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ADVANCING CHILD MALTREATMENT PREVENTION THROUGH THE APPLICATION OF COMPLEX ADAPTIVE SYSTEMS: DEVELOPMENT OF AN AGENT-BASED MODEL

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The work of child maltreatment (CM) prevention is particularly challenging due to the dynamic and complex nature of this phenomenon. This complexity results from a system containing multi-level factors that span the social ecology, diversity of actors (ie, families, schools, government agencies, healthcare providers) that potentially affect maltreatment, and multiplicity of mechanisms and pathways that are not well studied or well understood. By acknowledging that CM prevention is affected by a dynamic system of interacting variables with feedback loops into the broader system, additional methodologies seem necessary to capture this non-linear and delayed response. The application of complex adaptive systems (CAS) offers tremendous promise in this area as its application has been used in other areas of public health to address problems with similar complexities, including cardiovascular disease, diabetes and tobacco. CM prevention involves several unique features related to CAS, that is, non-linear effects, agents who learn, interconnections, self-organising behaviour and co-evolution with the environment, thus making it a prime candidate for application of CAS methodologies. This presentation will illustrate an agent-based model that explicitly simulates a community and its families with multi-level factors and interconnections across the social ecology. This makes it possible to experiment with how different factors and prevention strategies can affect the rate of CM over time. This presentation will highlight the background of this work, give an overview of the agent-based model, show initial simulation results, and allow for knowledge exchange across disciplines.