

Using Models to Inform Policy: Insights from Modeling the Complexities of Global Polio Eradication

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Abstract. Drawing on over 20 years of experience modeling risks in complex systems, this talk will challenge SBP participants to develop models that provide timely and useful answers to critical policy questions when decision makers need them. The talk will include reflections on the opportunities and challenges associated with developing integrated models for complex problems and communicating their results effectively. Dr. Thompson will focus the talk largely on collaborative modeling related to global polio eradication and the application of system dynamics tools. After successful global eradication of wild polioviruses, live polioviruses will still present risks that could potentially lead to paralytic polio cases. This talk will present the insights of efforts to use integrated dynamic, probabilistic risk, decision, and economic models to address critical policy questions related to managing global polio risks. Using a dynamic disease transmission model combined with probabilistic model inputs that characterize uncertainty for a stratified world to account for variability, we find that global health leaders will face some difficult choices, but that they can take actions that will manage the risks effectively. The talk will emphasize the need for true collaboration between modelers and subject matter experts, and the importance of working with decision makers as partners to ensure the development of useful models that actually get used.