Using Preventive Interventions and Behavioral Economics in Pediatric Primary Care to Improve the School Readiness of Low Income Infants and Toddlers

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Poverty-related disparities in school readiness represent a significant contributor to a crisis of education: nearly half of low-income 4th graders read below grade level.¹

We propose an approach that has the potential to be transformational in addressing such school readiness disparities beginning in the first months of infancy through: 1) the integration of primary and secondary prevention strategies with the potential for clinically important and socially relevant effect sizes; 2) the use of the pediatric primary care for population-level accessibility; 3) the inclusion of new approaches from behavioral economics to address parental engagement; and 4) the connection to a larger project, providing sustained effects through vertically-aligned interventions from birth to age 8.

By school readiness, we refer to a broad range of child developmental skills that strongly predicts subsequent educational achievement.² Key school readiness skills include direct precursors to academic achievement (e.g., problem-solving, language, and early literacy), together with behaviors and regulatory capacities equally important for learning (e.g., ability to attend while inhibiting hyperactive and aggressive behavior).

As much as poverty-related disparities in school readiness represent a crisis in education, these disparities also represent a major challenge for public health.

There are two main reasons why health care must have a central role in efforts to reduce poverty-related disparities in school readiness: First, gaps in school readiness occur in the context of health-related and psychosocial “toxic stressors” common in low-income households, including maternal depression, family conflict, and food insecurity. These stressors increase the risk for a broad range of adverse child outcomes - from school readiness to traditional medical outcomes (such as uncontrolled asthma and obesity). The health care system is uniquely positioned to integrate school readiness efforts with already-existing infrastructure and guidelines for clinical practice addressing toxic stressors and its correlates (such as parenting). Second, gaps in school readiness emerge in early infancy - prior to the child’s first spoken words – and widen over the preschool period. The health care system is the only entity with sufficiently frequent regular contact with low-income families during early childhood to allow for population-level scaling of preventive interventions. Indeed, recognizing school readiness as a public health challenge, federal health departments and agencies have made it a strategic public health priority.

The majority of prior efforts to prevent school readiness disparities have been based within platforms such as home and early education settings. While such efforts have been shown to be modestly effective³⁴⁵ questions remain about cost-effectiveness and population-level scalability. By contrast, our approach addresses children’s school readiness disparities at low cost and with broad capacity to reach large numbers of low-income families.

Young children’s interactions with parents represent a key target for intervention

Numerous studies conducted over the last 50 years have documented the critical positive impacts of parental responsiveness and warmth on children’s cognitive, language, and social-emotional development in the context of rapid changes taking place within the brain.⁶⁷⁸ These interactions and experiences in the home differ dramatically for low-income children as compared to their more affluent peers, and explain 25 to 50% of poverty-related disparities⁹¹⁰ The demonstrated potential for enhancing interactions through preventive intervention makes these interactions a highly promising target.
Pediatric primary care provides an innovative platform for population-level preventive intervention with low-income families.

A number of existing models based in early childhood education settings (e.g., preschool or child care) and in the home environment (using home visiting) have shown promise in promoting children’s school readiness through enhanced parenting in the infant and toddler years. However, the high cost and logistical challenges of engaging at-risk families in these settings have prevented them from being brought to scale at a population level.

Pediatric primary health care platforms offer an innovative alternative for providing low intensity, preventive interventions for low-income families at scale that complements more intensive targeted interventions. Initiatives to increase health insurance for low-income children (i.e., S-CHIP, Medicaid expansion) and the 13 to 15 visits over the first 5 years of life recommended by the American Academy of Pediatrics provide an opportunity for near-universal, frequent contact with difficult-to-reach families during this critical early period. The ongoing transition within pediatrics to multidisciplinary Patient Centered Medical Home models that consider health broadly further supports pediatric primary care as a platform for preventive interventions. Most notably, this approach takes advantage of a fully developed existing health care infrastructure, dramatically reducing the cost relative to other platforms, while also utilizing already scheduled family travel and time related to health care visits, reducing cost and burden on participating families.

Striking evidence of the potential for population-level accessibility of pediatric primary care is found from the experience of Reach Out and Read (ROR), which seeks to enhance parent-child reading aloud during well child visits. Of greatest relevance to our proposed model, ROR has been disseminated to >4,700 sites across the US serving approximately 4,000,000 young children per year (~75% of them low income), representing nearly one quarter of 11.7 million low-income 0-5 year old children in the U.S. today. This stands in sharp contrast to initiatives in educational settings such as Early Head Start, which presently has capacity to serve only approximately 3% of low income children. Studies of ROR have documented impacts on reading aloud and on child vocabulary, supporting the potential of low intensity efforts with parents during pediatric primary care visits.

The integration of primary and secondary prevention offers a tailored public health strategy to address the diversity of low-income families.

Both advocates and policymakers have long sought to prevent poverty-related disparities in health and education through enhancing interactive and responsive parenting behaviors. At the same time, variation across families in the presence of psychosocial stressors necessitates flexibility in approach. Therefore, we propose a two-tiered approach consisting of a universal, low-intensity (primary) prevention for all low-income families and targeted, higher intensity (secondary) prevention for those with identified psychosocial stressors.

The primary prevention component of our model is a program called the Video Interaction Project (VIP). VIP (Carolyn Cates and Alan Mendelsohn, NYU), is a pediatric primary care-based intervention that builds on ROR by adding an interventionist who supports parenting through shared reading, pretend play, and daily routines. While waiting to see the health care provider, the family meets with an interventionist in one-on-one 25 minute sessions, developing a relationship over time as a foundation for intervention. At each session, the interventionist video-records the parent and child and uses review of the video with the parent to identify and reinforce observed strengths in the interaction.

The secondary prevention component of the model is the Family Check-up (FCU) for families identified as having additional psychosocial stressors or emerging child behavior...
problems resulting from such stressors. FCU (Thomas Dishion, Arizona State University; Beth Stormshak, University of Oregon, and during early childhood, also Daniel Shaw, University of Pittsburgh), is a home-based, family-centered intervention that utilizes an initial ecologically-focused assessment and a feedback session that involves sharing the results of the assessment to promote motivation for parents to change child-rearing behaviors associated with children’s school readiness outcomes, with follow-up sessions on parenting and factors that compromise parenting quality. The FCUs are carried out by parent consultants, who have clinical experience working with families with young children and experience in motivational interviewing, critical to establishing a framework of change when initiating contact with families and integrating data from the assessment.

In separate clinical trials, both VIP and FCU show evidence of efficacy in promoting positive parenting practices and enhancing children’s development across domains. Both models effectively engage low-income parents with infants and toddlers in public health settings. However, VIP, with relatively low intensity, is unlikely to fully close the gap for families with additional psychosocial stressors, suggesting an opportunity for synergy through the addition of FCU to provide more intensive services for higher risk families.

**The VIP/FCU model has potential for dramatically reduced costs compared to existing initiatives to prevent school readiness disparities.**

VIP, which takes place entirely within pediatric primary care, is estimated to cost approximately $150 per child per year. FCU, which in our proposed model will utilize health care (and VIP) to identify families and subsequently provide services in the home, would cost less than $1,000 per child per year. By contrast, traditional strategies utilizing early childhood education models are approximately $10,000 to $15,000 per child per year, while traditional home visitation models cost approximately $1,500-$4,500 per child per year.

**Applying innovations from behavioral economics may increase parent engagement.**

The success of early childhood preventive interventions hinges on the parent having the available energy to fully participate, consistently engage, and follow-through with recommendations. However, parent engagement often varies substantially, and often parents behave in ways that are not consistent with standard economic models (on which many basic assumptions about program participation rest), resulting in reduced population-level impacts. Advances in behavioral economics suggest that the stresses associated with low and unstable income may interfere with parent engagement. Also, because of the lag between current program services and later benefits to children’s school readiness and educational achievement, parents may not correctly perceive the benefits to participation. We will employ strategies to minimize demands on attention, or more proactively offer rewards (such as those successfully used in other domains like nutrition and finance), which have not been employed to date in the context of preventive interventions.

**This intervention will fit into a broader initiative designed to reduce achievement disparities through vertically-aligned interventions across developmental stages.**

This integrated intervention for families of infants and toddlers is embedded in a broader project known as “School Reform and Beyond”, a multidisciplinary, multi-site initiative involving researchers at Harvard University, New York University, the University of Michigan, and the University of Pittsburgh, to enhance outcomes for children from birth through elementary school. Other team members are testing interventions for children in preschool and elementary school, with the goal of taking to scale a sustainable, efficient, and developmentally-integrated set of evidence-based interventions that accelerate learning, health, and development of children in poverty.
References


18. Ibid.


