to compare the	Traveller Gypsy children had	"One reason for the low completion rates

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immunization: a study in east London.					two general practices and a paediatric accident and emergency department in east London between July 1988 and February 1990				immunization status of Gypsy children presenting to two GP practices as well as Accident and Emergency, with matched controls presenting to the same services.	significantly lower completion rates for pertussis, measles, diphtheria/ tetanus and poliomyelitis vaccines than the control group. The difference between the uptake of the first and third diphtheria/ tetanus, pertussis and poliomyelitis vaccines was significantly greater among the Traveller Gypsy children than among the control group. The low immunization rates are due to poor access to services as well as rejection of certain vaccines by Traveller Gypsies.	found in this study may be that the sample was unrepresentative. Two thirds of the sample of Traveller Gypsy children in this study were attending general practice and may not therefore be representative of all Traveller Gypsy children living in Hackney. However, it is unlikely that children who have less contact with primary care services would have a higher uptake of immunization. Another reason for the low rates may be that both parental recall and district child health record systems are unreliable."
Exploring the health care utilization of children and youth in the care of child welfare: a retrospective matched cohort study	Breneol, S.	2022	Canada	Tertiary care	All children and youth aged 0–18 who had visited the provincial paediatric tertiary care facility from 2016 April 1 to 2017 March 31 and had "social worker" documented as their guardian on registration were included in the case cohort.	Case-control study	Primary research	Retrospective data analysis	The purpose of this study was to examine patterns of health care utilization from birth to age 18 for "Children and Youth in the Legal Guardianship of a Child Welfare Authority" (CYiCW) in comparison to children/youth who were not in the care of the child welfare system.	No statistically significant differences were found between primary care visits, well-baby checks, inpatient admissions, outpatient mental health visits, or immunizations for children in care in comparison to their controls. There was a significant difference in oral health visits, lack of physiological development, and emergency department visits for children in care when	"First, our data holdings were unable to capture any health care utilization in the private system. Second, one limitation to using physician billings data is the difficulty to discern the severity of health conditions (e.g., physiological development; dental disease). Third, we are unable to distinguish between types of primary health care visits such as urgent 'walk-in' care settings and primary care offices in our dataset. Fourth, this study

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Title	First author	Year	Geographical location	Setting	Sample Type	Study Design	Source of data	Method	Primary Aim	Findings/Results	Limitations
										compared to their controls.	examined health service utilization from birth onwards in those CYiCW who attended a tertiary care facility during one sampled year. To our knowledge, and despite attempts at cross-system partnerships, there is currently no other method than the one used to identify CYiCW in our province's health administrative data."
Oral HPV prevalence and HPV vaccination among special needs population in the US.	Siddardha, G.	2019	USA	Social care	Individuals aged 18–59 years of age with and without special healthcare needs.	Cross-sectional study	Secondary analysis	Retrospective data analysis	To estimate the prevalence of Oral HPV infection among adults with special healthcare needs and to compare the HPV vaccine (within the recommended age groups) uptake among the individuals with special healthcare needs to the general population.	Oral HPV was detected in 9 % (7.1–11.5; $p = 0.05$) of special needs adults. High-risk HPV genotype prevalence was also higher among adults with special needs [5.56 % (3.9–7.9) vs 3.87 % (2.7–5.4)]. The HPV vaccination rate among 9–26 year old females with special needs (33.5 % vs 37 %) and males aged 9–21 years (16.7 % vs 21.2 %) with special needs was lower than individuals without special needs.	"The study did not include the individuals with SHCN living in institutional settings. Sexual behaviors and sexuality are difficult to capture and biased due to selective misreporting. Special needs/disability and vaccination history are self-reported and may result in bias. The self-reporting bias may be less due to the randomization of the sample in NHANES. The cross-sectional nature of this study cannot establish causal relation."
Community- versus individual-level indicators to identify paediatric health care need.	Zlotnick, C.	2007	USA	Social care	Families with young Medicaid-insured children under the age of 6 who had access to a primary care provider	Cross-sectional study	Primary research	Survey and interview	To compare the ability of community-level indicators (i.e., census tracts linked to U.S. Census data and medically underserved area) and individual-level indicators (from surveys) to identify two established health care indicators,	Lower level of income was associated with poorer scores on several QOL domains, and on the primary health practices (i.e., non-urgent emergency room use and lack of	The study was set in one paediatric department in one hospital, meaning results may not be relevant to other centres or deparments, and had a small sample size of only 174 caregivers.

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									paediatric non-urgent emergency room use and age-appropriate immunization levels for a Medicaid-insured sample of children with an identified health care provider.	age-appropriate immunization status).	
Associations Between Prenatal Food Insecurity and Prematurity, Paediatric Health Care Utilization, and Postnatal Social Needs.	Sandoval, V. S.	2021	USA	Social care	Mother-child dyads receiving prenatal and paediatric care at a large, municipal, academically-affiliated safety net medical centre in Los Angeles County where 98 % of mothers are Medicaid enrolees.	Cross sectional study	Secondary analysis	Retrospective chart review	To examine the association between clinically-identified prenatal household food insecurity and child premature gestational age at birth, child health care utilization (including emergency department visits, inpatient hospitalizations, and missed well child visits), immunizations, and clinically-identified postnatal social needs.	Mothers with prenatal household food insecurity also had children with higher counts of inpatient visits (incidence rate ratio [IRR] 2.4, 95 % CI 1.0–5.6, $p = 0.04$) and missed immunizations (IRR 3.4, 95 % CI 1.1–10.3, $p = 0.03$) in the first 6 months of the child's life.	Selection bias may have been present as the screener for participants was done at child follow-up appointments. Not all confounding variables were covered, and factors such as food insecurity rates were the same as the general population, unexpected in a study of vulnerable individuals. The sample size was268, however this was from only one centre.
Unmet social needs among low-income adults in the United States: Associations with health care access and quality	Cole, M. B.	2020	USA	Social care	Low-income adults aged over 18 who responded from the 12 states reporting the "social determinants of health survey"	Cross-sectional study	Secondary analysis	Retrospective analysis of survey data	To describe the types and extent of unmet social needs among low-income US adults and to estimate the association between levels of unmet need and key indicators of health care access and quality among low-income US adults.	Those with four or more unmet social needs also had lower rates of receiving a flu shot in the last 12 months.	Certain factors of social care needs were not covered, and for housing, homelessness was not explicitly asked, simply how long a participant had lived in a current location.
Exploration of the unmet health care needs of people who inject drugs.	Dion, K.	2020	USA	Social care	141 persons recruited through flyers and word of mouth. All individuals were aged 18 years or older, able to speak and understand English or Spanish, and self-identify as a person who injects drugs (PWID).	Cross-sectional study	Primary research	Survey	Describe past year PWID health care service utilization, including preventative health care service utilization. Secondary aims were to identify past year receipt of PWID health care education and describe PWID openness of drug use with providers.	Participants reported more receipt of preventative health vaccinations compared with screening/testing (mean = 2.2, SD = 1.6), and only 20.6 % of participants indicated that they had not received a single vaccine. The most common vaccine	Recall bias was possible due to the use of interviews with participants, and some participants were reported to not understand questions, potentially affecting results. Limited to 2 small locations, and had a smaller sample size of 146.

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										received was tetanus (68.3 %) followed by Hepatitis B (48.2 %) and Hepatitis A (46.0 %).	
Vaccination of adolescents with chronic medical conditions: Special considerations and strategies for enhancing uptake.	Hofstetter, A.M.	2015	Global	Social care	Adolescents with chronic medical conditions	Systematic review	Secondary analysis	Systematic review of literature	The aim of this review is to describe the current vaccination recommendations for adolescents with chronic medical conditions, as well as showing recent data related to infection risk, vaccine efficacy and safety, vaccination coverage, and the unique multilevel factors impacting uptake in this population.	This review highlights the problem of under-immunization for routinely recommended and specially indicated vaccines among the growing population of adolescents with complex health care needs.	No methodology is given for this review, making it hard to establish how this review was compiled, and is a limitation affecting the quality and reliability of their results.
Somatic assessments of 120 Swedish children taken into care reveal large unmet health and dental care needs.	Kling, S.	2015	Sweden	Social care	A population of 120 Swedish children between the ages of 0–17 who have recently been placed in foster or residential care	Cohort study	Primary research and secondary analysis of patient records	Interview and health examination	The primary aim was to examine the unmet health and dental care needs in a population of children who were in residential or foster care.	The rates of vaccinations found in this population of children (86 % of children aged 0–6 years and 68 % of 7- to 17-year-olds), were much lower than the rates found in the general population of children in other studies (97–98 % at the age of two and 95–96 % at the age of 12).	Did not have access to information to assess whether the study group was representative of all children in the region in out-of-home care. Individuals where abuse had occurred were not included, as they were examined separately. Small sample size of just 120 individuals.
Health of Australian children in out-of-home care: needs and carer recognition.	Kaltner, M.	2011	Australia	Social care	Children entering out-of-home care in the north Brisbane area.	Cross sectional study	Secondary analysis	Secondary analysis of patient record.	To quantify health needs in a sample of Queensland children in care based on multidisciplinary child health assessments, examining concordance between foster carers' health concerns for children for whom they are providing care and healthcare.	Only 68 % of the sample of children in state care was found to be fully immunized. Incomplete vaccination was found in 22 % of children, and immunization history was missing in a further 10 %.	Small sample size of 63, and no mention of which vaccines an individual had received. Also for a child to be included and have a health record, they must have been out-of-home care for 30 days or more, potentially excluding participants.

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Social vulnerability and unmet preventive care needs in outpatients of two French public hospitals.	Pascal, J.	2009	France	Secondary care	Socially vulnerable outpatients was compared with a non-vulnerable group selected in hospital consultations.	Retrospective cross-sectional epidemiological study	Primary research	Retrospective analysis of survey data	To identify and assess the association between needs, social vulnerability, and mode of healthcare use.	Socially vulnerable outpatients showed less uptake of primary preventive vaccinations (tetanus, poliomyelitis and hepatitis B) than non-vulnerable outpatients.	Tool used for screening patients for social vulnerability is low (specificity 20 %, CI 64–76, specificity 77 %, CI 71–82 %). Confounding variables not always included, such as income.
Higher Rates of Preventive Health Care With Commercial Insurance Compared With Medicaid: Findings From the Arkansas Health Care Independence "Private Option" Program.	Goudie, A,	2020	USA	Primary care	Arkansans newly eligible for Medicaid, required to have at least 6 months of continuous enrolment in each of 2014 and 2015 within Medicaid or a QHP.	Retrospective cross-sectional study	Secondary analysis	Retrospective analysis of survey data	To analyse the rate of individuals receiving the recommended primary, secondary, and tertiary preventive care services.	22.2 % more private healthcare enrolees received a flu shot or spray compared with Medicaid enrolees ($P < 0.001$).	"Programmatic modifications and political discourse during the course of the HCIP may have influenced participation and health-seeking behavior. In addition, the profile of Arkansas's Medicaid program as an FFS system, with historically low adult Medicaid coverage and provider reimbursement, disproportionate rurality, race/ethnicity, and other demographic differences may confound generalization of findings to other states."
Health and Health Care From the Perspective of Intimate Partner Violence Adult Female Victims in Shelters: Impact of IPV, Unmet Needs, Barriers, Experiences, and Preferences.	Wadsworth, P.	2018	USA	Social care	Female, at least 18 years of age, and current residents of a YWCA shelter.	Cross sectional study	Primary research	Survey	To establish the impact of intimate partner violence on health and barriers to healthcare access for participants and their children.	12.1 % of women in the YWCA shelter had not been able to get their child Immunized, with 30.1 % saying abuse had impacted their ability to access healthcare.	Response rate was not recorded. Time in accommodation and since the event of intimate partner violence occurred was not recorded. Sample size was also limited, with just 95 participants.
Surveillance for Health Care Access and Health Services Use, Adults Aged 18–64 Years - Behavioral Risk Factor	Okoro, C.	2017	USA	Primary and secondary care	Noninstitutionalized adults aged ≥18 years residing in the United States.	Cross-sectional study	Primary research	Cross-sectional data analysis	To establish how barriers to healthcare for those with a number of social and health factors impacts uptake of healthcare	In states with expansion of Medicaid, influenza vaccine uptake was similar in all	Excludes those living in facilities, including care facilities, and those who do not have a mobile phone or

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Surveillance System, United States, 2014.									and health surveillance.	income groups, however, in non-expanded states, increasing levels of poverty is linked to decreased vaccination uptake.	landline. Also self-reported study, subject to recall bias, and for those who did not report their income, the federal poverty level wasn't calculated. Other variables such as disability, age, and health status aren't accounted for.
Adolescent and adult first time mothers' health seeking practices during pregnancy and early motherhood in Wakiso district, central Uganda.	Atuyambe, L.	2008	Uganda	Primary care	First time adolescent and adult mothers from villages in the Wakiso district.	Cross-sectional study	Primary research and secondary analysis of patient records	Cross-sectional data analysis	To better understand adolescent mothers' needs by comparing health seeking practices of first time adolescent and adult mothers during pregnancy and early motherhood.	Adolescent mothers were less likely get second and third vaccine doses for their infants [Polio2 (OR = 0.73, 95 % CI: 0.55–0.98), Polio3 (OR = 0.70: 95 % CI: 0.51–0.95), DPT2 (OR = 0.71, 95 % CI: 0.53–0.96), DPT3 (OR = 0.68, 95 % CI: 0.50–0.92)] compared to adult mothers.	Excludes mothers who lost children during infancy, and only includes children up to 1 year of age, so may underreport where infants receive delayed vaccinations.
Health of children looked after by the local authorities	Rodrigues, V·C	2003	UK	Social care	Children looked after by Surrey Social Services	Cross-sectional study	Primary research	Cross-sectional data analysis	To assess the healthcare needs of children being looked after by council services in East Surrey.	Immunization rates of all 4 vaccines investigated were lower in looked-after children, although was only statistically significant for three doses of Diphtheria, Pertussis, and Tetanus, Polio antigens, and Meningitis C vaccination.	Data was obtained via case note review. This meant the study was reliant on accuracy and completeness of the medical records, and children who did not have any morbidity recorded at the medical examination were assumed to be free of morbidity. The sample size was also small, at 136 in total.
Preventive Service Utilization among People Who Are Blind or Have Low Vision	Bennett, K.	2016	USA	Primary care	American civilian, non-institutionalized population who had responded to the 2000–2011 Medical Expenditure Panel Survey	Retrospective analysis of data from cross-sectional survey	Secondary analysis	Retrospective analysis of survey data	To determine the prevalence of visual impairments and the association between visual impairment status and receipt of United States Preventive Services Task Force	Blind or visually impaired individuals are more likely to have influenza vaccinations (AOR: 1.33, 95 % CI:1.06–1.67).	"This analysis is limited by sample selection, a conservative condition identification process, and the small sample sizes available in the

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Title	First author	Year	Geographical location	Setting	Sample Type	Study Design	Source of data	Method	Primary Aim	Findings/Results	Limitations
									recommended services among U.S. adults		Medical Expenditure Panel Survey data"
Investigating the Mechanism of Marital Mortality Reduction: The Transition to Widowhood and Quality of Health Care	Jin, L.	2009	USA	Primary care	Medicare beneficiaries aged 65+, identified as being in married couples	Retrospective cross-sectional study	Primary research and secondary analysis of patient records	Retrospective data analysis	To establish whether the transition to widowhood affects the quality of care that individuals receive and explore the extent to which these changes mediate the elevated mortality hazard for the widowed	The likelihood of obtaining influenza vaccination fell after the initial rise and remained slightly lower than the baseline.	Time period of study limited to between October and February, which covers when the majority are vaccinated, but may lead to underreporting of vaccination. Confounding variables for receiving the influenza vaccine are not accounted for either.
Influenza vaccination in children with neurologic or neurodevelopmental disorders	Smith, M.	2015	USA	Primary care	Parents or caregivers of children >6 months with ACIP-high-risk conditions	Cross-sectional study	Primary research	Survey	To evaluate parental report of vaccination, or intent to vaccinate, at the time of survey participation, where their children have neurologic or neurodevelopmental disorders.	Overall, 50 % of children with an NNDD were vaccinated, or their parents planned to have them vaccinated against influenza.	The surveys done are self-reported, and therefore are liable to bias and may not be correct. Selection bias was also possible, as the surveys were distributed by a third party. There were also potential confounding variables that were not accounted for.

Data availability

Data will be made available on request.

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