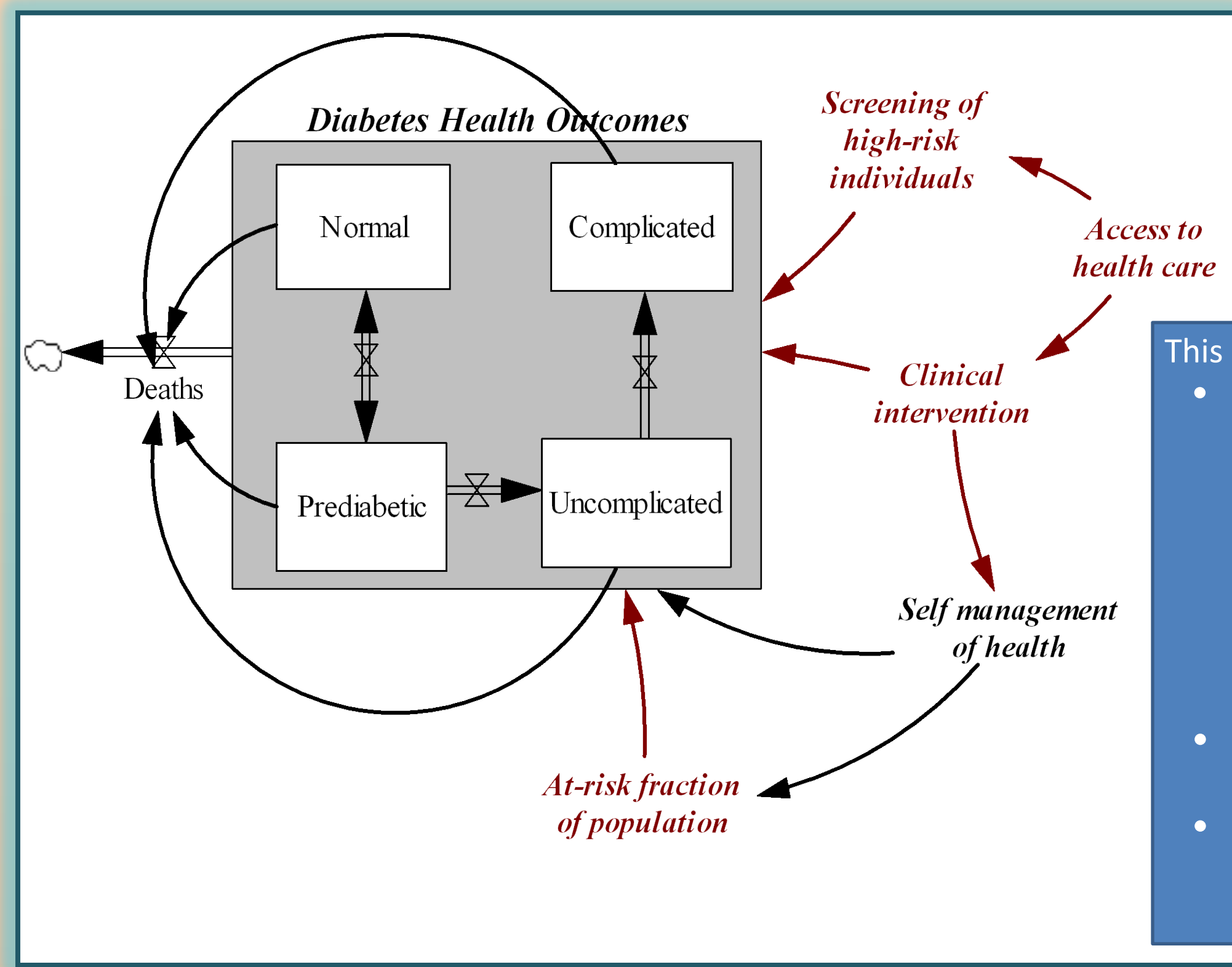


A simple mental model for public health responses to diabetes

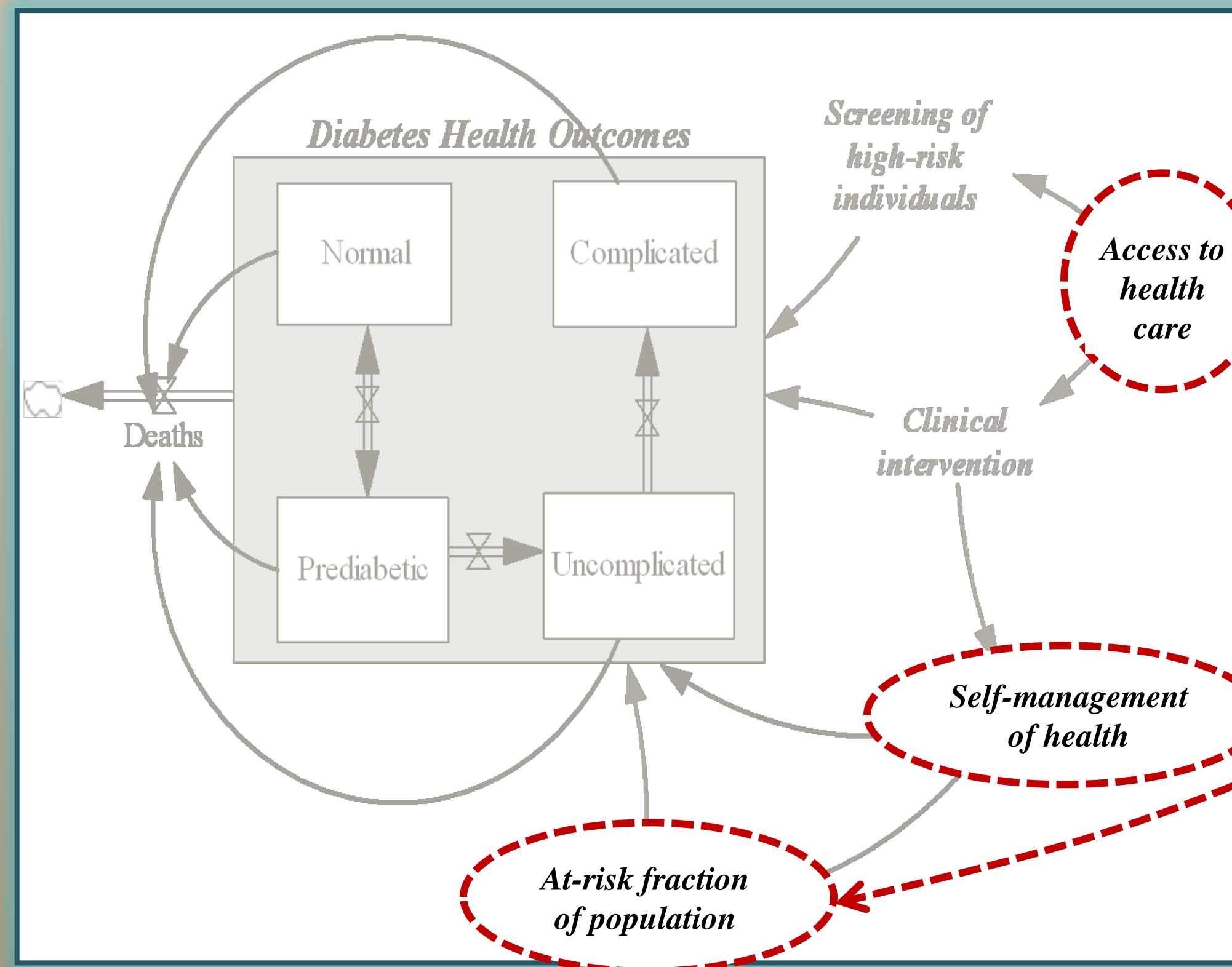


- This simplified approach assumes ...
- Progression of the disease in the population is controlled primarily through...
 - Adequate access to preventive health care
 - Screening of high-risk individuals
 - Clinical management interventions
 - Promotion of healthy behaviors to slow/manage disease progression.
 - Self-management of health is impacted primarily by clinical management
 - Socio-economic disparities are addressed by providing equal access to health care

But experiences in countries where universal health care exists still show significant differences in health outcomes, which, in turn reflect differences in the % at-risk in each population. (Navarro, 2009; Singh-Manoux et al., 2008)

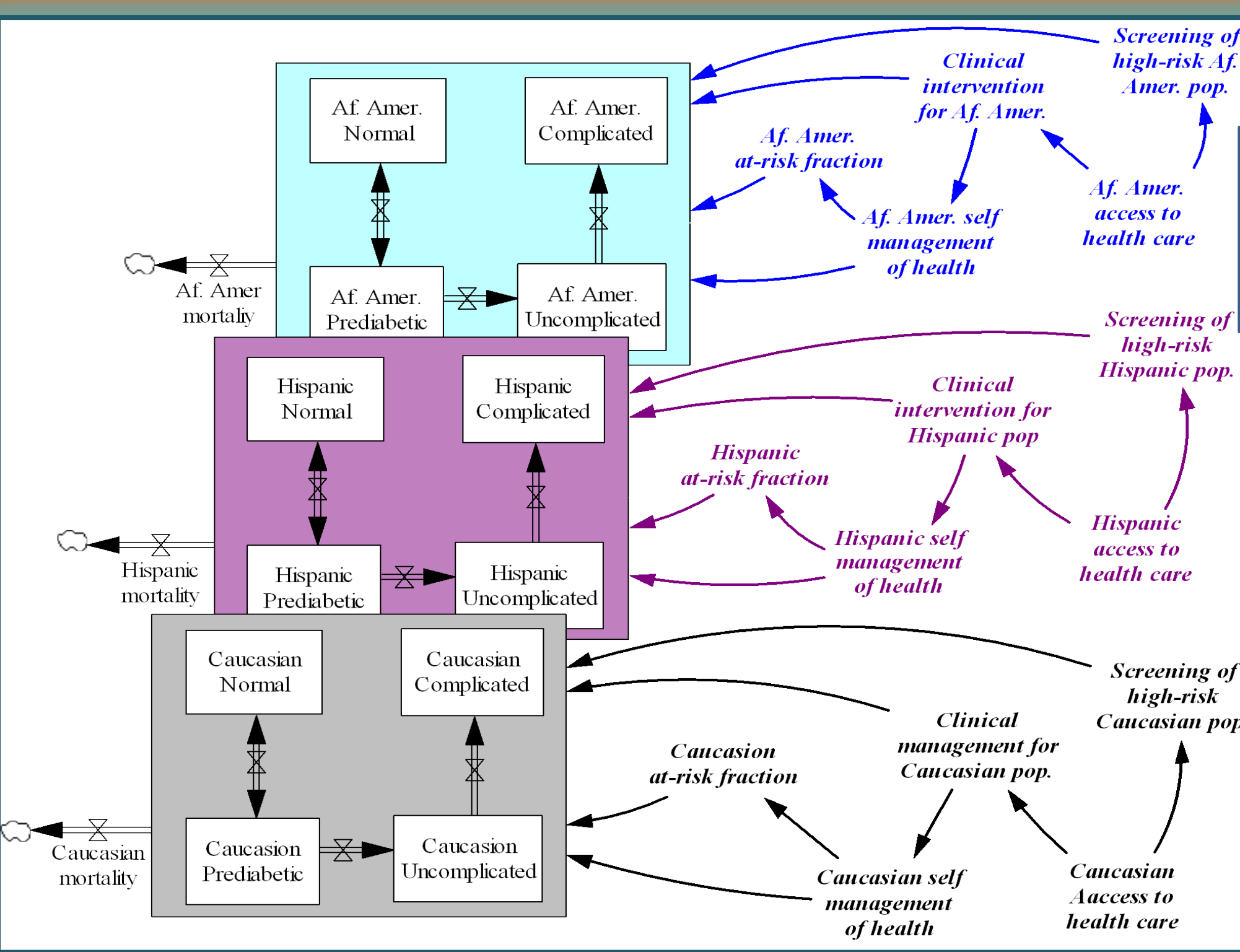
Hence, policies that rely exclusively on a combination of better clinical intervention + universal access will fail to show significant improvements in health outcomes or in disparities across groups.

Addressing the dynamics behind these disparities is essential for creating effective policies



The "tip of the iceberg"
These are known to vary across socio-economic & race/ethnic groups.

Hence, the rates at which the disease progresses differs by race/ethnic & socio-economic status.

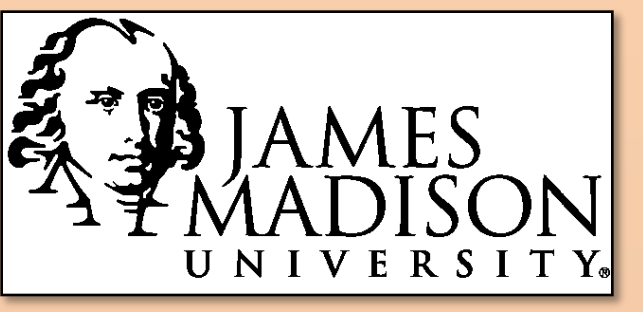


Challenge
How to achieve improved health outcomes in the presence of such disparities?

Methodology
Build a **Dynamic Hypothesis for the systemic causes of these disparities** and test that hypothesis via simulation. Then use the validated model to evaluate policy options.

A Dynamic Hypothesis for Evaluating Diabetes Health Policies in the Presence of Social Determinants Disease Progression

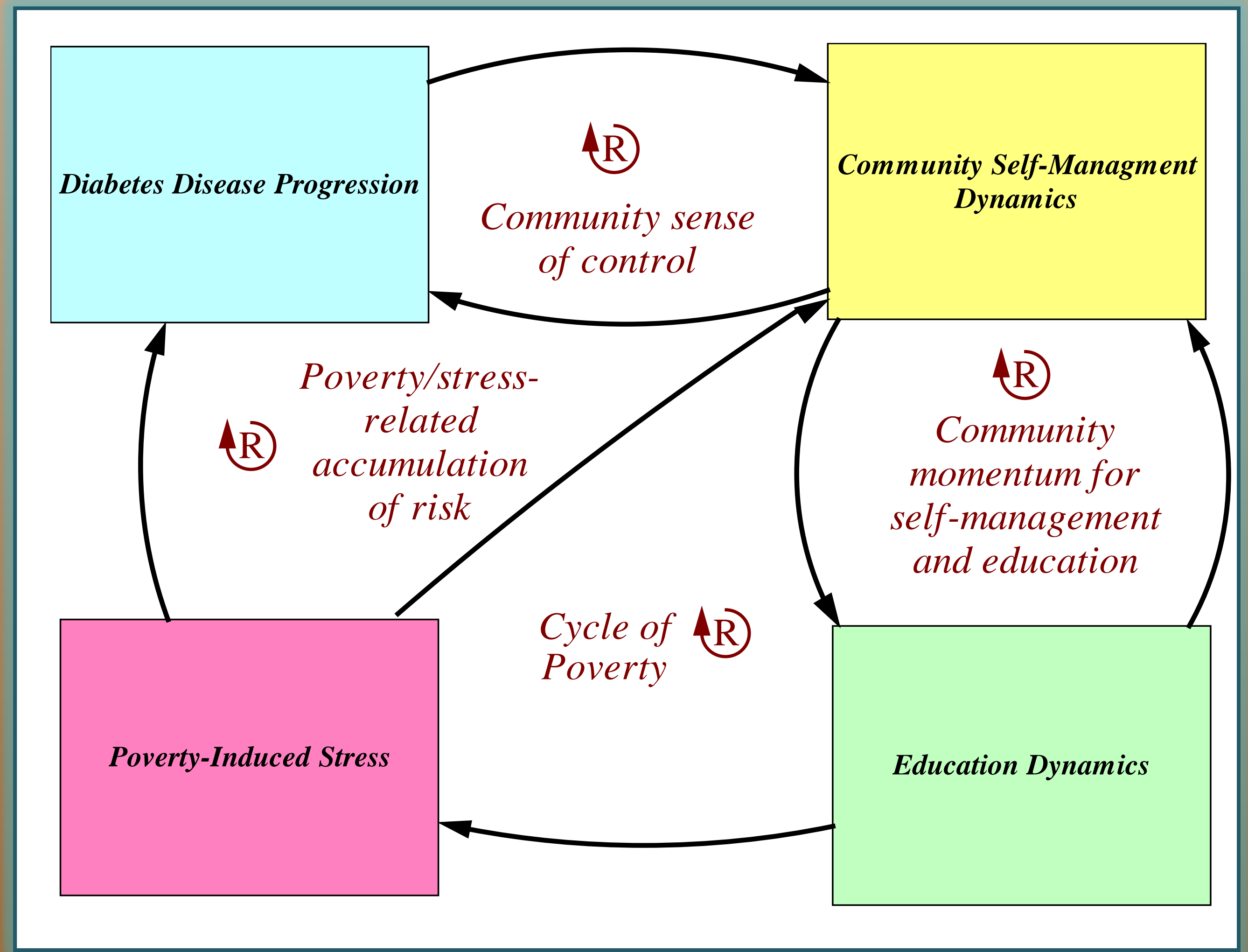
Georgia NLJ Polacek, Ph.D., CHES; Michael L. Deaton, Ph.D.



OVERVIEW

- Problem:** Disparities in diabetes disease incidence and mortality exist across race/ethnic groups and socioeconomic gradients. The sources of these disparities must be accounted for in any affective public health policy. Systems modeling & simulation can provide important insights into these complex dynamics, which can in turn inform public policy.
- Goal:** To develop a system dynamics model that accounts for both the overall *population disease dynamics* and the dynamics behind socio-economic disparities with respect to diabetes among the Hispanic, African-American, and Caucasian populations in the U.S. by building on work by Jones, et al (2006).
- Model use:** To evaluate and compare policies aimed at reducing diabetes incidence on population wide basis
- Current Status:** Conceptual model under development. Intent is to develop a working simulation model. This poster gives an overview of the dynamic hypothesis behind the model.

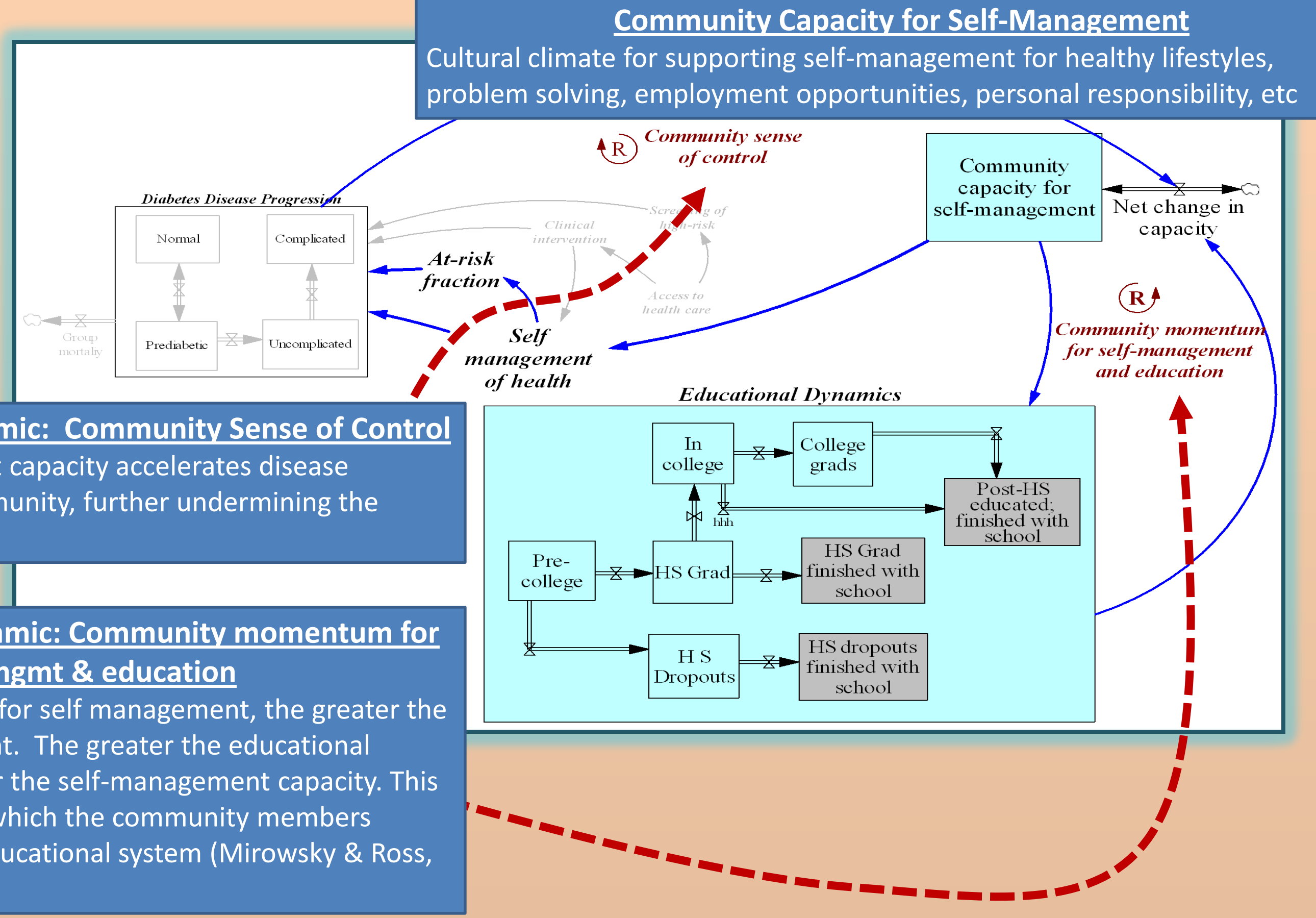
Overview of the Dynamic Hypothesis
To follow the logic, work counter-clockwise around the edges, starting in the upper left corner.



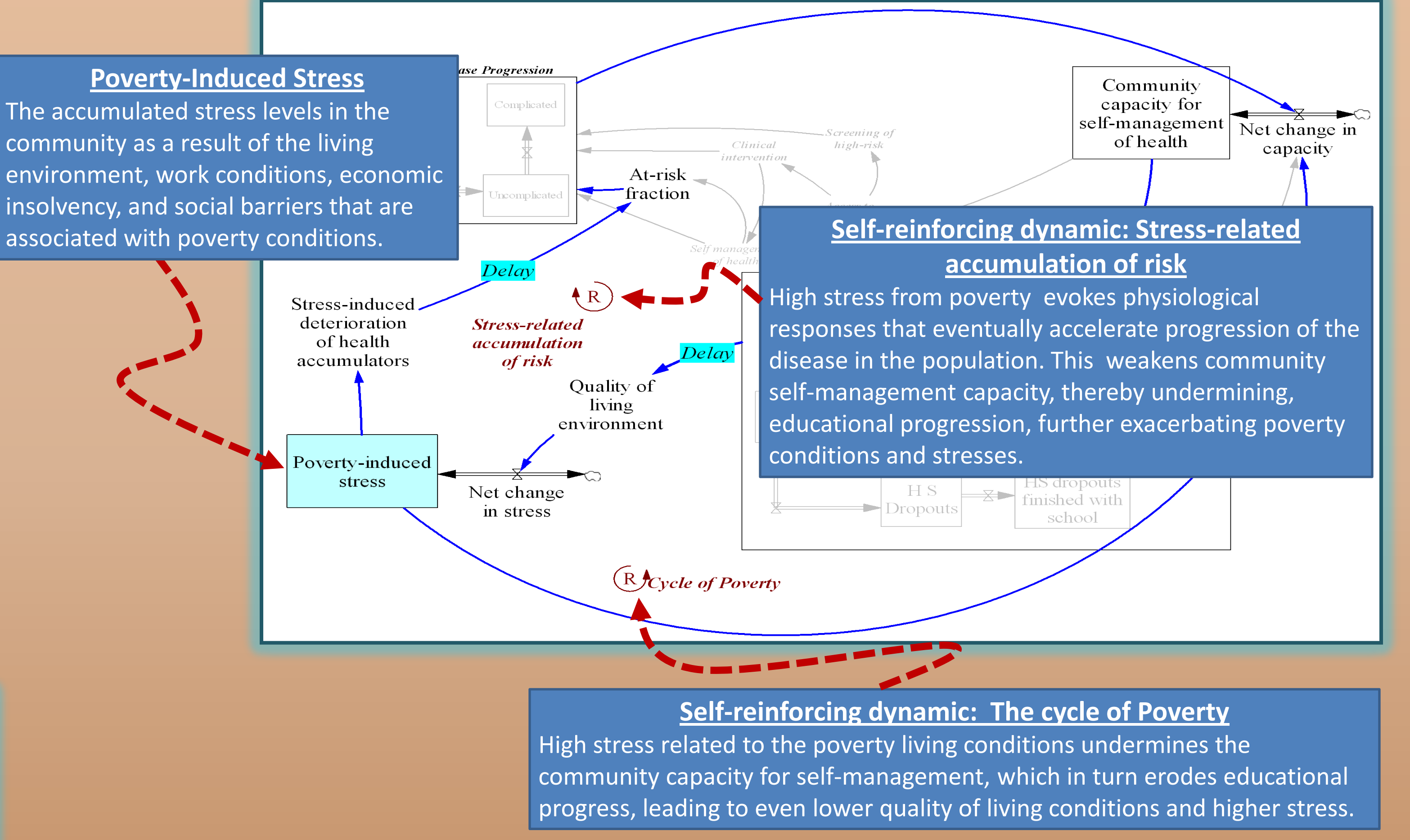
References

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Hypothesis, part 1: Education, Self-management, & Health



Hypothesis, Part 2: The Role of Poverty



Summary: Dynamics of social disparities and disease progression Education, Self-management, and Poverty

