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## Can Integrated Interventions Create the Conditions That Support Caregiving for Better Child Growth?

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## Can integrated interventions create the conditions that support caregiving for better child growth?



Children born to healthy mothers who live in homes with piped water and improved sanitation, are fed adequate diets, and have appropriate health care have better growth outcomes. Yet intervention trials to test the effects of integrated delivery of specific interventions that address elements of these determinants—such as the Articles by Stephen Luby and colleagues<sup>1</sup> and Clair Null and colleagues<sup>2</sup> reported in this issue of *The Lancet Global Health*—have come up short.

The two studies were well designed and conducted in contexts where the burden of malnutrition is high and water quality, sanitation, handwashing, and nutrition practices are inadequate. We congratulate the study teams for their ambitious efforts at developing, implementing, and evaluating this set of integrated interventions that target major risk factors for poor child growth (water quality, sanitation, and nutrient intake) in tight timeframes and in two different contexts. The findings offer important lessons in intervention delivery and uptake and they force us to think about the implications of what integrated interventions aim to do. First, in Bangladesh,<sup>1</sup> where intervention delivery and adherence was high, the findings raise questions about the convergence with other components of caregiving that affect children's diets, sanitation behaviours, and consequently, growth.<sup>3</sup> Second, in Kenya,<sup>2</sup> where intervention delivery was suboptimal (especially in the second year when promotion visits dropped sharply), the findings call into question the implementation factors that are necessary to support effective delivery, including worker motivation, supportive supervision, and refresher training. Both implementation and utilisation, in context, deserve further explanation and investigation and we look forward to more on this from the authors.

The absence of a synergistic effect from the sanitation and nutrition interventions in the two studies highlight the restricted ability of specific interventions to fully address multiple determinants of child growth. Optimal growth and development are influenced by thousands of caregiving behaviours that together create an enabling microenvironment for each child. For example, a child will need to be fed at least 3000 times between birth and 24 months (an average of five times

a day) and will need to be cleaned after urination and defecation just as often. Countless more interactions are needed to soothe a child to sleep, stimulate their brain, and keep them safe. What proportion of this staggering number of interactions are responsive to specific interventions that are likely to be able to support child growth without equivalent efforts to change the context for caregiving beyond what even the best implemented interventions can reach?

Theories in child development and nutrition ask that we consider in research and policy what conditions best enable optimal caregiving. Urie Bronfenbrenner's<sup>4</sup> bioecological model of child development places the caregiving dyad (parent and child) and its interactions at the centre of development. His elegant model reminds us that the role of household environments, society, economics, and policy is to shape and support dyadic interactions that are, in totality, nurturing, responsive, and stimulating. About two decades ago, we highlighted that investments in supportive resources for caregiving—a set of factors that surround this dyad—are essential for caregiving that can support growth and development.<sup>5</sup> These models lead us to ask what instruments can most effectively create the conditions that enable, support, and strengthen the thousands of caregiving interactions linked to feeding, cleaning, stimulating, and protecting children in the first 2 years of life. The reason that the nutrient supplement intervention used in these studies was effective at easing conditions for infant feeding was probably because it assured availability of a nutritious, accessible, palatable, and safe food supplement that was convenient and fit easily into daily feeding routines. By contrast, the water, sanitation, and handwashing interventions were potentially unable to fit similarly into routine caregiving. The absence of a synergistic effect in these studies could be because one component supported and shaped daily caregiving effectively while the other did not.

A key message of the studies is not that these determinants—water, sanitation, hygiene, nutrition, and information—do not matter for child growth. Indeed, they matter so much that we, as a community, need to

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redouble our efforts to identify how best to improve conditions to support caregiving behaviours that contribute effectively to child growth and development. Policy instruments that are equity enhancing and explicitly aim to create conditions to support parenting and caregiving could be the way to achieve this. In some countries, including Peru<sup>5</sup> and Brazil,<sup>6</sup> social programmes and policy instruments related to sanitation, health, and food security have improved growth and development by putting some, if not all, of these conditions in place.<sup>7</sup>

Actions that support better child growth are socially and biologically complex, and Bronfenbrenner reminds us that every child grows and develops in an exquisitely individual environment. Intervention researchers and social policy experts should continue to build knowledge on how best to shape conditions that support this individual-focused caregiving that every child needs.

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