

Solutions has proven an excellent tool and can be used by any hub to understand how they compare and implement changes to improve their programs.

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### Independent and Combined Effectiveness of Multiple Micronutrient Supplementation and Responsive Caregiving Interventions to Support Early Child Development in Southwest Guatemala

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**OBJECTIVES/GOALS:** The objective of this study is to examine the independent and combined effectiveness of a multiple micronutrient supplementation and responsive caregiving intervention on early child development in southwestern Guatemala. **METHODS/STUDY POPULATION:** We conducted a double blind, 2 x 2, cluster randomized controlled trial combining micronutrient supplementation and responsive caregiving treatments. We enrolled 309 infants (6-18 months) and 387 preschoolers (36-52 months) at nutritional risk (height-for-age z-score < -1) (51% male; 17% indigenous ethnicity; 76% of caregivers completed a primary school). The supplementation arm received a maize-soy product fortified with 21 micronutrients for 6 months; the control was fortified with B2. The responsive caregiving intervention was adapted from the UNICEF Care for Child Development program and delivered over 6 home visits. We examined changes in early child development from baseline (2015) to endline (2017) using the Bayley Scales of Infant and Toddler Development III and Bracken Scales of School Readiness. **RESULTS/ANTICIPATED RESULTS:** Among infants, age standardized Bayley cognitive development scores declined over time in each treatment arm. Infant Bayley motor development scores significantly increased in the combined multiple micronutrient supplementation + responsive caregiving arm ( $\hat{\Delta} = 3.67$  [95% CI: 0.17, 7.17],  $p = 0.04$ ). Among preschoolers, school readiness decreased over time in each treatment arm. The rates of change in infant development and preschooler school readiness did not differ between treatment arms. Further analysis will explore effect modification of the intervention by pre-specified child and household factors. **DISCUSSION/SIGNIFICANCE:** Combined multiple micronutrient supplementation and responsive caregiving supported motor development while cognitive and school readiness were not impacted by the intervention. These findings will inform the effectiveness and beneficiaries of multisectoral interventions to promote early child development in adverse environments.

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### Automation of Home Food Inventory Scoring to Standardize Reporting, Enhance Clinical Utility, and Operationalize Delivery of Personalized Behavioral Targets

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**OBJECTIVES/GOALS:** The Fulkerson Home Food Inventory (HFI) is widely used to assess the home food environment, a key target of behavioral weight loss trials. However, no standardized report is

available. We created publicly available procedures to automate and standardize HFI reporting, yielding a personalized report to enhance this measure's clinical utility. **METHODS/STUDY POPULATION:** Parents in the TEENS adolescent behavioral weight loss trial complete the HFI at 0-, 2-, 4-, 8-, and 12m and receive personalized reports at each timepoint. In REDCap, participants identify foods available in their home. HFI syntax is applied to calculate the obesogenic home food availability score. Categories of foods found are identified, with specific guidance provided to enhance their home food environment. Prior to automation, procedures were time intensive and error prone. To address this, HFI data are exported into Excel by a PowerShell (v7.2) command-line script using Python (v3.10) with the REDCap API. Results are calculated with F# (v6.0) using Microsoft Excel Interop API and inserted into a report template with F# using the Microsoft Publisher Interop API. This process is repeated at each timepoint. **RESULTS/ANTICIPATED RESULTS:** The new automated procedures significantly reduce time to generate reports and enhance accuracy. Procedures yield a 2-page individualized report that includes the obesogenic home food environment score and identifies categories of healthy items found (e.g., fruits, vegetables, whole grains) as well as areas of improvement (e.g., high-fat dairy products, processed meats). Specific items found in each category are identified. The report identifies food found in the home (e.g., chicken nuggets) with suggested healthier substitutions (e.g., lean chicken breast). This syntax and commands will be made publicly available for use in the scientific and clinical community. **DISCUSSION/SIGNIFICANCE:** These publicly available procedures optimize, automate, and standardize reporting for the HFI. Procedures improve efficiency within large-scale clinical trials and yield a personalized report to enhance the clinical utility of this measure and empower participants to make informed decisions about their health behaviors.

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### Patient and physical therapist experiences with integrating an eHealth pain self-management program into clinical care

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**OBJECTIVES/GOALS:** eHealth programs centered on cognitive behavior therapy (CBT) can be supported by physical therapists to feasibly deliver psychologically-informed physical therapy (PIPT). This study assessed patient and physical therapist (PT) perspectives of adding a CBT-based eHealth program to physical therapy. **METHODS/STUDY POPULATION:** In our uncontrolled pilot study, PTs were trained in motivational interviewing (MI) to support patient engagement with a 7-module eHealth CBT-based pain self-management program that accompanied a course of PT. Interviews were conducted with a convenience sample of 13 patients with chronic back and/or neck pain and 9 PTs to evaluate experiences with the eHealth program, perceived benefits, barriers and facilitators to integration, and future recommendations for implementation from both perspectives. Interview data were recorded, transcribed, and analyzed using qualitative content analysis for core themes. **RESULTS/ANTICIPATED RESULTS:** Patients benefited from the eHealth program, especially relaxation (69% of respondents) and meditation/mindfulness (62%). Time and technology