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Systems Thinking in Injury Prevention: An Innovative Model for Informing State and Local Policies

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Unintentional and violence-related injuries represent one of the leading causes of morbidity and mortality in the United States and in the state of Georgia. In response to the burden of injuries in Georgia, the Georgia Health Policy Center (GHPC) at Georgia State University convened some of the state's leading experts on trauma and injury prevention to learn about systems thinking that can leverage existing resources and processes and create synergy across institutions to inform state and local policies that seek to reduce injury.

John Sterman – renowned systems thinker and professor of management at Massachusetts Institute of Technology's Sloan School – writes in a 2006 American Journal of Public Health article, “Thoughtful leaders throughout society increasingly suspect that the policies we implement to address difficult challenges have not only failed to solve the persistent problems we face, but are in fact causing them. All too often, well-intentioned programs created unanticipated ‘side effects.’ The result is policy resistance, the tendency for interventions to be defeated by the system's response to the intervention itself.”¹ Nowhere are policy-resistant systems more evident than in state capitols across the country. Legislation crafted with the best of intentions moves one problem forward but sets another back. A quick glance at typical committee structures of most state assemblies points to one structural culprit. Committees carved out by topic or strategy, rather than by larger purpose, are not able to incorporate the systemic nature – the interrelatedness – of our most significant health problems, including injuries. Systems thinking, a focus on “upstream” vs. “downstream” activities, and policies are needed, in particular for injury prevention, which is a broad and cross-cutting topic that interfaces across policy domains.

To address policy resistance, the GHPC legislative health policy certificate program fostered state legislators' capacity for systems thinking. Using childhood obesity as a case study, a diverse team of subject matter experts, legislators and legislative staffers developed a simple system dynamics model. A literature-based user interface allowed policymakers to explore policy interventions, alone or in combination and at

varying intensities, in terms of impact on obesity outcomes and associated healthcare costs over the coming decade. The model was designed for real-time, hands-on exploration in a learning laboratory environment with real-life application. Policymakers were encouraged to predict outcomes, articulate theories, and inquire into differences between their own predictions and those generated by the model. The process brought legislators with differing viewpoints together with scientific and economic experts to develop a set of actionable policy options and priorities. The resulting model provided a framework, a common language, and a credible tool that has begun to stimulate a more rigorous discussion about effective and feasible policy options for reducing childhood obesity. Because the systems model is built with the most recent and best information in the literature and the knowledge of experts in the field, legislators who use the tool are basing their decisions on credible research and evidence.

The GHPC is now replicating this process for the issue of injury prevention. In March 2011, the GHPC convened some of Georgia's leading experts on trauma and injury prevention for a day-and-a-half work session. Participants also represented the Emory Center for Injury Control and others involved in injury prevention in Georgia. The participants learned about systems thinking and began the process for developing an interactive systems model to inform state and local policies to reduce injury. By design through this process, participants represented their own disciplines and framework for injury control and prevention. This interdisciplinary approach is critically important in developing a model that has applicability across settings. Therefore, part of the dynamic systems modeling for injury prevention was comprised of exposing and testing different mental models in a collaborative, non-political context. The results from this process were the beginning of a new and shared understanding about injury prevention, its complexities and priorities. Most importantly, this process also elucidated the most promising leverage points for programmatic or policy change to prevent injury, which is a typically underutilized policy strategy in injury prevention.

As we move forward in this process, it is our goal to strengthen the role of policy in injury prevention. The systems model we have developed in collaboration with stakeholders and legislators has the possibility to leverage our capacity, facilitate our dialogue, help determine priorities and to ultimately inform innovative policy approaches to injury prevention.

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