Determinants of Health and Pediatric Primary Care Practices

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More than 20% of children nationally live in poverty. Pediatric primary care practices are critical points-of-contact for these patients and their families. Practices must consider risks that are rooted in poverty as they determine how to best deliver family-centered care and move toward action on the social determinants of health. The Practice-Level Care Delivery Subgroup of the Academic Pediatric Association’s Task Force on Poverty has developed a roadmap for pediatric providers and practices to use as they adopt clinical practice redesign strategies aimed at mitigating poverty’s negative impact on child health and well-being. The present article describes how care structures and processes can be altered in ways that align with the needs of families living in poverty. Attention is paid to both facilitators of and barriers to successful redesign strategies. We also illustrate how such a roadmap can be adapted by practices depending on the degree of patient need and the availability of practice resources devoted to intervening on the social determinants of health. In addition, ways in which practices can advocate for families in their communities and nationally are identified. Finally, given the relative dearth of evidence for many poverty-focused interventions in primary care, areas that would benefit from more in-depth study are considered. Such a focus is especially relevant as practices consider how they can best help families mitigate the impact of poverty-related risks in ways that promote long-term health and well-being for children.

Poverty-related risks to child health and well-being are increasingly encountered in the pediatric primary care setting. Nationally, 22% of children live in poverty; an additional 22% live in near-poverty, low-income families.1 Child poverty rates, and the co-existing hardships (eg, housing and food insecurity, gaps in insurance coverage), have increased over the last decade, and many households continue to suffer.2 Evidence suggests that children exposed to such adversity may develop biologic and psychological changes that negatively affect cognitive development and ability to manage stress.3,4 In turn, these changes increase the risk of illness and early death. The social determinants of health (SDH), which include access to housing, food, education, transportation, and community-based supports, have a clear impact on child health outcomes that stretch into adulthood.5–9

Pediatric providers and practices regularly interact with children and their caregivers and may therefore be well positioned to intervene.9,10 This longitudinal relationship could naturally facilitate assessment and action on the SDH.11 Thus, pediatric providers and practices are key points-of-contact for these patients and their families. Practices must consider risks that are rooted in poverty as they determine how to best deliver family-centered care and move toward action on the social determinants of health. The Practice-Level Care Delivery Subgroup of the Academic Pediatric Association’s Task Force on Poverty has developed a roadmap for pediatric providers and practices to use as they adopt clinical practice redesign strategies aimed at mitigating poverty’s negative impact on child health and well-being. The present article describes how care structures and processes can be altered in ways that align with the needs of families living in poverty. Attention is paid to both facilitators of and barriers to successful redesign strategies. We also illustrate how such a roadmap can be adapted by practices depending on the degree of patient need and the availability of practice resources devoted to intervening on the social determinants of health. In addition, ways in which practices can advocate for families in their communities and nationally are identified. Finally, given the relative dearth of evidence for many poverty-focused interventions in primary care, areas that would benefit from more in-depth study are considered. Such a focus is especially relevant as practices consider how they can best help families mitigate the impact of poverty-related risks in ways that promote long-term health and well-being for children.

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practices are challenged to redesign care delivery services in ways that identify and mitigate such poverty-related risks.\textsuperscript{11–18} It is also important that as pediatric providers redesign practices, they consider the importance of building bridges to the education, public health, and policy sectors, which are similarly focused on improving children’s lives.

It is critical for practices to understand how care delivery can be altered to align with specific populations’ needs while also taking into account available resources and cost-effective models of care.\textsuperscript{19–21} Evidence indicates that practice realignment toward preventing and mitigating social determinants of poor health may be cost-effective under evolving payment models.\textsuperscript{22,23} These options may include expanded managed care models and an emphasis on population health through Accountable Care Organizations (ACOs). Within ACOs, the emphasis is on controlling cost while maximizing health through stratifying risk, identifying gaps, tracking care with registries, and communicating with patients about their care.\textsuperscript{24–26} The risks associated with poverty complicate population management, as families may be less able to keep appointments, adhere to treatment plans, or respond to practice communications. Practices must then consider how such barriers and challenges can be overcome.

In the present article, we propose a practice-level framework, or roadmap, to identify and respond to risks rooted in poverty in ways well aligned with the larger health care system.\textsuperscript{27–29} The present article focuses on those structures and processes that can be addressed at the practice level. Measurement of both process and outcome measures is critical as practices determine the success of their redesign.

**FRAMEWORK FOR IMPROVING CARE DELIVERY TO FAMILIES LIVING IN POVERTY**

As we consider how practices serving children and families can improve care delivery, both facilitators of and barriers to action are contemplated. Facilitators can include professional associations, public programs, local agencies, and, potentially, ACOs. Barriers can include limited time, knowledge, or access to resources, as well as poorly aligned financial incentives. To address these facilitators and barriers within practice-level strategies to improve care provided to families living in poverty, we adapted a conceptual framework previously developed for primary care practice redesign focused on low-income children (Fig 1).\textsuperscript{16,30} The framework is based on a model first described by Donabedian, and further developed by Starfield, in which health outcomes are determined by the structures of care (ie, personnel, organization, financing, information systems), processes related to care provision (ie, diagnosis, management, reassessment), and receipt of care (ie, patient/family utilization, acceptance, understanding, compliance).\textsuperscript{31–33}

The present article focuses on those structures and processes that can be addressed at the practice level. Structures are described in 3 key domains: (1) How care is provided, including various formats and tools used for care (eg, group visit formats, customization of electronic health records to spur action on the SDH, or poverty-focused interventions, areas that would benefit from more in-depth data collection and study are considered.

![Conceptual framework linking structure and processes of care with risks rooted in poverty and health outcomes.](http://pediatrics.aappublications.org/)

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**FIGURE 1**

Conceptual framework linking structure and processes of care with risks rooted in poverty and health outcomes.
The structure of care is integrally tied to care processes. Processes include screening (e.g., content and means by which screening occurs), diagnosis (e.g., identification of medical or social issues), and management (e.g., referrals, education, or guidance provided in response to diagnosed medical or social conditions) (Table 1). Strategies to manage poverty-related “diagnoses” may be provided indirectly through referral to outside organizations or agencies or directly by in-practice staff.

Because there may be structural and process constraints or barriers, it is important to consider the appropriate strategy or intervention intensity. Some practices might be able to provide only “lower” intensity interventions, whereas others may have the resources to provide “higher” intensity interventions (Fig 2). The adaptation of such strategies to particular practice settings may be enhanced through regular input from key stakeholders, including parent or family advisory boards.

### STRUCTURE OF CARE DELIVERY

Many challenges associated with poverty can present significant barriers to care access, and more importantly, to achieving optimal health and well-being, particularly for those children with chronic illnesses or disabilities. To better assist these families, practices might consider alterations in the how, where, and who of care delivery to maximize convenience, effectiveness, and family-centeredness. The specific examples that follow include potential facilitators of action (home visitation and care coordination programs).

#### Examples of Structural Changes to Mitigate Risks Rooted in Poverty

**Home Visitation Programs**

Home visitors can extend care delivery beyond the practice setting and into the home environment.

<table>
<thead>
<tr>
<th>TABLE 1 Conceptualization of How Interventions Can Be Implemented or Adapted for Pediatric Practices</th>
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**FIGURE 2**

Means of matching the needs of a population with the resources available in the clinic or primary care center.

Home visitation is recognized by the American Academy of Pediatrics (AAP) as a promising strategy to improve health outcomes in at-risk children, particularly when embedded within a broader set of practice- and community-based services. Programs generally include a trained worker (e.g., skilled nurse or community health worker).
who provides in-community or in-home services and counseling.\textsuperscript{36} Although many programs have evolved to focus on specific needs such as teen parenting, child abuse or neglect, low birth weight or premature infants, and children with developmental delays, others have expanded their focus to general prevention.\textsuperscript{37} Evidence suggests that these programs positively affect health outcomes in high-risk families, particularly with respect to health care utilization and child developmental outcomes.\textsuperscript{36–39} Indeed, programs such as Early Head Start, Healthy Steps, the Nurse–Family Partnership, and Home Instruction for Parents of Preschool Youngsters have improved adherence to preventive and developmental services and increased satisfaction with primary care.\textsuperscript{40–43}

Such programs have been termed a “sound investment” for long-term health and economic outcomes, prompting further expansion into low-income communities.\textsuperscript{36,44} There has been a parallel push toward evidence generation, with an emphasis on identifying effective “core” components of home visitation (eg, addressing parent–child interaction, identifying and acting on basic social needs, ensuring in-home safety) and on building the infrastructure necessary for research to strengthen and refine strategies for dissemination, implementation, and sustainability.\textsuperscript{36,37,45} Practices could begin by coordinating with public or private home visiting programs in their communities or, if able, they could integrate a home visitor into their practice. Relationships built on collaboration and communication between the practice and the home visiting service can improve the care provided while ensuring that specific, consistent health messages and anticipatory guidance are reinforced.\textsuperscript{46}

### Care Coordination Programs

Care coordination modifies the “who” of care delivery while also facilitating how activities or components of care are provided to families. Multidisciplinary care coordination programs can involve families, physicians, nurses, social workers, paraprofessionals, and community partners (eg, schools). Some families with lower intensity needs may benefit from a list or a call-in line for medical and/or social referrals. Practices with limited resources may choose to target care coordination activities to specific patients with the highest medical and/or social complexity. Alternatively, practices with more resource availability or with many highly complex patients may integrate a care coordinator into their practice setting to work directly with a greater number of patients and families. This care coordinator can augment service delivery by gathering and assessing information while also helping families navigate complex medical and social service systems. He or she could also facilitate “warm handoffs” from primary care to subspecialty medical or social care providers.\textsuperscript{57,48} Evidence shows that when practices adopt care coordination programs, service provision for patients, and families shifts from reactive and episodic to proactive and comprehensive through visit planning, development of care plans, and follow-up on specialty care.\textsuperscript{49}

Some programs have been developed specifically to improve the delivery of preventive and primary care services for children in poverty.\textsuperscript{16,50–53} For example, the Parent-focused Encounters, Newborns to Toddlers Intervention, uses a health educator (“parent coach”) to provide the bulk of well-child care (WCC) services.\textsuperscript{16} At each visit, the parent coach provides anticipatory guidance; psychosocial screening/referral; and developmental and behavioral surveillance, screening, and guidance. The intervention addresses challenges of WCC that center on common barriers to effective care delivery, including insufficient time for pediatricians to provide the level of parent guidance and education that is typically needed. In a recent randomized controlled trial of 251 families, this intervention showed significant improvements in the receipt of WCC services and experiences of care, as well as a reduction in emergency department visits.\textsuperscript{54}

### PROCESS OF CARE DELIVERY

Although Bright Futures recommends that pediatricians assess the family and community contexts,\textsuperscript{55} the standard WCC visit does not routinely or fully address the specialized needs of children living in poverty. Providers are frequently unsure of how to screen for, diagnose, or manage poverty-related risks.\textsuperscript{56,57} This section focuses on how clinical practices, whether resource-limited or resource-rich, may alter processes of care in ways to more effectively address poverty-related SDH.

### Indirect Treatment and Management

Applicability of certain interventions can differ depending on practice size, setting, organizational structure, and patient population. Time and financial constraints may also play a role. Accordingly, the information and approaches detailed here can be adapted based on available resources to fit patient, family, and practice needs.

### Connecting Screening and Diagnosis to Action

A variety of screening tools exist; however, it is important for each practice setting to consider the needs of their particular population to determine how to best deploy (eg, via paper versus electronic health record) and target surveillance efforts, and how screening and
diagnostic processes can connect to interventions. One example, the Well Child Care, Evaluation, Community Resources, Advocacy, Referral, Education Program, is a clinic-based screening, diagnosis, and referral program to help practices assist families living in poverty with unmet basic needs.\textsuperscript{58} This program relies on a brief screening tool to determine areas of need and a resource book with tear-out information sheets for families. In a recently published randomized controlled trial, improvements for families were found with respect to key SDH, including adequate housing, fuel assistance, child care, and employment.\textsuperscript{29}

Compiling a Resource Directory

For a family living in poverty, assessing basic needs will help prioritize what should be addressed at the visit, facilitating appropriate care and referrals. In an ACO, care coordinators may manage this care and these referrals for children who are at highest medical and social risk. However, families with children who do not meet high-risk criteria, or who are not covered by an ACO, will often need help directly within the practice setting. In lieu of having an on-site care navigator or social worker, practices might consider compiling or identifying a list of community resources to have available; doing so could allow for quick and targeted interventions during the child’s appointment.\textsuperscript{59} To develop or identify such a list, practices may work with a family advisory group to identify the most pertinent needs and resources. Alternatively, practices can turn to their local AAP chapter, health plans, hospitals, or nonprofit organizations that may already have existing and updated lists. For example, many cities have a United Way 211 line that assembles and updates links to local agencies and resources.\textsuperscript{60} Specific items that could be considered for inclusion in such a list are highlighted in Table 2, focusing on public benefit programs and private charities or agencies.

Public benefits include federal, state, and local (city or county) programs. The most direct sources of information on public benefits are often local government offices (city or county, depending on size) and offices of elected officials. There are significant opportunities to effectively connect families to established public benefit programs such as the Earned Income Tax Credit and the Child Tax Credit. These tax credits, along with marketplace subsidies that were established under the Patient Protection and Affordable Care Act, are realized though tax structures which are not accessible to families who do not file taxes. Unfortunately, many of the eligible households filing taxes do not claim such credits even though they can increase employment rates, improve health outcomes, and increase child educational achievement.\textsuperscript{61–64} Practices may benefit from processes to both inform and help families navigate the application processes for these tax credits (eg, providing assistance with the filing of tax returns) and offer assistance with enrolling in other federal or state benefit programs that are of relevance to the SDH (eg, Supplemental Nutrition Assistance Program; Special Supplemental Nutrition Program for Women, Infants, and Children; Temporary Assistance for Needy Families; Section 8 housing subsidies). Approaches could involve educating patients about these benefits through handouts or volunteers at the front desk or in the waiting room, in addition to providing the information in a resource directory. For immigrant families who might not be eligible for certain public benefits, a referral to a medical–legal partnership (MLP) or other local immigrant advocacy agencies may be warranted.

Similarly, there are opportunities to connect families to private charities (local agencies or chapters of national organizations), nonprofit organizations, and other agencies that seek to help families living in poverty.\textsuperscript{65} For example, if food insecurity is an issue within a certain practice’s population, that practice may consider identifying a local food bank. Feeding America is an organization that networks with food banks nationally. Practices could identify local food banks through the Feeding America Web site.\textsuperscript{66} Local food banks, in turn, may represent willing partners that share a desire to combat food insecurity. One recent study suggested that addressing food insecurity in this way (ie, through a practice–agency partnership) measurably improved preventive service completion among high-risk infants.\textsuperscript{67} Such private charities or agencies may also represent entities capable of providing services to immigrants who may not be eligible for public benefit programs.

Direct Treatment and Management

Practices with more resources, or with established community-based connections, may be poised to directly manage poverty-related risks. Such direct management will often involve colocation of experts in the diagnosis and management of the SDH. As connections and partnerships are developed, it is important that practices identify champions within their staff. These individuals (or teams) can serve as points-of-contact for community partners while also overseeing program logistics. They can ensure that appropriate time and space are allotted such that the partnership can facilitate action for patients and families. The following examples may not be feasible in all practice settings; however, they provide valuable insights into how practices could adapt their care delivery processes.\textsuperscript{55}
The mission of Health Leads is “to connect patients with the basic resources needed to be and stay healthy.” Health Leads helps integrate care of the SDH into routine practice, currently operating across 22 clinics in 7 cities. Advocates (generally, trained college students supervised by a site coordinator) meet with families and access a comprehensive, locally modified resource directory to provide needed referrals to community agencies and public benefits. Providers can prescribe food, heat, and other basic resources; patients can also approach the advocates and request services directly. The Health Leads’ Web site provides more information on the model and potential applications for one’s own clinical setting (Table 2).

Practices may also have on-site social workers or specialists who can connect families to resources. Within an ACO model, such resources may be at the level of the network. These approaches may take advantage of alternative models that include CAP4Kids and United Way’s 211 telephone line. Available in many cities, these models use online portals or telephone connections to promote efficient access to community-based resources. Although the availability and applicability of such programs vary across regions and practices, the concept of identifying a means of efficient connection between a clinic and community warrants consideration. Still, the overall...
and comparative effectiveness of these types of models for providing resources and improving health outcomes has not been studied.

MLPs

Concerns related to basic needs, which are often legal in origin, may include substandard or unsafe housing, inappropriate denial of public benefits, inadequate educational accommodations, and issues of guardianship and immigration.72–74 The MLP model was designed to meet these SDH, and MLPs currently exist in ~300 hospitals and health centers nationally.75 MLPs generally share 3 objectives: (1) to provide direct civil legal services to families who have a civil legal need that affects health; (2) to transform both health and legal organizations; and (3) to provide systemic advocacy to improve laws and policies affecting health outcomes.72–77 The National Center for Medical-Legal Partnership provides support for new and existing programs, helps to build the evidence base for MLPs, encourages interdisciplinary education, and focuses the health dialogue on at-risk populations.75

Studies indicate that MLPs can reduce subjective stress and improve self-reported well-being, legal problem-solving skills and sense of empowerment, and health care utilization and self-reported health and well-being.78–80 MLPs have also been successful at leading community-level change.81 Other studies have addressed program sustainability, demonstrating the ability to provide financial benefit to the clinical setting by resolving improperly denied insurance claims.73,82–84 In lieu of an established MLP, practices could consider approaching local law firms or private attorneys to see if they may be willing to undertake pro bono work.

Reach Out and Read

Reach Out and Read (ROR), which has been endorsed by Bright Futures,85 was established to close the gap young children in poverty experience around language and literacy exposures in their immediate environments through the promotion of parent–child reading. ROR provides new developmentally appropriate books at each WCC visit between 6 months and 5 years of age, offers age-appropriate reading tips emphasizing the importance of language exposure and book-related routines, encourages a discussion between the parent and provider around book-sharing, and supports literacy-rich waiting rooms.86 ROR is now present in >5000 clinical sites nationally and is expanding its emphasis on the first six months of life.

ROR positively influences the home literacy environment and promotes enhanced vocabulary acquisition.87–89 The AAP 2014 policy statement, which highlighted literacy promotion as an “essential component of pediatric care” for all children, cited ROR as an effective pediatric practice-based intervention to engage parents and to prepare children for achieving their potential in school and beyond.90 The ROR Web site (Table 2) provides answers to frequently asked questions as well as instructions for how to bring this program into one’s practice.86 Funding for ROR can be challenging, however. Short of full participation in ROR, practices could consider collaboration with the following: local libraries for reading programs; bookstores, which may donate overstock books; and volunteer organizations who run book drives.

Video Interaction Project

The Video Interaction Project (VIP) is an example of a primary care–based program that is currently being tested and which may be adaptable to a variety of clinical settings. It focuses on improving child developmental outcomes and school readiness for impoverished children aged <5 years. VIP sessions occur during WCC and consist of 30-minute sessions with an interventionist (typically a child life specialist) who focuses on parent–child interactions.51 The parent and interventionist watch a video recording of a parent–child interaction together; the interventionist then reinforces positive interactions and provides suggestions on missed opportunities for positive interaction with the child. The parent also receives learning materials and visit-specific pamphlets. In a randomized controlled trial of VIP among low-income Latina mothers, positive intervention effects were seen for cognitive development scores at 21 and 33 months.51,91 Further evaluation of such programs in a variety of settings is warranted.

Practice-Level Political Advocacy

The unique health needs of children are not often the focus of US policy efforts. As child poverty rates and child health disparities remain high or increase, and as health care models move toward changing financing structures, pediatricians and practices are increasingly called upon to move seamlessly between patient care and population health. This fluidity of practice requires weaving community engagement and advocacy into pediatric practice.

Pediatricians-in-training are increasingly being exposed to strategies aimed at incorporating community engagement and advocacy into routine practice.92,93 Kick-started by the Dyson Initiative and sustained through the AAP’s Community Pediatrics Training Initiative, we know that pediatricians trained in community engagement are more likely to be involved in their communities.94 Pediatric training programs are also increasingly uniting in statewide educational
and advocacy collaboratives dedicated to creating a cohesive voice for children.95 Moreover, there is ongoing research through the Community Pediatrics Training Initiative that aims to map advocacy and the development of community partnerships onto Accreditation Council for Graduate Medical Education–defined milestones and professional activities.96 Child advocacy organizations such as the AAP and the Academic Pediatric Association, among others, help promote understanding of federal child health policy issues and pending legislation that affects children, especially those living in poverty. Many organizations have working groups to address the SDH and consider poverty’s effects on child health. Becoming involved with such organizations is an important way for individuals and groups (including practices) to become better advocates. To join, interested individuals can sign up for organizations’ listservs and/or attend their conferences and meetings. Regardless of the specific issue or one’s specific position, advocacy on behalf of children in poverty could and should be considered a central part of pediatric practice.

**RESEARCH GAPS**

There is a great need for child health researchers to expand the evidence base for structure- and process-based changes to SDH-oriented care delivery. Rigorous assessments, using either epidemiologic or quality improvement methods, could further define how home visitation programs, care coordination, and community partnerships facilitate changes to child health outcomes. Given the distal nature of many health outcomes, and the long-term influence of poverty on health, studies should also define proximal process measures to evaluate programs. Pediatric primary care practices need methods for stratifying risk along both medical and social vectors to fine-tune application of high-cost resources or interventions. In addition, child health educators should evaluate milestones for trainees as they manage social, poverty-related, pathology in conjunction with medical pathology. Finally, child health advocates should ensure a “child health in all policies” approach, one that defines and evaluates how certain policies will affect the health and well-being of children.97

**CONCLUSIONS**

Social determinants are integrally tied to child health and well-being. Poverty and its associated challenges can make life inherently difficult for many children and their families while also shaping a child’s lifelong trajectory. Pediatric primary care practices are expected to provide comprehensive care to help children thrive; however, poverty-related risks make this goal more challenging, and the provision of social care is often limited. Some practices may be poised to provide in-depth, intensive interventions through redesigned structures and processes of care or new on-site programs. Others may focus their attention on adapting existing interventions (or aspects of those interventions) or connecting families to existing public benefit programs and community-based resources. Regardless, pediatric practices must consider how to help families mitigate the impact of poverty-related risks in ways that promote long-term health and well-being.

**ACKNOWLEDGMENTS**

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**ABBREVIATIONS**

AAP: American Academy of Pediatrics  
ACO: Accountable Care Organization  
MLP: medical–legal partnership  
ROR: Reach Out and Read  
SDH: social determinants of health  
VIP: Video Interaction Project  
WCC: well-child care

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