

Development and Validation of Fe-RISK: An Early Childhood Iron Deficiency Risk Stratification Tool

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SUMMARY (one half-page, approximately 250 words, written for a lay audience)

Preschool years are critical years for children to learn skills such as language, motor and social skills. Primary care doctors (family doctors and pediatricians) are in a unique position to identify children with health or developmental problems due to multiple doctor visits scheduled in the first 5 years of life. Approximately 18% of young Canadian children are iron deficient. Iron deficiency is associated with delayed cognitive development that can lead to serious and irreversible problems. However, iron deficiency in young children frequently goes undetected as most Canadian children do not have any blood tests at their doctor visits. The purpose of our study is to develop a tool (a risk stratification tool called Fe-RISK) to help primary care doctors to identify which children aged 1 to 3 years are likely to have iron deficiency that could be confirmed with a screening blood test. Our TARGeT Kids! study cohort of healthy children is the optimal design for developing this risk stratification tool, using predictor variables readily available at routine doctor visits. A total of 1364 children aged 12 to 38 months with a blood sample were recruited; 237 children (17.4%) are iron deficient. Of the 14 candidate predictor variables we identified, 8 predictors (child age, child sex, zBMI, birthweight, multivitamin use, breastfeeding duration, daily cow's milk intake, bottle use) are potentially suitable for inclusion in the risk stratification tool as they have a missing rate of <10% and good variability. 1039 or 76% of participants have no missing predictor variables. We will continue to use a rigorous analytic approach to further develop and validate this risk stratification tool. Fe-RISK has the potential to be used by all primary care doctors in Canada. "A simple tool that can predict which children are at risk for iron deficiency will help primary care doctors explain the need for a screening blood test for iron deficiency to parents" says Dr. Cornelia Borkhoff at The Hospital for Sick Children.