Clinical and public policy interventions to address food insecurity among children

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Purpose of review
This article describes the impacts of food insecurity (FI) on child health, outlines clinical and public policy interventions to mitigate FI in children, and defines new paradigms in population health to ameliorate the harmful effects of FI in children.

Recent findings
Rates of FI among children have dramatically increased with the onset of the COVID-19 pandemic, with particular adverse impact on low-income children. Population health innovations in screening, referral, and social service integration offer new opportunities to address FI.

Summary
Despite advances in clinical practice and public policy, FI remains a persistent issue for many US children. Clinicians and policymakers have opportunities to leverage clinical and community-based integration to improve service delivery opportunities to ameliorate childhood hunger and racial and socioeconomic inequity in the United States.

Keywords
food insecurity, health policy, population health, social determinants of health

INTRODUCTION

The economic hardship and exacerbation of social inequities accompanying the novel coronavirus (COVID-19) pandemic have precipitated an unprecedented surge in food insecurity (FI) among children. Emergent data suggest that rates of FI in the United States (US) have markedly increased during various waves of the pandemic with many low- and middle-income households struggling to afford the cost of food and other basic needs [1▪,2▪]. The pandemic has intensified an already building crisis of childhood hunger which has the potential for adversely impacting the health of both current and future generations across the lifespan. Healthcare providers play a crucial role in caring for children with FI, and this review aims to synthesize current knowledge to (a) *describe impacts of food insecurity on child health*, (b) outline *clinical and public policy interventions* to mitigate FI in children, and (c) define *new paradigms in population health* to ameliorate the harmful effects of FI in children.

IMPACTS OF FOOD INSECURITY ON CHILD HEALTH

FI, broadly defined as uncertain access to sufficient food for an active, healthy life, jeopardizes children's health across the lifespan. On a national level, the US Department of Agriculture (USDA), the federal agency which oversees many national programs to address child and adult food and nutrition, annually monitors rates of FI. Trends in data from the USDA Economic Research Survey indicate that rates of household FI are particularly sensitive to economic downturns, increasing from 11% in 2005 to 2007 to 14.6% in 2007 to 2009, during the Global Financial Crisis, and again rising from 10.5% in 2019 to 13.9% in 2020 to 2021 during the COVID pandemic [3▪,4▪]. The most recent estimates suggest that approximately 1 in 6 US children are food insecure. FI is often reported in two statistics: either at the household level, recognizing that food and finances are often distributed across household

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Curr Opin Pediatr 2022, 34:2–7
DOI:10.1097/MOP.0000000000001096

KEY POINTS

- The novel coronavirus (COVID-19) pandemic has intensified an already building crisis of childhood hunger which has the potential for adversely impacting the health of both current and future generations across the life span.
- There is momentum to both broadly expand and evaluate systems-based interventions to better screen for food insecurity, and allocate resources for better meeting unmet food access needs.
- Experiences of race- and ethnicity-based discrimination are associated with higher odds of food insecurity, elucidating the need to address structural racism and discrimination in clinical and policy spaces.

members, or at the individual level. Typically, FI is higher in households containing children, reflecting that nationally poverty is often concentrated in households with children. Although, notably, children in these households often individually experience lower incidence of FI relative to the adults in these households, largely because adults in food-insecure households will often go hungry to ensure children are adequately fed [5].

The impacts of FI on the healthy growth and development of children are numerous. Fortunately, in the US, premature death directly from malnutrition is relatively rare, although this is not the case in many lower-income nations [6]. In the US, household FI has been shown to be associated with the development of chronic illness, including child obesity, asthma, and anemia, as well as higher rates of forgone medical care and emergency department visits [7–9]. Beyond the direct physical health impacts, FI is also directly associated with the development of behavioral, developmental, and socio-emotional conditions [10]. Studies have described the *too hungry to learn* phenomenon whereby low-income children face educational achievement gaps when they experience hunger and FI [11]. Because children are dependent on their adult caregivers, they indirectly suffer when their parent experiences FI, regardless of whether the child experiences FI themselves. Studies show that pregnancy and the postpartum period are critical windows of child development and are particular periods of vulnerability to household FI. Further, living in a household where adults are food insecure increases allostatic load, the cumulative impact of chronic psychosocial and physiological stress, which has been shown to have long-term detrimental health effects including high rates of obesity, cardiovascular disease, and depression [12,13]. In more recent years, research has illuminated that *marginal food security*, defined by the USDA as anxiety over food sufficiency or shortage of food in the house, but little or no indication of changes in diets or food intake, is also a potent risk factor for many of the same adverse psychosocial, educational, and developmental outcomes among children [10,14]. However, recent studies also show that marginal food security is less often clinically recognized or identified in screenings, leading to under-referral for resources [15].

CLINICAL AND PUBLIC POLICY INTERVENTIONS TO ADDRESS FOOD INSECURITY

The American Academy of Pediatrics (AAP) recommends that all pediatricians screen for FI at health maintenance visits [16]. Approaches for evaluating FI vary as do the screening instruments used for assessing FI. Table 1 lists the common screening tools used for assessing FI in the clinical setting [17–22]. Recently, screening questions around FI have been incorporated into broader, more comprehensive, social needs screening tools [23,24▪]. FI screening is also often addressed using dedicated instruments specifically asking about FI, such as the Hunger Vital Sign which has been widely adopted in clinical contexts due to its simplicity and high validity [25].

Critically, the AAP recommendations call for pediatricians to not only screen for FI, but also to be familiar with resources to which families experiencing FI can be referred. Not knowing what to do with a positive FI screen is a frequently cited barrier for physicians regarding the implementation of FI screening [26,27]. Qualitative research with patients and caregivers parallels the findings from research with clinicians: though patients expressed willingness to discuss FI with clinicians and that doing so can alleviate feelings of shame and frustration associated with experiencing FI, they emphasized that if a clinician is to ask about nonclinical needs, they must be able to offer assistance with addressing them [28,29▪]. Failure of clinicians who inquire about nonclinical needs to provide concrete support to families who disclose such needs not only causes frustration but can damage the trusting relationship between clinicians and patients' families.

National public policy has extensively focused on mitigating the impact of FI on children. Prominent initiatives include the Food Stamp Program, created by Congress in 1964, which has continuously evolved and was renamed Supplemental

Table 1. Common social needs screeners that address food insecurity (FI)

Screener	SDOH Domain(s) Assessed
Accountable Health Communities Tool [17]	Disabilities, Education, Employment, Financial strain, Food insecurity, Housing insecurity, Housing quality, Interpersonal violence, Social support, Stress, Transportation, Utilities
Health Leads [18]	Childcare access, Food insecurity, Healthcare/medicine access Housing insecurity, Literacy, Social support, Transportation, Utilities
Hunger Vital Sign [25]	Food insecurity
PRAPARE [24▪]	Childcare access, Clothing, Education, Employment, Food insecurity, Healthcare/medicine access, Housing insecurity, Immigration, Incarceration, Income, Interpersonal violence, Neighborhood safety, Social support, Stress, Transportation, Utilities, Veteran status
Safe Environment for Every Kid (SEEK) [19]	Food insecurity, Interpersonal violence, Social support, Stress
The Survey of Well Being of Young Children (SWYC) [20]	Food insecurity, Interpersonal violence
THRIVE [21]	Caregiver responsibilities, Childcare access, Education, Employment, Food insecurity, Healthcare/medicine access, Housing insecurity, Transportation, Utilities
Well Child Care, Evaluation, Community Resources, Advocacy, Referral, Education (WE CARE) [22]	Childcare access, Education, Employment, Food insecurity, Housing insecurity, Utilities

Nutrition Assistance Program (SNAP) in 2008; the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC), established in 1972; and child nutrition programs including the National School Lunch Program (established 1946), School Breakfast Program (established 1966), and Summer Food Service Program (established 1968), many with demonstrated efficacy at improving health outcomes. For example, one study from 2019 showed that SNAP participation is associated with reduced FI, lower odds of poor health and growth and development risks, and reduced hardship [30]. Another study found that enhancements to WIC in 2009 and to the National School Lunch Program in 2010, promoting inclusion of fruits, vegetables, and whole grains, had measurable impacts on US children's diet quality scores and diet behaviors [31▪].

Community-based organizations, such as food banks, shelters, and faith-based organizations, also play a crucial role as common referral agencies for households identified as experiencing acute or chronic FI. In some clinical settings, on-site food pantries allow pediatricians to provide prescriptions for food, making it easier for families to access food resources as soon as a need is identified during a clinic visit [32]. It is important that child healthcare providers are not only aware of these programs for facilitating referrals, but also engage in advocacy to enhance them and ensure their longevity [33▪].

NEW PARADIGMS IN POPULATION HEALTH FOR ADDRESSING FOOD INSECURITY

In recent years, new population health paradigms have emerged which have enabled proliferation of new innovations to ameliorate the harmful impacts of FI. At the health systems level, Medicaid, the largest governmental insurer for low-income children, and some private insurers have adopted payment models that incentivize addressing adverse social determinants of health (SDOH) including FI. In many states, *value-based payment* has emerged as a modality for supporting and incentivizing providers and hospitals to address FI. In some states, these payment arrangements have functions under the auspices of Medicaid health plans, and in others, in the form of Accountable Care Organizations (ACOs). ACOs are groups of providers, often in partnership with hospitals, who assume the financial and quality of care accountability over a population or patient, or both. The premise of value-based care allows providers greater flexibility to directly administer social supports for addressing adverse SDOH, including FI; addressing these root causes of poor health shows promise for reducing healthcare utilization downstream. This has led to direct investments of food supports to help mitigate FI, such as collaboration with Meals on Wheels programs and provision of food vouchers, and more

robust referral to community and government-based food support programs. Studies in adult populations have shown that FI may be associated with high total healthcare utilization, although similar studies in pediatrics have been less conclusive [34▪,35]. There is momentum to both broadly expand and evaluate systems-based interventions to better screen for FI, and allocate resources for better meeting unmet food access needs.

Several recent studies have illuminated that insurance expansions such as the Affordable Care Act, initially targeted toward adults, may indirectly improve children's outcomes; lowered insurance costs enable families to re-allocate income to their household food budget, increasing food security and promoting children's health and development [36,37▪]. Additional policymaking that specifically focuses on the *second generation impacts* of adult-oriented policies on children is needed. Recently, policymakers have focused on establishing structures to prevent lapses in program enrollment, which are particularly prevalent and problematic among families with unmet social needs. An opportunity for states as they look to expand Medicaid is to leverage the broad overlap (~75%) between Medicaid and nutrition assistance program eligibility requirements by coordinating enrollment renewals. This eases the burden for households (who already deal with financial resource strain and might miss renewal notices and/or struggle with complex applications) and reduces administrative burden and costs for agencies processing benefits applications. Options include using data from SNAP renewal applications to renew Medicaid, which has been successfully implemented in 10 states [38]; automatic renewal of Medicaid for households that receive SNAP; and 'express lane eligibility' which enables Medicaid renewal for children in SNAP-recipient households [39]. Finally, the Families First Coronavirus Response Act included a SNAP expansion to increase aid to families whose children usually benefit from the National School Lunch Program (which was not being accessed when stay at home orders were in place), prompting policymakers to think more holistically about 'place-based' assistance programs, and ensuring that children can continue receiving supports year-round regardless of whether they are physically present in school due to illness, holidays, vacations, or social distancing requirements.

In recent years, many clinical practices have adopted more population health management resources and infrastructure. This has supported formation of new partnership between clinical and social-based providers while also placing significant pressures on coordinated and interoperative health information technology. Today, although many clinical providers have electronic health record systems, few are integrated with the key community-based and government-based entities which provide many resources for addressing FI. Effective coordination between the clinical delivery system and the community structure requires sustained local commitment to establish governance models for permitting the access, exchange, integration, and use of data, which can be leveraged to facilitate more seamless communication between clinicians and community-based organizations providing nutrition supports. This carries implications not just for streamlining benefits enrollment and renewals, but also for implementing and evaluating systems-based FI interventions [40]. Initiatives like the Gravity Project push to establish a standardized approach for evaluating and documenting data on FI to facilitate interoperability of electronic health records data [41▪]. Integrations of Electronic Health Record data with community partners promises to facilitate the identification of patients in need of services and connect them to services, and then ultimately allows for the evaluation of these programs' success in improving health outcomes. It is, however, critical to note that the administrative and nonclinical demands on child health providers are immense. New requirements by insurers or state agencies to mandate screening for FI in the clinical setting should be paired with funding to support this added function, as well as resources for referrals.

The joint influence of the COVID-19 pandemic and the renewed social justice movement have brought to the forefront longstanding racial inequities in healthcare. There have been important calls to action to identify and mitigate structural racism in policy and program design, including our national framework for addressing childhood hunger. Race-based inequities in FI existed prior to COVID-19, and Black and Latino households continue to experience the disproportionate burden of rising FI during the pandemic. USDA data from 2001 to 2016 showed FI was consistently half as prevalent in White households as in Black and Hispanic households [42]. In 2019, the national FI prevalence was 10.5% overall, but 19.1% and 15.6% in non-Latino Black and Latino households, respectively [3▪]. A recent longitudinal cohort study revealed that, whereas the US has experienced a 60% increase in FI as a result of COVID-19, their cohort of low-income African Americans experienced an 80% increase in FI [43▪]. These trends reveal stark inequities in FI that serve as causes and consequences of race-based health inequities. Structural barriers to food access are issues of environmental justice; eliminating food deserts and ensuring public transportation access across low-income and racially/ethnically diverse neighborhoods is paramount to rectifying disparities in FI and its associated health

outcomes [44]. Additionally, clinicians must advocate for policies to ensure equitable access to the social safety net, and serve as messengers to their patients; the above-mentioned strategies to streamline benefit enrollment systems must be communicated to stakeholders in communities of color, who more often lose SNAP benefits due to renewal lapses than their White counterparts, and are more likely to encounter discrimination and/or stigma when using SNAP benefits [45]. Furthermore, experiences of race- and ethnicity-based discrimination are associated with higher odds of FI, elucidating the need to address structural racism and discrimination in clinical and policy spaces [46]. In a nation with sufficient resources to feed its residents, addressing FI necessitates addressing systemic and structural inequities underlying inequitable distribution of food and resources – many of which are rooted in racism and discrimination.

CONCLUSION

Despite clinical and systems-level interventions and public policies, more than 1 in 6 children remain food insecure, with recent rises and inequities during the COVID-19 pandemic. Pediatric providers play a crucial role in caring for children with FI. By seizing opportunities to leverage clinical and community-based integration and prior and emerging public policies to improve screening, referral, and service delivery opportunities, the pediatric workforce can be key players in reducing childhood hunger and closing racial and socioeconomic equity gaps in the US.

Acknowledgements

We thank Emily Messmer, MPH for her invaluable comments and feedback on a draft version of this manuscript.

Financial support and sponsorship

The authors have no financial relationships relevant to this article to disclose.

Conflicts of interest

There are no conflicts of interest.

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