



Building a compelling case for prevention

A dynamic simulation model to demonstrate the value of reducing lifestyle-related chronic diseases

This flagship project of the Prevention Centre is providing policy makers with a tangible demonstration of the value of prevention and the associated impact on the costs of health service use and the change in health and wellbeing in Australia.

In an Australian first, the project team is using advanced modelling techniques to integrate evidence from the Global Burden of Disease Study with data on the effectiveness and cost-effectiveness of prevention interventions and strategies. It will forecast the potentially preventable component of chronic disease burden.

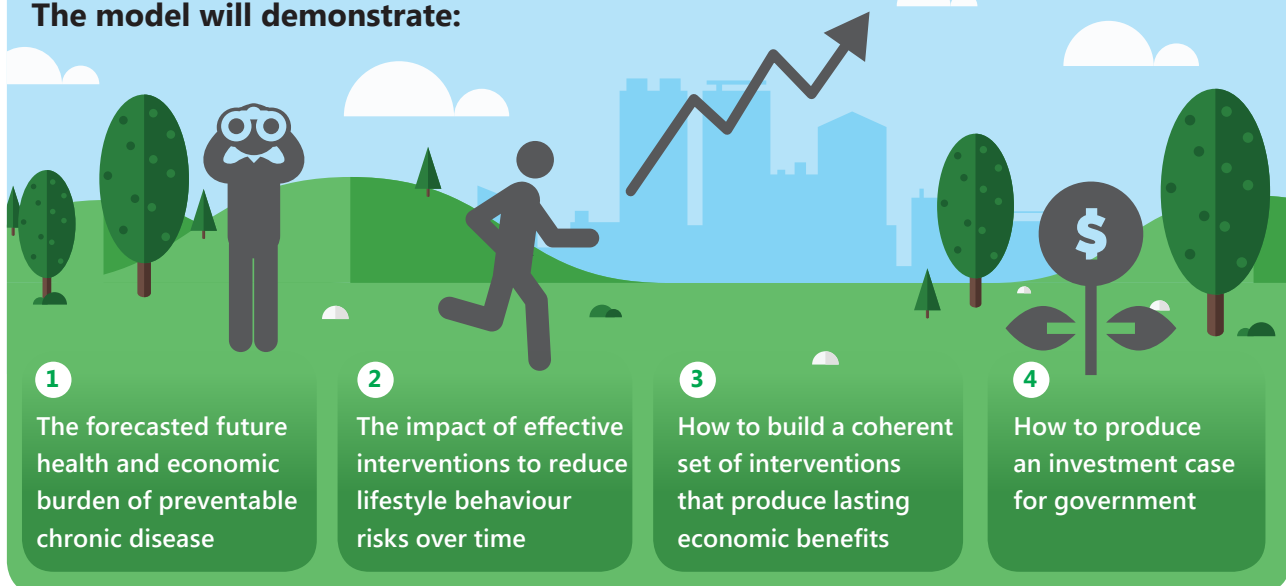


“This model will show how interventions to address one risk factor will influence others. It helps us think more globally about different types of interventions, the type of intervention rather than the volume, and the sum benefit we might be able to gain with strategic investment in prevention.”

– Professor Andrew Wilson, Director, Prevention Centre

Fixes that stay fixed

The model will demonstrate:



Background

Despite the increasing burden of lifestyle-related chronic disease and the opportunities for prevention, only a small percentage (1.3%) of Australian government budgets for health care is spent on prevention.¹

This dynamic simulation model will be a useful tool that helps establish a compelling story about prevention, demonstrates the economic value of investment in specific prevention interventions, and helps determine how best to target strategies for maximum impact.

About the model

The key component of this project is a systems dynamics model of disease burden in Australia. This model is a simulation of the Global Burden of Disease Study (using Australian results 2011 and 2016).² Disease burden, measured in DALYs (Disability Adjusted Life Years), is projected based on prevalence of key risk factors and by disease. The model will be able to forecast DALYs as well as impact on household productivity and GDP of this projected burden over the next 30 years.

As a proof-of-concept model, it will also be able to show the impact on key health and economic outputs of several prevention interventions that will help reduce prevalence of tobacco smoking, risky alcohol use, high BMI, dietary risks or high unmanaged blood pressure.

By September 2018, the project will deliver a national interactive model linking five lifestyle risk factors, at least 10 disease groups and five interventions, demonstrating economic net benefits over the short and long term.

It will also demonstrate the use of more textured agent-based models for specific issues in the ACT and how these can interact with the national model to track impacts on local and national performance.

In future, this set of models and data can be extended in breadth and depth to include:

- More interventions
- More states and regions
- More diseases
- Wider valuation of societal benefits
- More detailed concrete examples of risk dynamics
- More detail on social determinants of health
- Distributional effects of interventions to reduce inequalities
- Wider and deeper participation across urban planning, transport, and education sectors.

The modelling team

The model is being built by an interdisciplinary research team from the Prevention Centre, the Sax Institute and Deakin University.

Input has been provided by policy partners and advocacy agencies, including ACT Health, Cancer Council Victoria, the Obesity Coalition and the Australian Health Policy Coalition.

Reference

1. Jackson H, Shiell A. Preventive health: How much does Australia spend and is it enough? 2017. Canberra: Foundation for Alcohol Research and Education.
2. Global Health Data Exchange. Australian results 2011 and 2016. [Accessed May 2018]. Available from: www.ghdx.healthdata.org/gbd-resultstool



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