

## VIEWPOINT

# The 30 Million-Word Gap Relevance for Pediatrics

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As many as 40% to 50% of the children pediatric clinicians serve are growing up in low-income households. Among the myriad physical and mental health sequelae of early adversity and toxic stress, language development appears to be one area particularly vulnerable to the stressors associated with poverty. The effects of poverty on language development have been documented in children as young as 9 months, becoming more clinically evident by 24 months.<sup>1</sup> The consequences of early adversity-related language delays may be profound, leading to later learning delays, school failure, and lifelong social and economic consequences.<sup>2</sup>

This income-related gap in children's language development has been linked in numerous studies to the quantity and quality of language input children receive from their parents, family members, and caregivers. Hart and Risley<sup>3</sup> carried out the landmark study documenting this influence of children's early environments on their later vocabulary growth. They observed that young children from low-income families heard approximately 600 words per hour compared with 2100 words per hour for children from high-income families. Extrapolating from this hourly discrepancy data, they estimated that by the time children reached age 4 years, those from higher-income families were likely to have heard roughly 30 million more words than low-income children. In addition, lower-income parents have been observed to use fewer complex sentences and rare vocabulary words, ask fewer questions of children, and use more prohibitives and directives—language that tells children what to do and not do—rather than pose comments that might elicit conversation. This qualitative and quantitative difference in language exposure, the “word gap,” is significant in that it often leads to later disparities in children's academic achievement via effects not only on language development<sup>2</sup> but also on cognitive processing<sup>1</sup> and building self-regulation skills.<sup>4</sup>

Numerous community-based interventions have been shown to be effective in improving children's language learning environments and outcomes.<sup>5</sup> Some of the largest-scale endeavors include Providence Talks (a program in which low-income families with young children in Providence, Rhode Island, are given audio-recording technology that provides feedback about how many words their children hear every day), Georgia's Talk to Me Baby program, and the Talking Is Teaching initiative of Too Small to Fail.

However, some recent commentators have criticized the emphasis placed on word gap initiatives, with opposition to the “simplistic” approach of focusing on number of words spoken as a solution to poverty's health effects as well as concern for implicit bias in the way researchers describe low-income and minority parenting.<sup>6</sup>

We argue that emphasis on the word gap in pediatric practice is not only appropriate but also a valuable tool for partnering with families and teaching trainees.

## Raising Awareness and Political Will

As pediatricians who work with low-income families (J.S.R., M.B.-M.), we experience the overwhelming role of poverty, income inequality, and ethnic/racial disparities in child health and development on a daily basis. These social determinants affect both the physiology of our patients and their committed caregivers' abilities to (among other things) bring them to appointments, keep stable housing, afford healthy food, and engage with service specialists. Our patients cannot vote, and their families often have few advocates. We therefore need striking yet intuitive ideas—like the 30 million-word gap—that rally policy makers, funders, and communities to act to prevent the developmental and health sequelae of poverty.

## Translating Developmental Research Into Action

Pediatric clinicians need an entry point for conversations that will hit home with parents and motivate healthy behaviors within the 15 minutes of a well-child care visit. Thus, the advantage of the word gap message is that it provides a stunning picture of a disparity for which actionable and affordable practices are available and can easily be shared with parents. When it has been estimated that parent-child interaction differences explain 25% to 50% of disparities in child early academic outcomes,<sup>7</sup> we need effective ways to counsel parents that both explain developmental science and provide tools and resources. The interventions, educational materials, and tools inspired by the word gap are easily accessible resources we can recommend to parents (eg, <http://www.talkwithmehbaby.org> for parenting ideas, <http://www.talkingisteaching.org> for text-based tips on building language and literacy skills, <http://www.zerotothree.org> for play-based ideas to stimulate child development, and <http://pbskids.org/> for quality educational media content).

## Training Pediatric Clinicians to Understand Toxic Stress

The word gap, unique from other child development research, is defined by disparity. As a strongly intuitive concept, trainees appear to understand it and be motivated by it. While existing training programs about social determinants of health focus on advocacy and connecting families with concrete resources, word gap research provides a framework for how trainees can observe parent-child verbal interaction and coach parents on things they can do with their children to

improve language and learning outcomes. With the growing need for primary care and developmental behavioral professionals to see children from disadvantaged backgrounds, building self-efficacy in trainees regarding management of social determinants of child development is crucial.

### Supporting Parents' Strengths

Recent criticisms of the word gap<sup>5</sup> are erroneous in their assumption that getting families to talk to each other more will not help solve the intractable problems of poverty. Talking facilitates social and emotional connection, builds relationships, teaches reciprocity and ability to read social cues, trains parents to get on the child's level and inside their child's mind, and allows exchange of thoughts, feelings, family values, histories, and a sense of meaning. These are so much more than "talk." In addition, word gap interventions have largely improved levels of parent stress; parents report feeling more empowered, appreciate having more ideas for how to talk and play with their children, and report feeling supported in their parenting from a strengths-based approach.<sup>5</sup>

Two approaches embedded in primary care also take this strengths-based approach. Evaluations of Reach Out and Read have demonstrated that using books during primary care visits to train parents about reading aloud improves expressive and receptive language skills and encourages positive attitudes toward

reading. It also provides unhurried time for parents and children to share experiences and build emotional connection. A more intensive intervention, the Bellevue Project for Early Language, Literacy, and Education, videotapes mothers of young children during an interaction and then a child development specialist reviews and provides feedback and encouragement about interactions in the videotape. This intervention has been shown to promote parents' verbal responsiveness, frequency of reading, and child development outcomes that persist through adolescence.

The pediatric medical home is an important venue to deliver universal programs to address the word gap given the near universal reach of pediatric primary care. Whether it is through Reach Out and Read, a collocated developmental specialist (eg, Healthy Steps), or our relationship-based guidance to our families, the word gap can be used as a framework for discussions about unplugged family routines or turning off background television; for commenting on parent-child interaction strengths in real time and using child behavior as a launching point for coaching and feedback to support parenting; and for embedding social determinants of health training within resident education. The word gap is an actionable concept that can be brought up with the purpose of empowering parents about what small but powerful things they can do to support child development despite the adversities they face.

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