Canadian Institutes of Health Research | Instituts de recherche en santé du Canada

Institute of Population and Public Health

CIHR IRSC

Applied Public Health Chair
Impact Case Study

Dr. Doug Manuel:
Risk and prevention, by the numbers

Research Focus

In the past, health planning was usually based on the assumption that the risk of disease in a population was diffused, so the best prevention strategy was to target the entire population.

Dr. Doug Manuel, an Applied Public Health Chair, has spent the last two years challenging this assumption. He's shown that understanding a population's baseline risk of a disease is a cornerstone of population-based health planning, and can greatly improve the efficiency and effectiveness of prevention strategies.

Using routinely collected health information to develop predictive risk algorithms, the Chair has created new tools to create a more detailed picture of who will develop specific illnesses. These tools not only accurately estimate who and how many people will develop a disease or condition, they also help users understand the role of modifying risk factors for prevention and the potential impact of different prevention strategies.

Recommendations from this research are already being incorporated into practice for cardiovascular disease and type-2 diabetes mellitus, with the ongoing development of risk algorithms and disease models for other conditions promising even further benefits to the health of Canadians in coming years.

Research Impact: Making a Difference

The Diabetes Population Risk Tool (DPoRT) is the first predictive risk algorithm for the development of obesity, diabetes, and diabetes complications that was designed and validated specifically for population-health planning.

Analyses carried out using the tool have been instrumental in estimating the potential impact of public health and healthcare interventions on modifying future diabetes incidence and burden of health from diabetes complications.

These results have been highlighted in an investigative report that was produced in collaboration with the Ontario Agency for Health Promotion and Protection (OAHHP) and other partners. It estimates that 1.9

million people in Canada will develop diabetes between 2007 and 2017, with overweight people having the largest number of new cases as opposed to very obese people (who have the highest individual risk). The evidence further suggests that implementing small lifestyle changes in this larger, overweight sub-group would have a greater impact than clinical prevention in the smaller, high-risk group. The OAHHP is using this information to revise the Ontario diabetes strategy, which currently emphasizes individual screening and medical prevention in the primary care setting.

The early and ongoing involvement of policy experts in the development of risk algorithms and disease models helps ensure that they are relevant and reliable assessment tools for health planners. DPoRT, for example, was designed at the request of OAHHP, the Public Health Agency of Canada, and policy actors from several provinces, to be accurate in a variety of socioeconomic populations.

On a broader scale, the Chair is also involved in the creation of a national network of population models and the development of a multi-disease micro-simulation model for national-level analyses and health planning. In addition to providing infrastructure and expanding capacity, network members are leading the development of models for other diseases, including cancer and arthritis.

Through numerous scientific papers, considerable media coverage, and presentations at meetings and workshops across Canada, the partners are helping to raise awareness of the significant value of risk algorithms and disease models in population-based health planning.

Want to Know More?

Please visit these websites for more information on Dr. Manuel's research:
http://www.ices.on.ca/file/Diabetes%20Risks%20June%2016%202010.pdf
http://www.chnet-works.ca/index.php?option=com_rsevents&view=events&layout=show&cid=39%3Aices-diabetes-report&Itemid=6&lang=en
http://www.rrasp-phirn.ca/
http://www.pophealthmodels.ca/

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