Community Health Workers Linking Clinics and Schools and Asthma Control: A Randomized Clinical Trial

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Importance: Childhood asthma is characterized by pervasive disparities, including 3-fold higher hospitalization rates and 7-fold higher death rates for Black children compared with White children. To address asthma disparities, one must intervene in all lived environments.

Objective: To determine if a community health worker (CHW) intervention to connect the primary care, home, and school for low-income minoritized school-aged children with asthma and their caregivers improves asthma control.

Design, setting, and participants: This study was a hybrid effectiveness/implementation trial using a 2 × 2 factorial, cluster randomized clinical trial design of 36 schools crossed with participant-level randomization into a clinic-based CHW intervention. The study was conducted from May 2018 to June 2022. The intervention took place in primary care offices, homes, and 36 West Philadelphia, Pennsylvania, public and charter schools. Children aged 5 to 13 years with uncontrolled asthma were recruited from local primary care practices.

Interventions: Asthma management, trigger remediation, and care coordination occurred in school, home, and primary care settings. Children were followed up for 12 months. The Yes We Can Children's Asthma Program, Open Airways For Schools Plus, and school-based asthma therapy were implemented.

Main outcomes and measures: Improvement in asthma control, as measured by the Asthma Control Questionnaire, comparing the mean difference between groups 1 year after randomization with their baseline (difference in differences). Both primary care and school interventions were dramatically disrupted by the COVID-19 pandemic; therefore, stratified analyses were performed to assess per-protocol intervention efficacy before the pandemic disruptions.

Results: A total of 1875 participants were approached, 1248 were excluded, and 1 was withdrawn. The 626 analyzed study participants (mean [SD] age, 8.7 [2.4] years; 363 male [58%]) self-identified as Black race (96%) and non-Hispanic ethnicity (98%). Although all groups had statistically significant improvements in asthma control from baseline to 12 months (P- group: -0.46; 95% CI, -0.58 to -0.33; P+ group: -0.57; 95% CI, -0.74 to -0.44; S- group: -0.47; 95% CI, -0.58 to -0.35; S+ group: -0.59; 95% CI, -0.74 to -0.44), none of the difference-in-differences estimates from the primary prespecified models showed a clinically meaningful improvement in asthma control. Analysis from the prepandemic interval, however, demonstrated that children in the combined clinic-school intervention had a statistically significant improvement in asthma control scores compared with control (-0.79; 95% CI, -1.40 to -0.18).

Conclusions and relevance: This randomized clinical trial provides preliminary evidence that connecting all lived environments for care of children can be accomplished through linkages with CHWs.

Journal:

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Authors: Bryant-Stephens T, Kenyon CC, Tingey C, Apter A, Pappas J, Minto N, Stewart YS, Shults J

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