# Complex Systems Thinking at Wellesley Institute

Wellesley Institute has long been committed to advancing urban health.

- We work at a population health level — meaning that we are interested in the forces that shape the health of different groups of people within society — as opposed to individual health.

- An enormous body of research demonstrates that poverty, inequality, poor housing, precarious work, racism and other social determinants of health, other lines of inequity and exclusion are the fundamental bases of health and health disparities.

- Our focus is research, community and policy work designed to address these complex and dynamic social determinants of health and reduce health disparities.

### THE PROBLEMS WE WORK TO SOLVE

Health disparities are pervasive and damaging. There is a clear gradient in health in which people with lower income, education or other lines of social inequality and exclusion tend to have poorer health.

- Over one quarter of low income people in Ontario – 3 X high income – report their health to be poor or only fair.
- 2-3 X as many low income as high income people have chronic conditions such as diabetes or heart problems.

- One quarter of low income people reported their daily activities were prevented by pain = 2X than high income.
- Difference between life expectancy of top and bottom income decile in Canada = 7.4 years for men and 4.5 for women.
- More sophisticated analyses take account of the pronounced gradient in morbidity and quality of life and developing data on health adjusted life expectancy = even higher disparities between top and bottom = 11.4 years for men and 9.7 for women.

Health disparities are differences in health outcomes that are avoidable, unfair, and systematically related to social inequality and disadvantage. Health equity strategy is designed to reduce or eliminate these socially and institutionally structured health inequities and differential outcomes.

### COMPLEX ISSUES/COMPLEX ENVIRONMENTS

Just as all our work is geared to advancing health equity, so too is all this work grounded in complexity analysis.
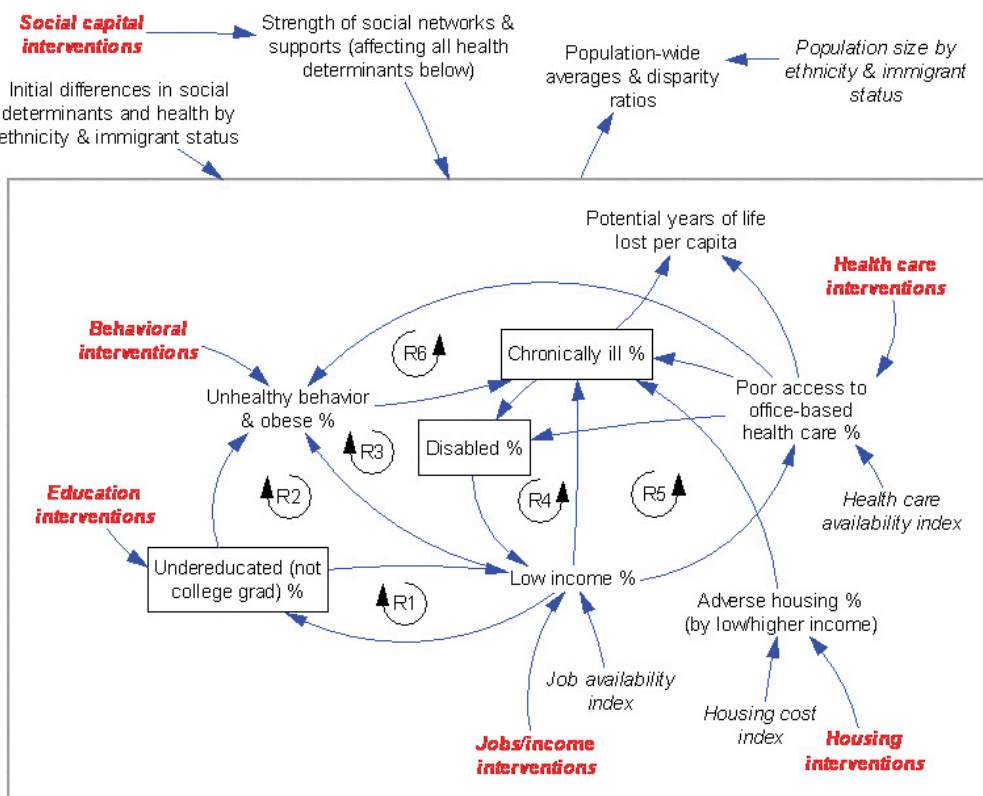
- We focus on the dynamic and inter-connected nature of social determinants of health (e.g. how poor housing, precarious work, barriers facing newcomers and income inequality have a reinforcing and cumulative impact in shaping the health of vulnerable groups).

- We develop policy solutions that address this complex and dynamic impact of social determinants on health disparities.

- Our research and policy work is designed to enable policy makers and communities to shape the social and economic changes needed to improve population health.



### SYSTEM DYNAMICS MODELLING AND URBAN HEALTH

System dynamics modeling helps to ground and guide policy addressing complex issues in complex environments. Figuring out how to enhance population health and reduce systematic health disparities is a "wicked"
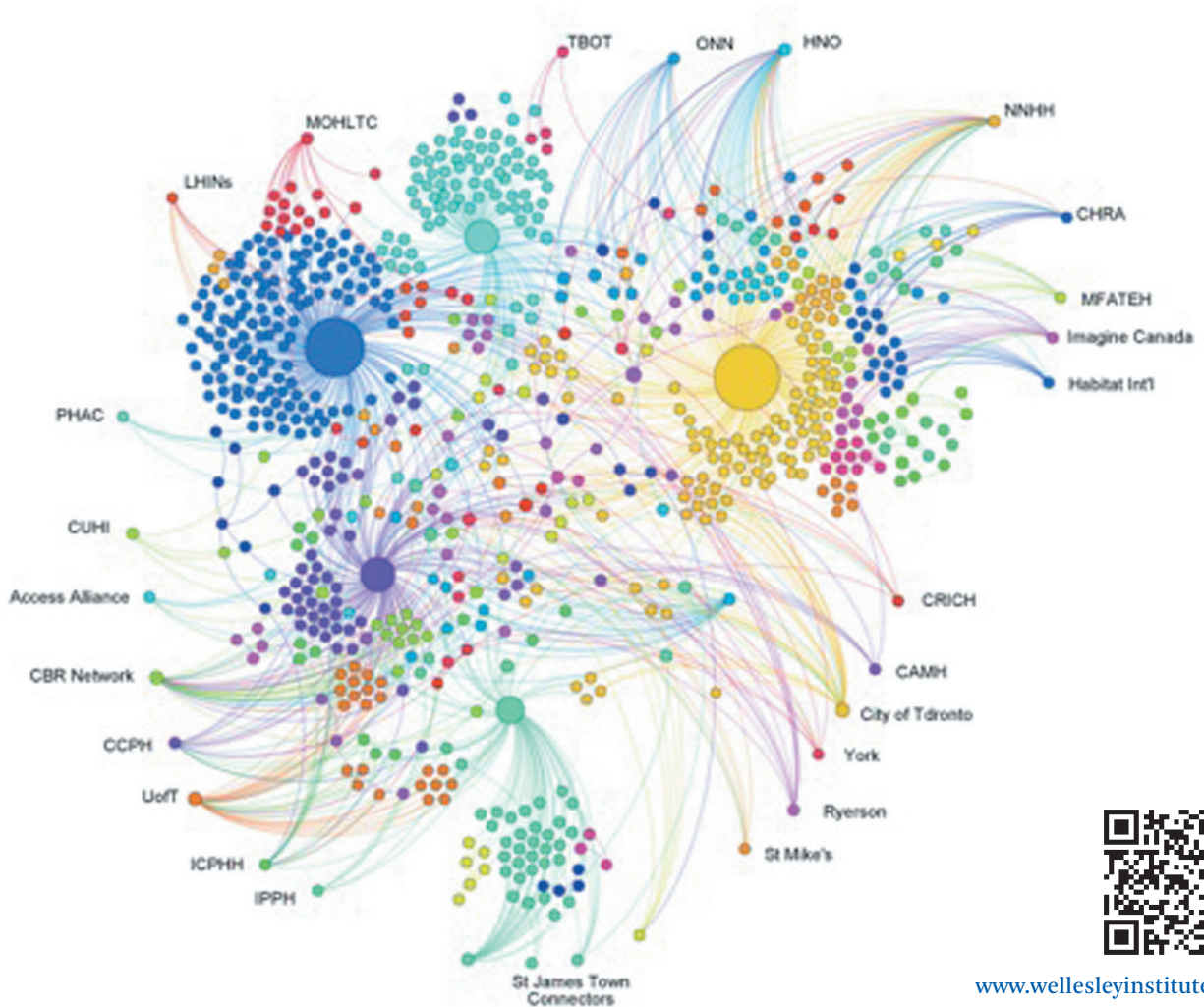
policy challenge. The range of possible interventions is huge, but resources are finite and constrained; the underlying foundations and factors that drive health and health disparities are inter-dependent and constantly changing, especially in urban environments; the health, social and related service systems, and government policies, structures and responsibilities, are equally complex and fragmented; it is difficult to assess the effect of any particular policy and program intervention among many; and the time line for impact of any policy direction is long. This modeling simulates alternative futures that could result from varying policy interventions and mixes, and can help understand which policy directions will have the most impact in addressing fundamental problems. It can be a practical tool to help policy makers set priorities and identify the most promising directions and options for investment.

Wellesley Institute and Lupina Foundation are developing a project to build on pioneering work initiated in the US and develop a dynamic systems model for Canadian urban health. For methodological and conceptual reasons this model will first be developed with data from the City of Toronto, but the goal is to be able to apply the model in various other Ontario and Canadian policy and place settings.

## RELATIONSHIP MAPPING

Wellesley Institute's understanding of how policy and social change is driven highlights the importance of mobilizing both broad coalitions around big issues, such as health disparities, and building strategic partnerships to advance specific issues such as building innovative and integrated community social and health services for immigrants that can address the social determinants of health on the ground. For both these goals we need to strategically and systematically pick, nurture, and build effective alliances and partnerships. We wanted to first of all know who we were working with to ensure our relationships were aligned with our strategic priorities and to secondly identify gaps and opportunities to strengthen and better focus our strategic partnerships.



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Population health is a framework for thinking about the many factors influencing the health of citizens. Building on a long tradition of public health and health promotion, this framework goes beyond the more traditional focus on biological or lifestyle problems associated with individual illness, to a system-wide view of health and well-being that examines the affect of social and economic conditions.*

Wellesley Institute
advancing urban health