

Public Health

...as it is today

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Medical Officer of Health

Emerging Leaders Forum

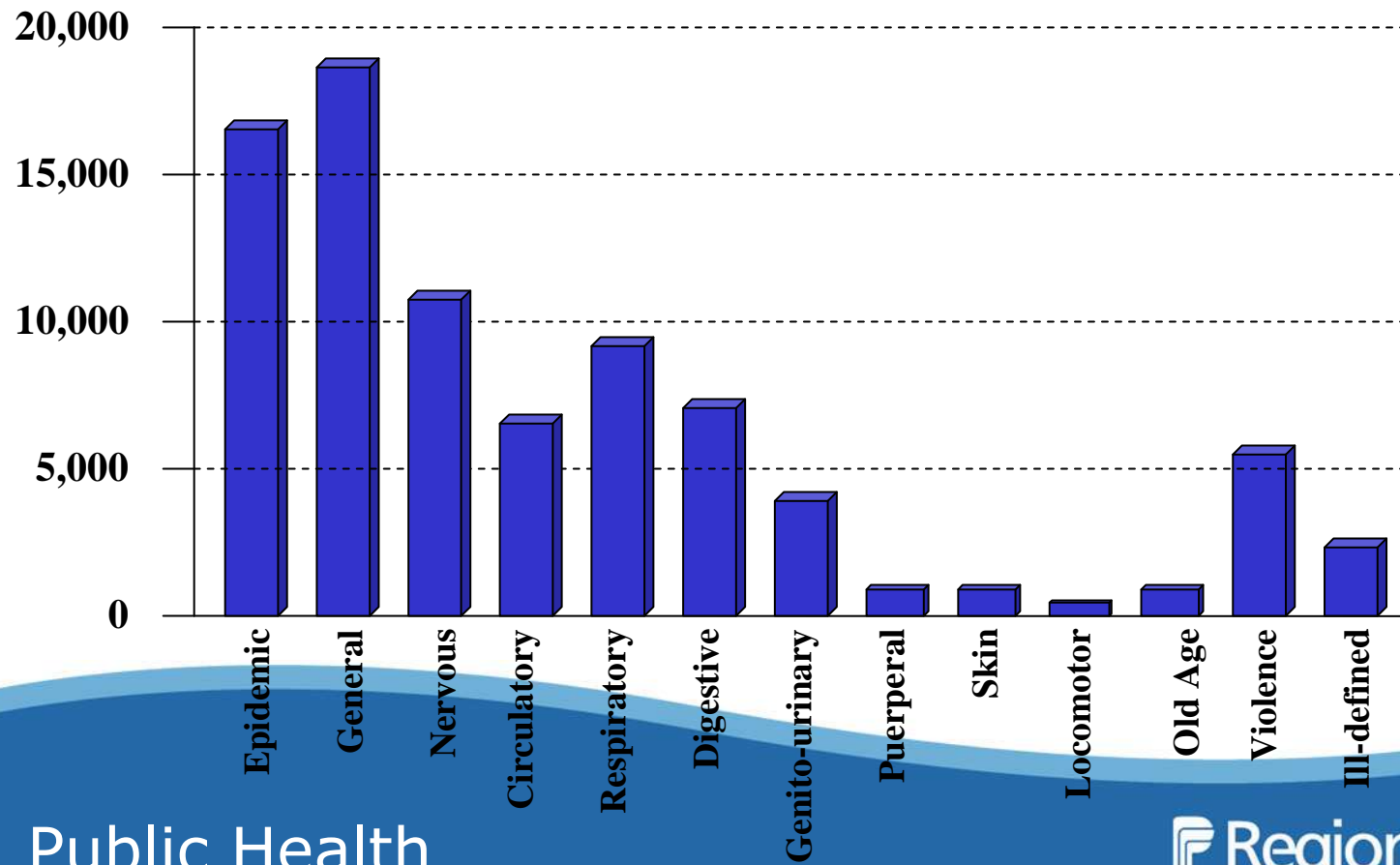
December 6, 2011

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Potential Years of Life Lost (PYLL) for Major Classifications of Death in City of Toronto Residents, 1908 and 1983

A 1908



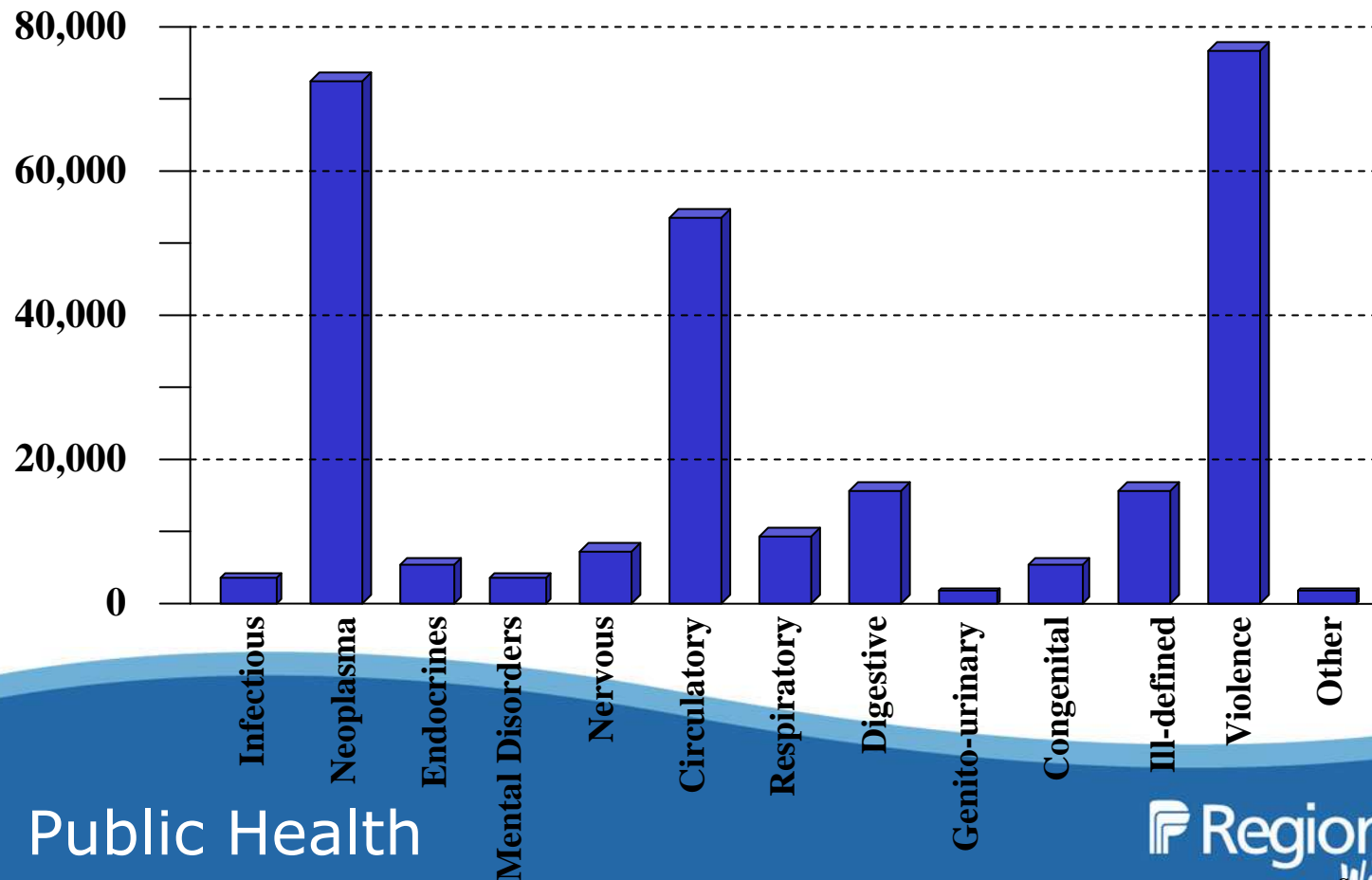
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Source: Ontario Vital Statistics

Potential Years of Life Lost (PYLL) for Major Classifications of Death in City of Toronto Residents, 1908 and 1983

B 1983



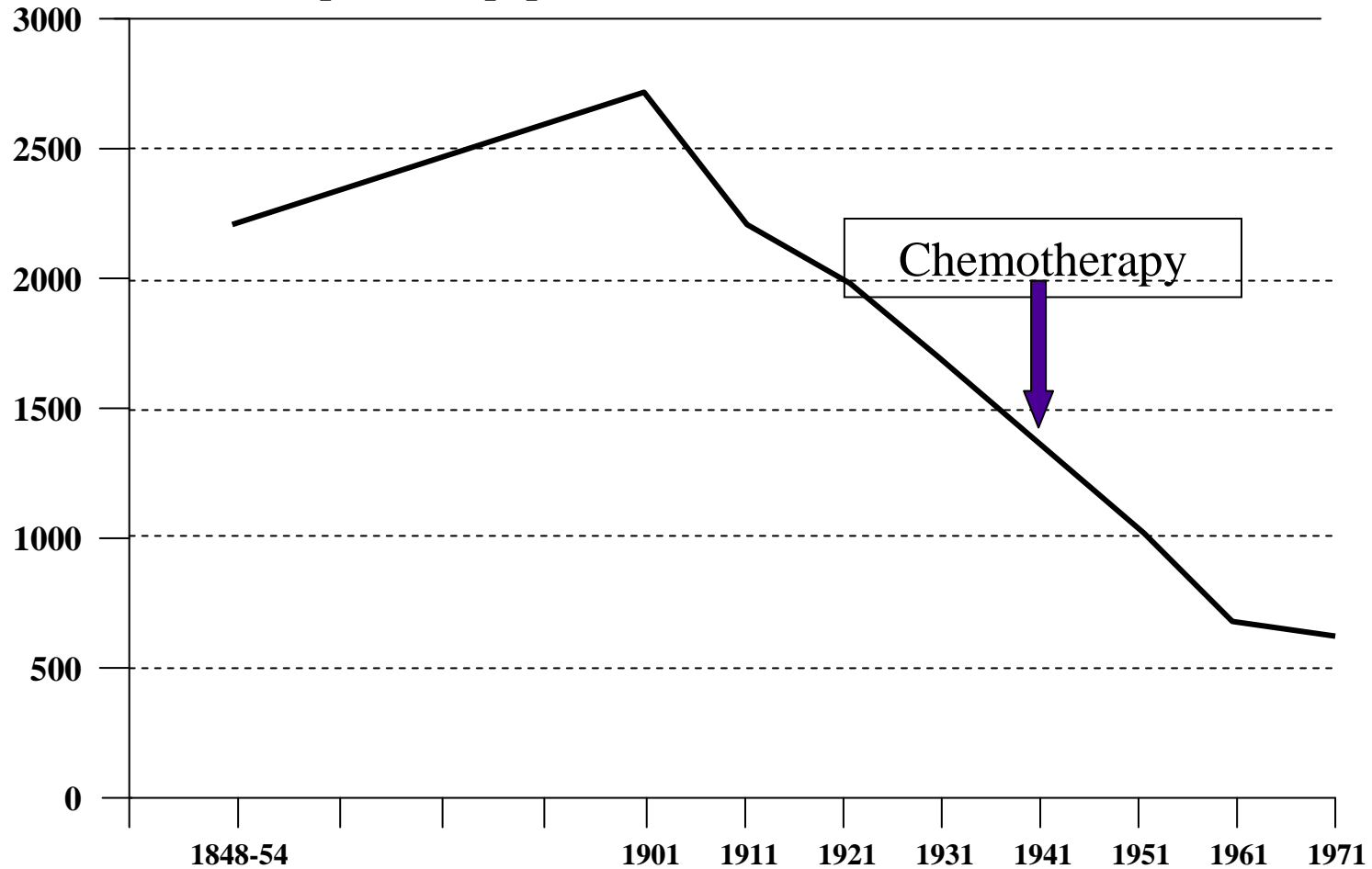
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Source: Ontario Vital Statistics

Standardized Death Rate Bronchitis, Pneumonia and Influenza England and Wales

Standardized Death Rate (per 1,000 pop)

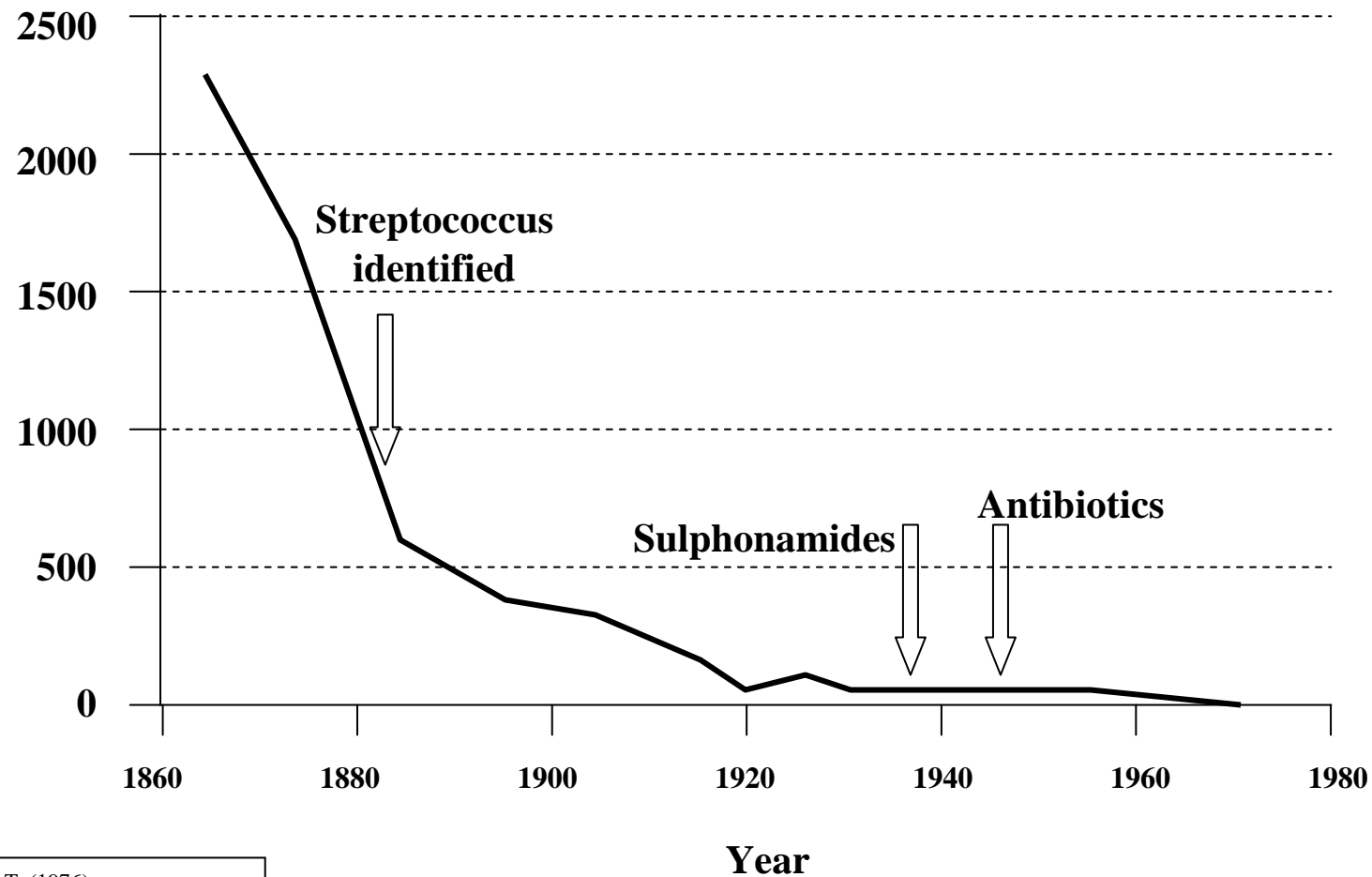


Source: McKeon, T. (1976).
The Modern Rise of Population, London

Year

Death Rates Scarlet Fever England and Wales

Death Rate (per million children)

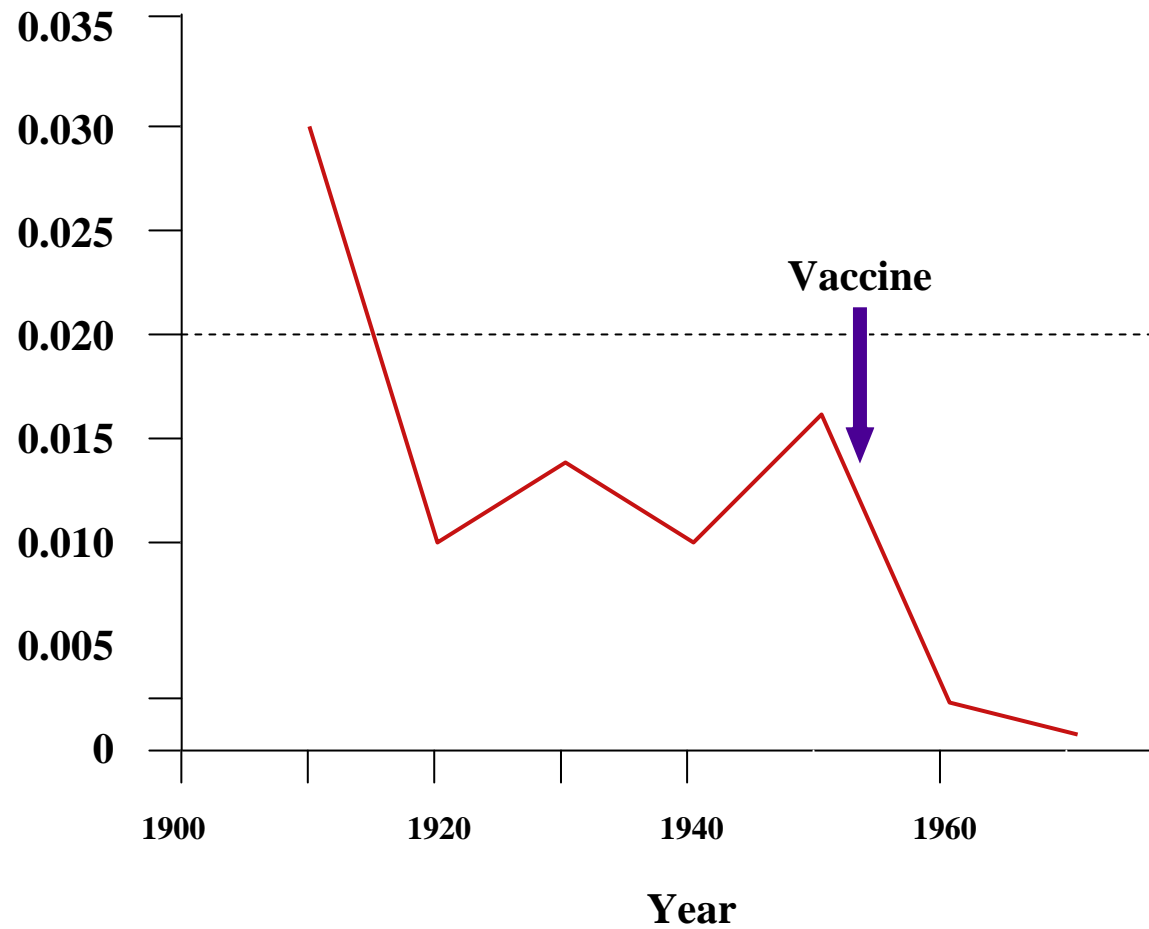


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The Modern Rise of Population, London

Poliomyelitis

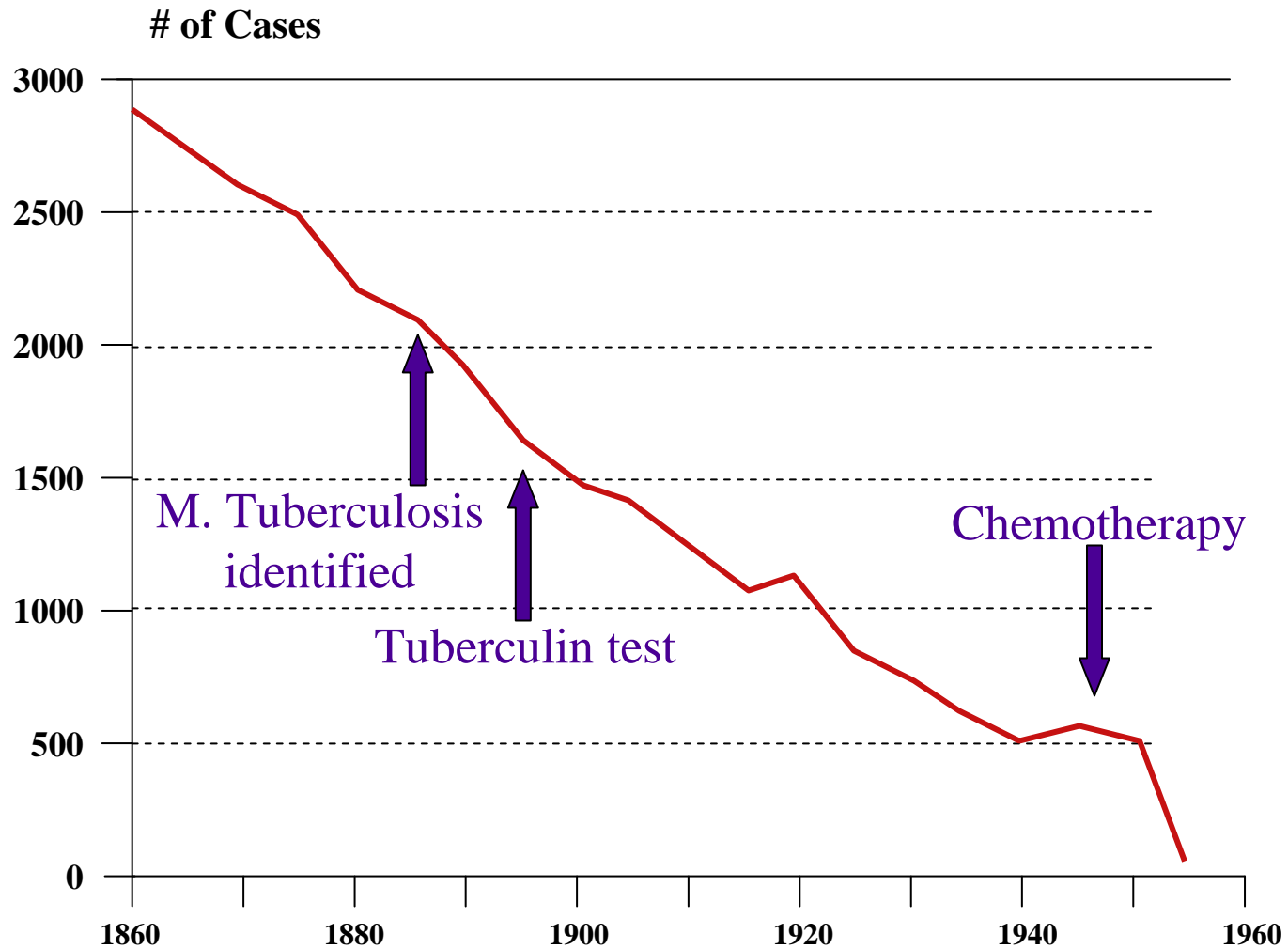
United States, 1900-1973

Standardized Death Rate (per 1,00 pop)

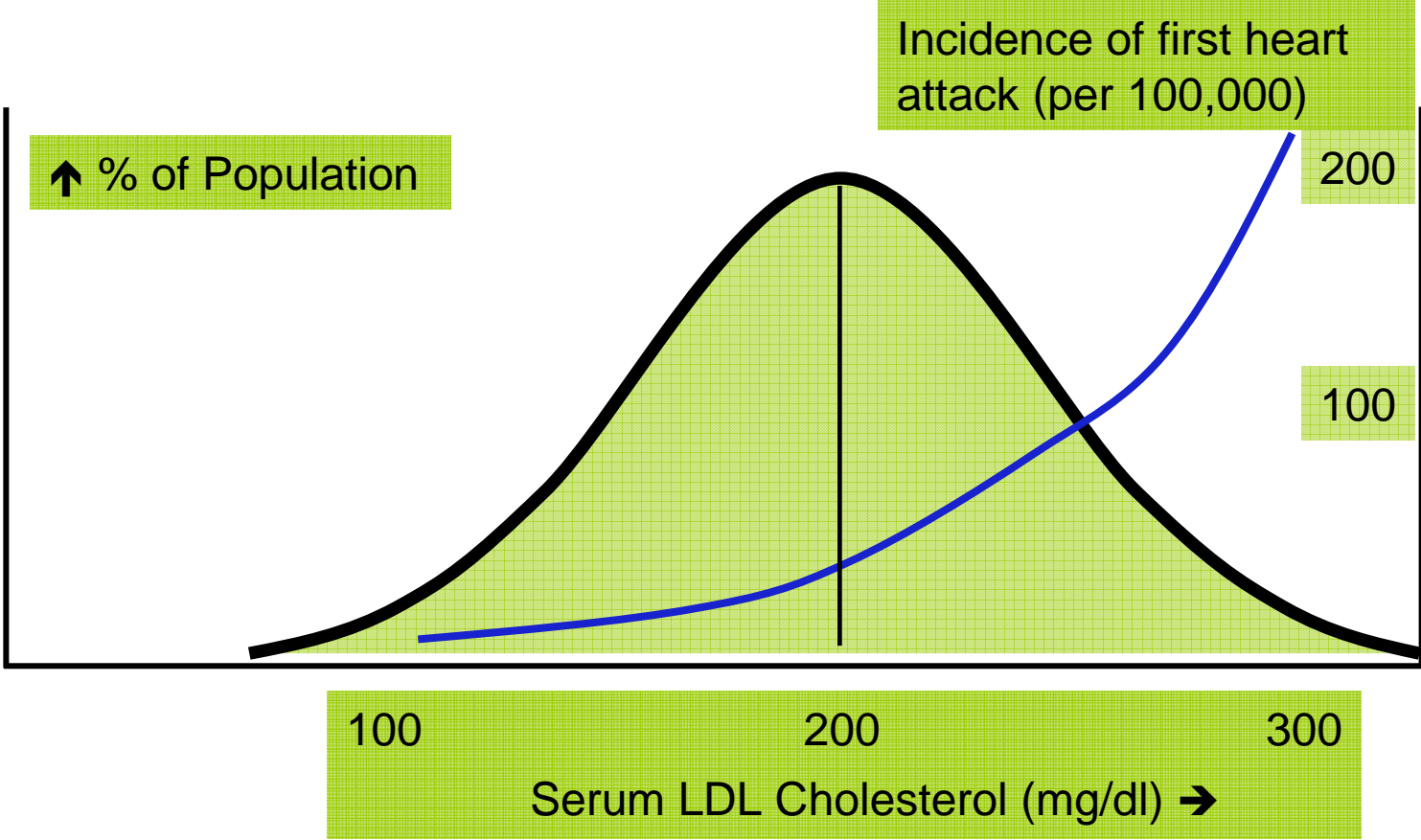


Respiratory Tuberculosis

In the Total Population



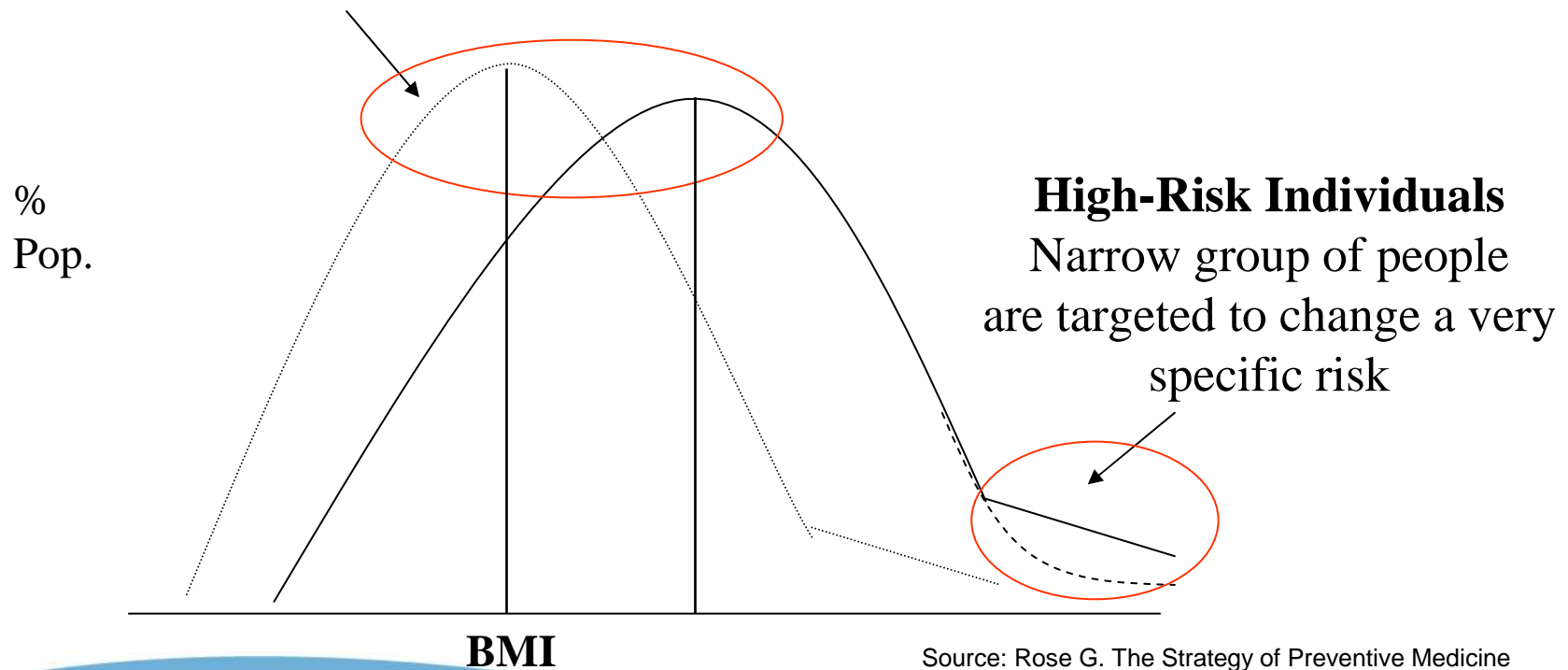
Sick Individuals & Sick Populations: Sir Geoffrey Rose



Population and High Risk Designs

Population

Lower the mean level of risk factor within the population to shift the whole distribution



Source: Rose G. The Strategy of Preventive Medicine
Oxford Press, 1992

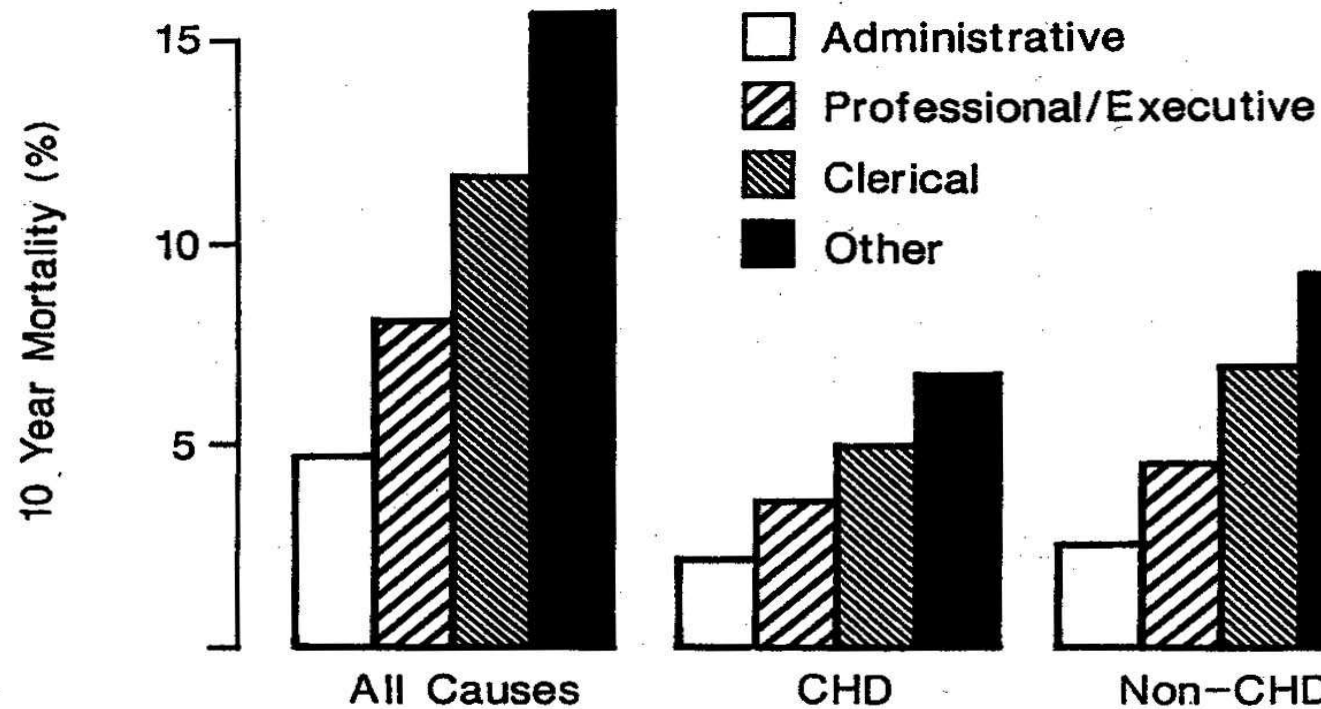


FIG. 28. 10 year mortality by occupation.

(From "Social Differentials in Health Within and Between Populations" reprinted by permission of *Daedalus: Journal of the American Academy of Arts and Sciences*, from the issue entitled, "Health and Wealth," Fall 1994, Vol. 123, No. 4.)

Some History

- Health behaviours only account for some of the disease risk and have been historically hard to change
- Determinants of health help to explain the other factors at play
 - Called the 'causes of the causes' of disease OR 'determinants of health'

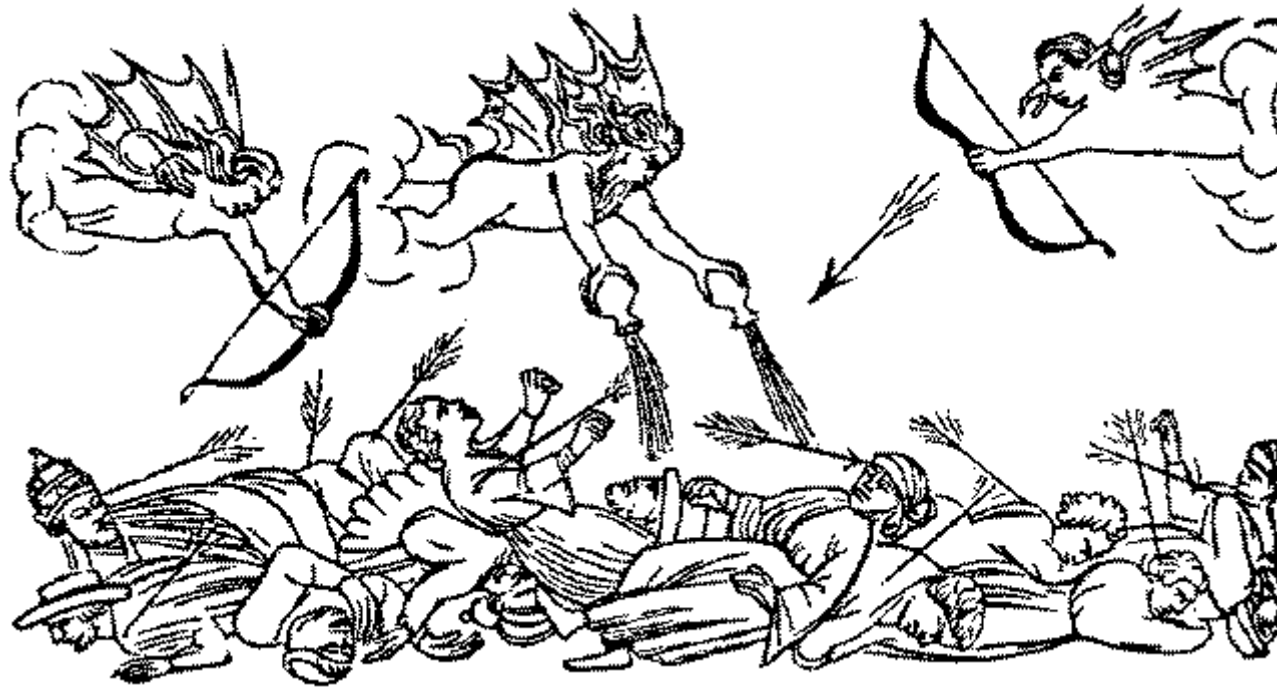
Public Health Agency of Canada Determinants Framework

- Income and Social Status
- Social Support Networks
- Education and Literacy
- Employment/Working Conditions
- Social Environment
- Physical Environments
- Personal Health Practices and Coping Skills
- Healthy Child Development
- Biology and Genetic Endowment
- Health Services
- Gender
- Culture

- 400 B.C. Hippocrates (460-377 B.C.)
"Airs, waters & places"
- 1194 First coroners appointed in England
- 1211 Medical School, Padua
- 1247 Priory of St. Mary's of Bethlehem
- 1281 City of London regulates pigs
- 1283 Also tallow-melting, scouring of furs, flaying of dead horses and solder-melting in streets
- 1309 and "casting of filth from horses into the streets and lanes of the City"

1330
1348-50

Venetian Republic
Black Death



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- Hospital Insurance and Diagnostic Services Act • 1957
- Medical Care Act • 1966
- Established Programs Financing Act • 1977
- Canada Health Act • 1984

Publicly-Funded Health Care VS Public Health

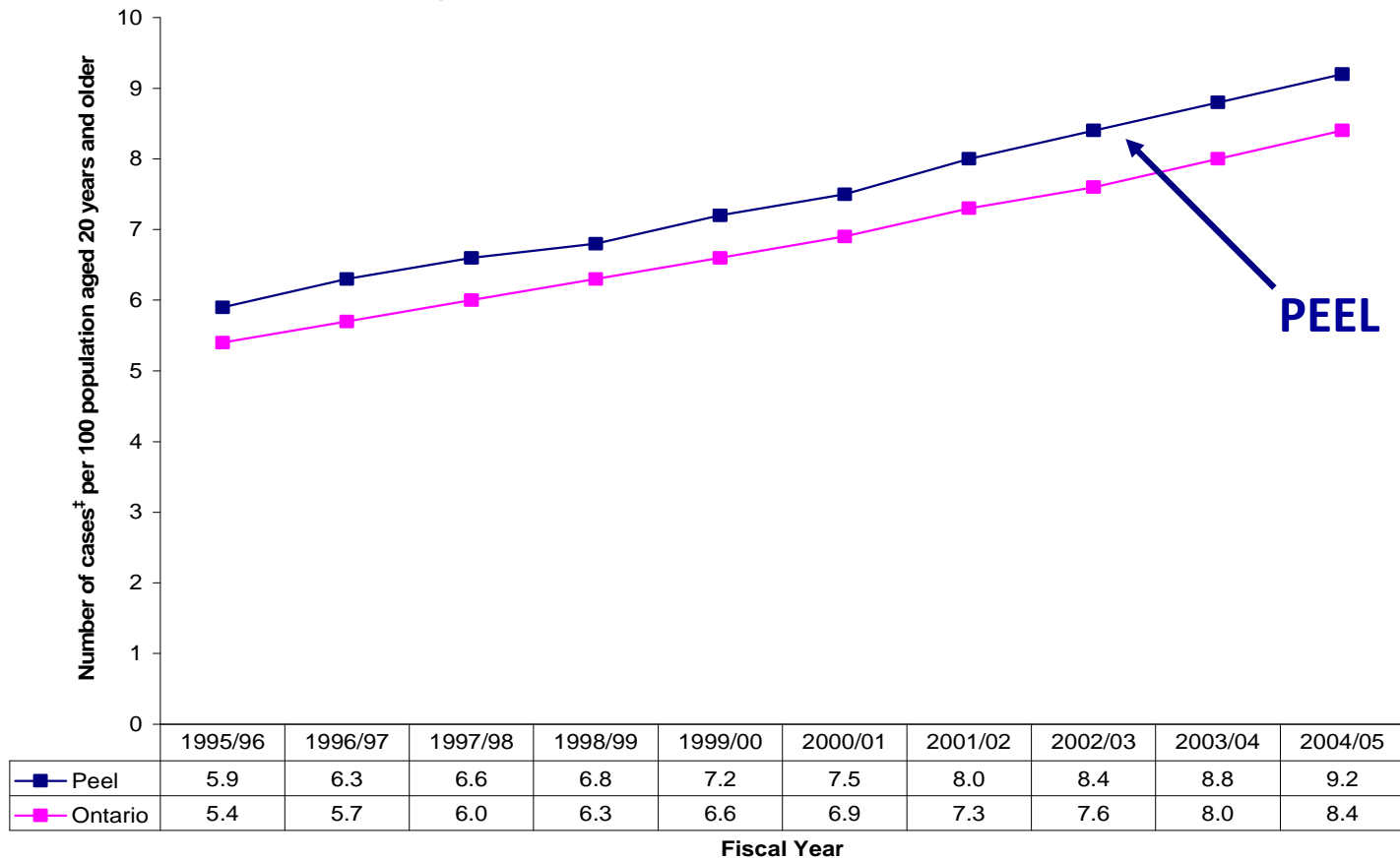
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Challenges for Public Health

- Identity, “welfare medicine”
- Probabilistic outcomes
- The identifiable patient
- Short-termism
- The rescue principle
- Capital

**Figure DM0: Diabetes Mellitus Prevalence Rate[†] by Year,
Region of Peel and Ontario, 1995/1996 to 2004/2005**



[†] Age-adjusted prevalence rate

[‡] Number of cases of DM include new and existing - identified using the Ontario Diabetes Database in a specified population for a given year.

Fiscal year: extends from April 1st of one calendar year to March 31st of the next calendar year.

Source: Institute for Clinical Evaluative Sciences. inTool. instant interactive information. <http://www.ices.on.ca/intool>

Example - Obesity

- Complete elimination of class 3 obesity (BMI:40+)

Would result in 3% reduction in prevalence of
Diabetes

And

1% reduction in prevalence of
Cardio Vascular Disease

At a cost of \$460,000,000

More on Obesity

- Medical/dietetic counseling
- 30 minutes per month,
60% utilization = 23.5 million hours
- Available time = 29 million hours

Sir Edwin Chadwick



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Historical relationship between urban planning and health



People lived
next to their
places of
employment,
and there
were issues of
noise,
pollution and
stress

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Historical relationship between urban planning and health

City planning was originally driven by the need for sanitation systems and to keep noxious land uses separate



These practices led to vast improvements in
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Present-day links between urban planning and health

Since that time, the fields of planning and public health have **diverged**



Economic freedom and a desire for space led to the creation of **suburbs**, where large lot sizes and **auto-dependency** are now the norm.

How did that work out?

- Majority of Canadians live in suburbs
- Low density
- Car dependent
- Reduced opportunities for utilitarian physical activity
- Associated with increased prevalence of chronic disease

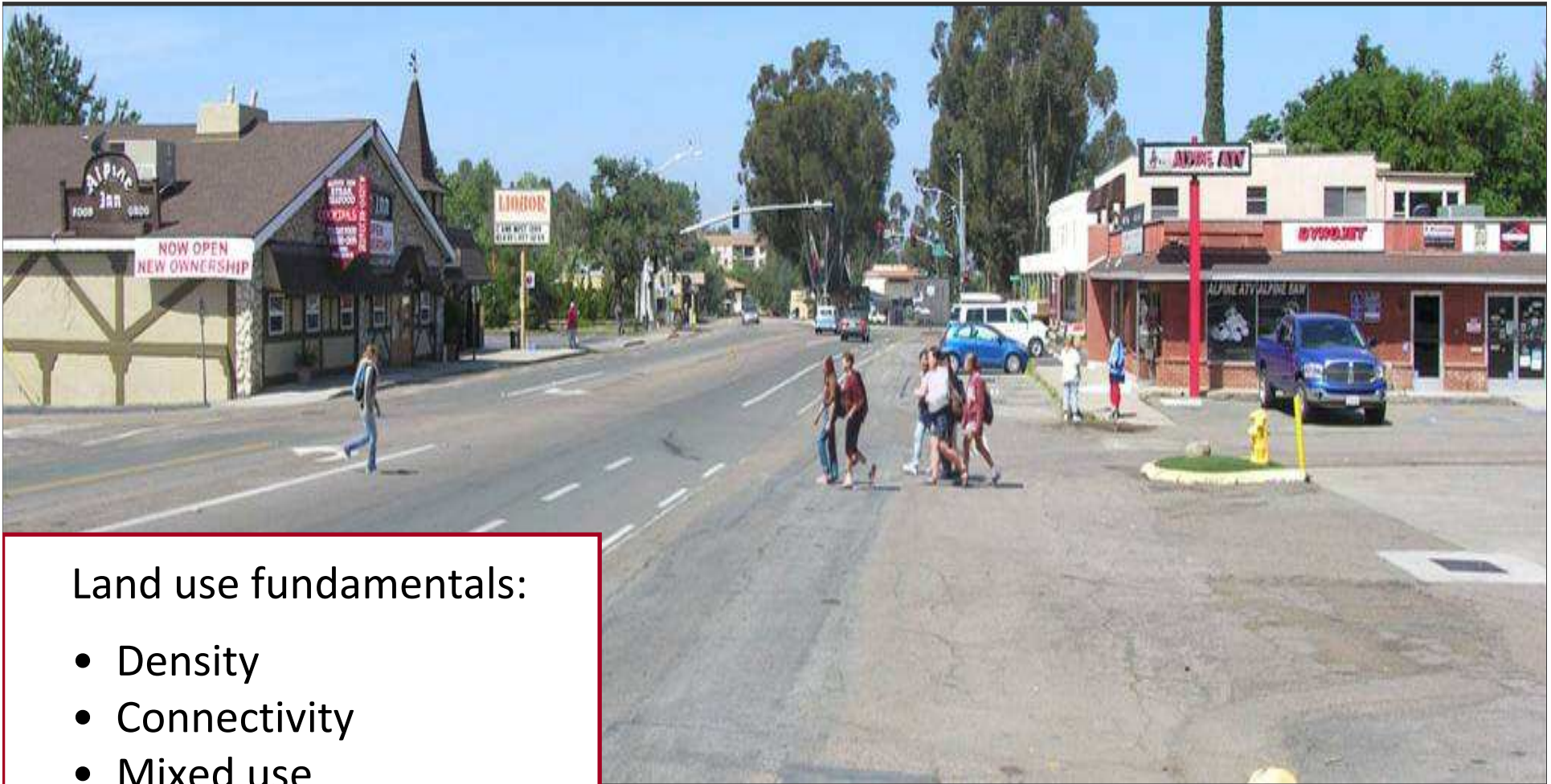
A growing body of evidence demonstrates that the way we design our communities influences key **risk factors** for **chronic disease**, such as:

- Physical activity
- Air quality
- Road safety
- Social capital
- Stress
- Food
- Heat and shade





Where did it go wrong?

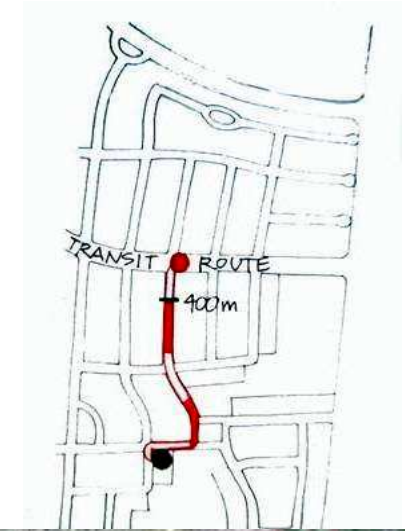
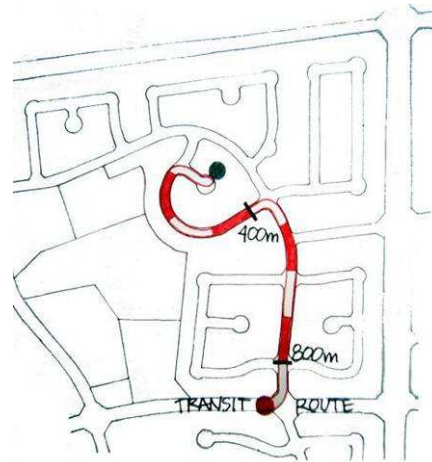


Land use fundamentals:

- Density
- Connectivity
- Mixed use
- Transportation
- Aesthetics



Where did it go wrong?





Where did it go wrong?

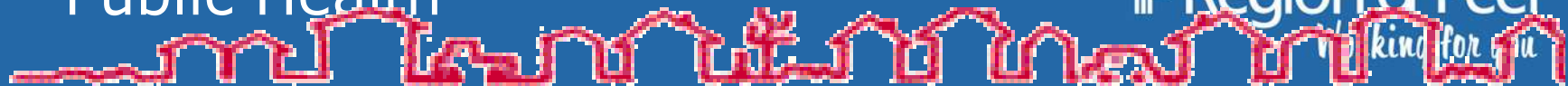
Consequences of
marketplace
realities:

- Vanishing house and degraded streetscape
- An old model of house building trying to adapt to new economic realities



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Where did it go wrong?



20m ROW and 8m setback

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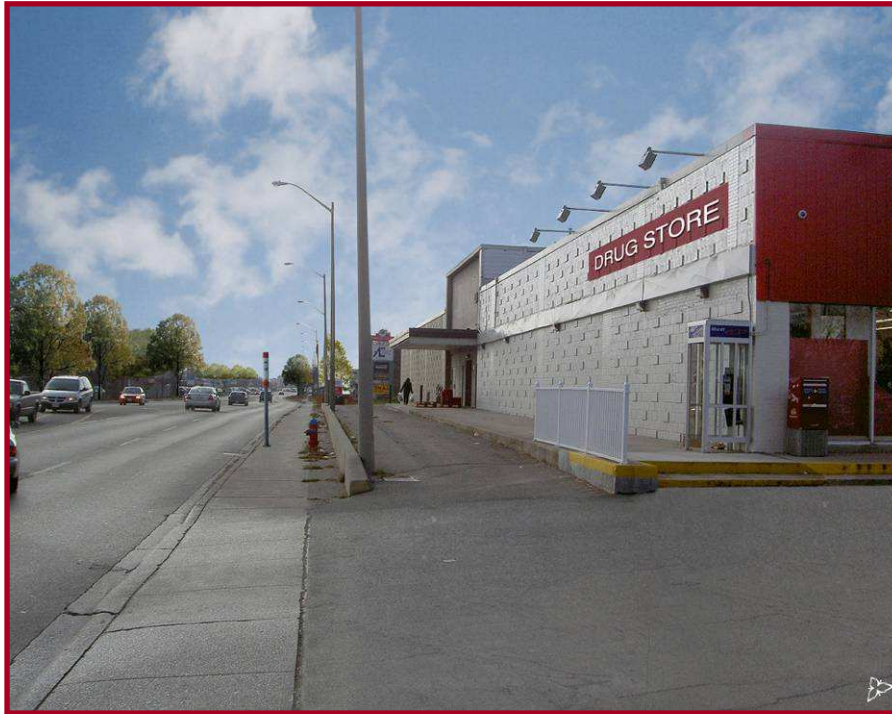


15.5m ROW and 3m setback

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Where did it go wrong?



Typical arterial road

Pedestrian & bicycle friendly
arterial road

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Where did it go wrong?



Typical suburban strip mall

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Mid-rise medium density
development with stores

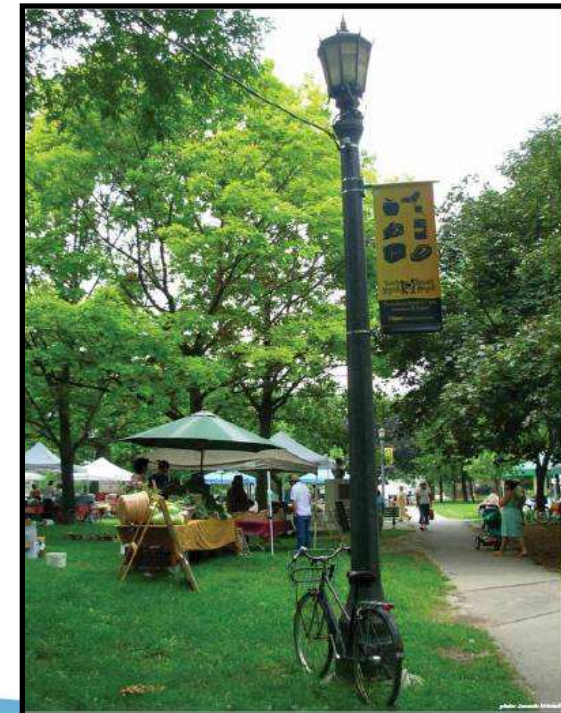
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Impacts of the built environment on health

A growing body of evidence has demonstrated a link between health and the built environment

Example:

A recent study found that for every 5% improvement in the walkability of a neighbourhood, adults who reside there tend to walk and cycle 32% more, have a lower body mass index and enjoy reduced pollution from automobiles.¹



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¹Lawrence D. Frank *et al.* (2006). "Many Pathways from Land Use to Health: Associations between Neighbourhood Walkability and Active Transportation, Body Mass Index, and Air Quality." *Journal of the American Planning Association*, Volume 72, Issue 1, p. 75-87.

National projects

- Development of a **software tool** that would assess the health impacts of land use planning decisions
- Administration of a **residential preferences survey** that would determine the demand for walkable communities, and the degree of discrepancy between current and preferred neighbourhoods, for residents of the **Greater Toronto** and **Greater Vancouver areas**



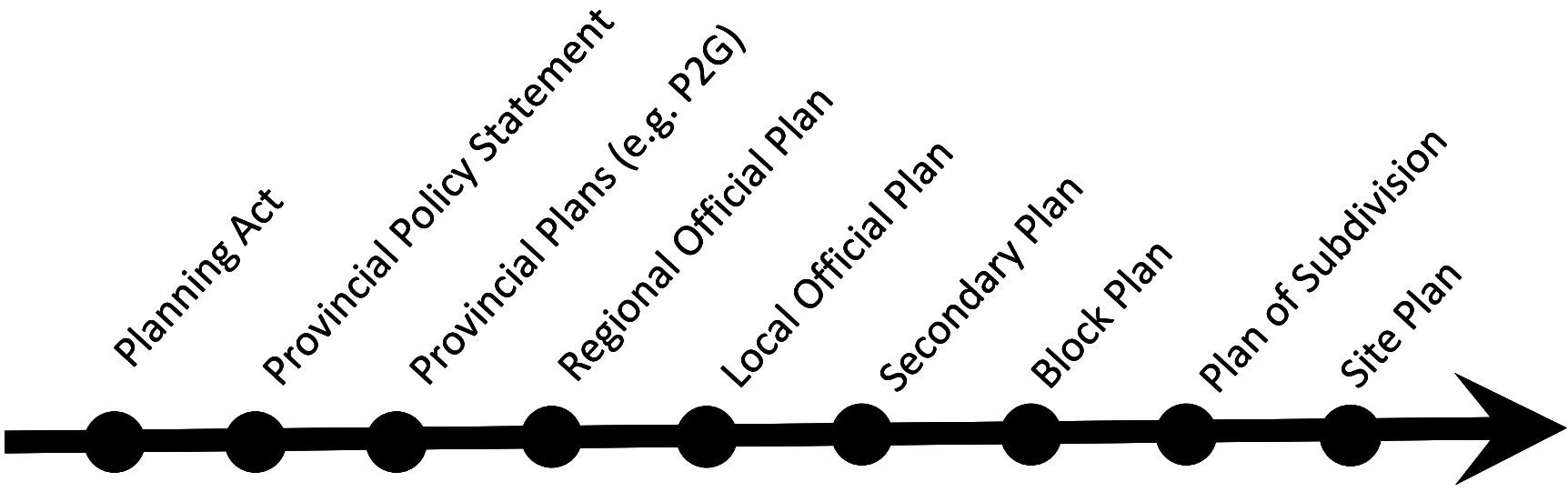
Site-specific projects

- Inventorying, mapping and evaluating **community-based interventions** to promote greener, more walkable neighbourhoods in Montreal
- Developing a framework for **health background studies** in Peel and Toronto
- Developing processes for applying a **Healthy Development Index** to proposed and existing developments in Peel
- Exploring **relationships** between socio-economic status, health outcomes, and the urban built environment in Toronto
- Working with local governments to integrate a **health lens** into planning policy and practice in Surrey, Vancouver and Victoria



Health Promoting Policy

Creating supportive policies at each level of the planning policy hierarchy



Zoning bylaw

MACRO **MICRO**



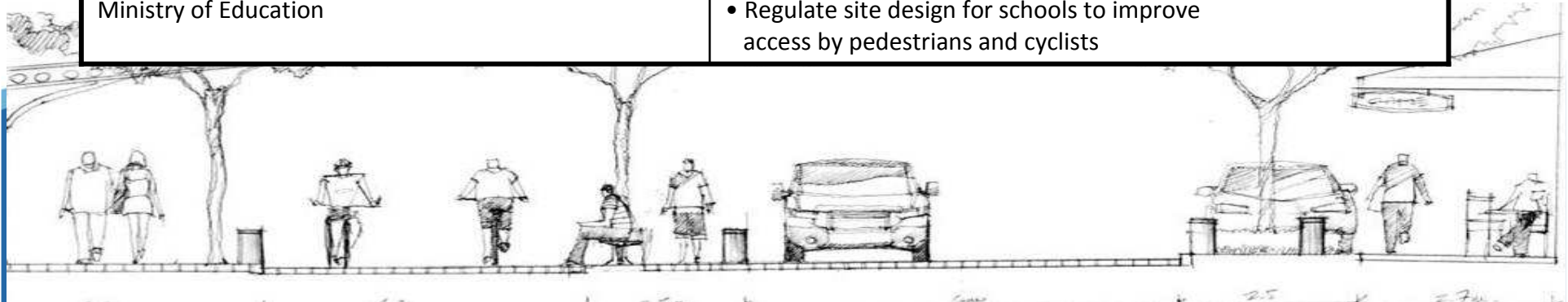
Official Plan Policy

Document	Policy #	Intent
Peel Regional Official Plan Amendment 24	7.9.2.9	The Region will prepare an assessment tool to evaluate the public health impacts of development , jointly with the area municipalities
	7.9.2.10	The Region will work jointly with the area municipalities to raise public awareness of the health impacts related to planning through public and private partnerships
Peel Regional Official Plan Amendment 25	7.3.6.2.2	The Region may require health impact studies as part of a complete development application to amend the Regional Official Plan
	7.9.2.3	The Region may develop public health indicators to analyze the effectiveness of Official Plan policies and serve as a basis for policy adjustments
Caledon Official Plan Amendment 226	4.1.10.3.2	The Town will participate jointly with the Region of Peel and area municipalities in the preparation of an assessment tool for evaluating the public health impacts of development proposals
	4.1.10.3.3	The Town will work jointly with the Region of Peel and area municipalities to raise awareness of public health issues related to planning
Mississauga draft Official Plan	19.3.5	The City may require health impact studies as part of a complete development application
	19.3.7	The City requires all development applications to have regard for public health

Provincial Advocacy

A range of provincial sectors involved

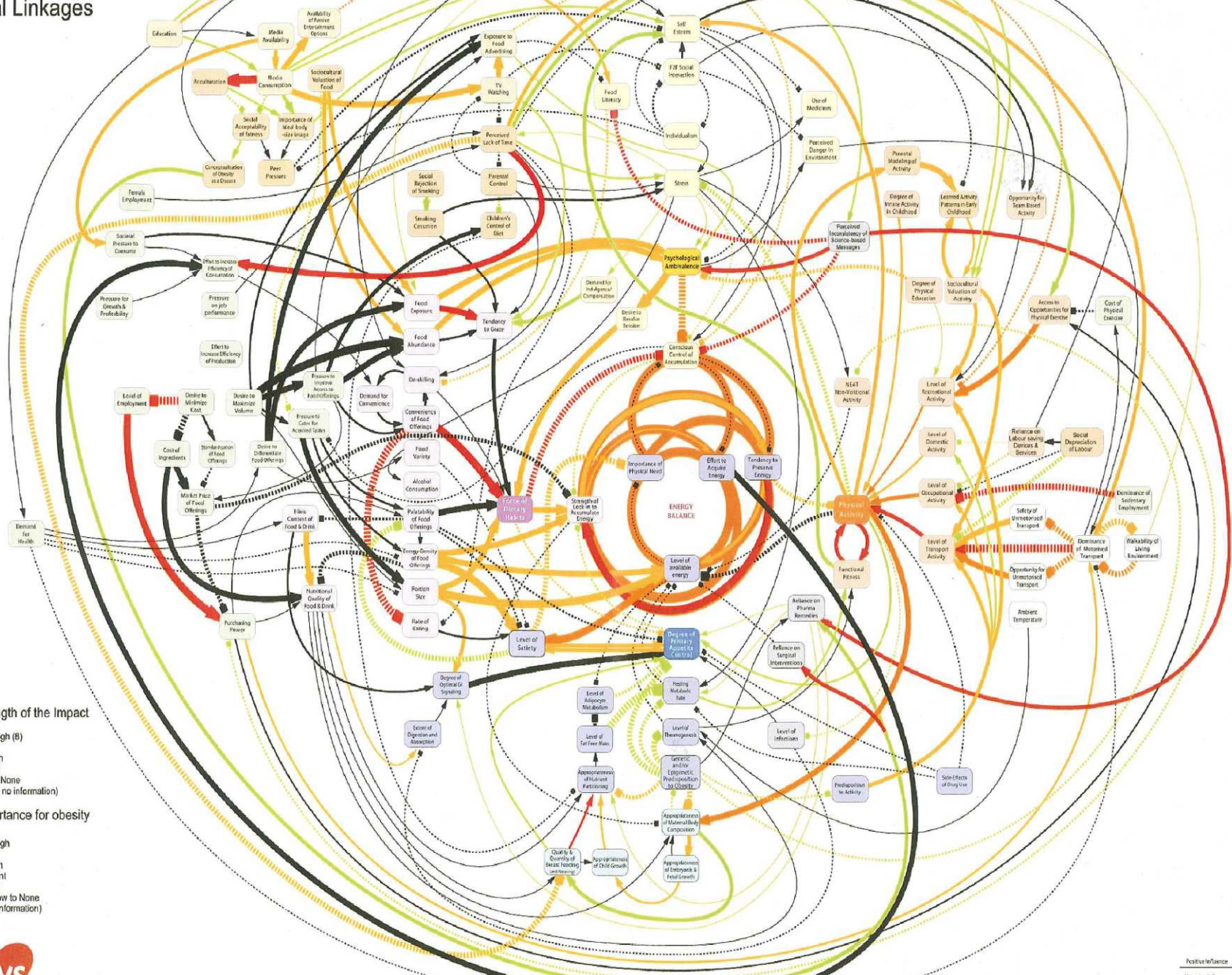
PROVINCIAL BODY	TOPICS FOR ADVOCACY
Ministry of Municipal Affairs and Housing	<ul style="list-style-type: none">• Review Municipal Act• Require stronger adoption of urban design guidelines by municipalities
Ministry of Energy and Infrastructure	<ul style="list-style-type: none">• Participate in the review of the Growth Plan as it is implemented
Ministry of Transportation	<ul style="list-style-type: none">• Create a provincial Active Transportation Strategy
Ministry of Environment	<ul style="list-style-type: none">• Work with Ministry of Transportation on Active Transportation Strategy and Climate Change
Ministry of Education	<ul style="list-style-type: none">• Regulate site design for schools to improve access by pedestrians and cyclists



Multiple Stakeholders

- Planners
- Public health
- Transportation engineers
- Architects
- Parks and recreation
- School boards
- Retailers
- Landscape architects
- Conservation
- Utilities
- Developers
- Industry
- Finance
- Homebuyers
- Commuters
- Public, politicians

Weighted Causal Linkages



- Strength of the Impact**
- Very High (thick black line)
 - High (medium black line)
 - Medium (thin black line)
 - Limited (dashed black line)
 - Low to None (dotted black line)
 - (grey = no information)
- Importance for obesity**
- Very High (red)
 - High (orange)
 - Medium (yellow)
 - Relevant (light green)
 - Limited (pale green)
 - Very Low to None (grey)
 - (or no information)

- Media
- Social
- Psychological
- Behavioral
- Food
- Activity
- Infrastructure
- Environmental
- Biological

Positive Influence →
Negative Influence ←



Comprehensive Public Health Interventions

Obesity

- changes in food supply
- taxation policies
- labelling
- restaurant menus
- built environment
- media campaigns
- physical activity measures
- school food policies
- nutrition counselling
- physician role

Comprehensive Public Health Interventions

Tobacco

- changes in agricultural policies
- taxation
- de-normalization
- labelling
- access restrictions
- advertising restrictions
- laws limiting public smoking
- media campaigns
- school programs
- nicotine replacement
- physician counselling



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Two Ethical Constraints

- Autonomy vs public interest
- Effectiveness vs equity

Ethical Action

Progressively Intrusive Measures

- Do nothing or monitor
- Provide information
- Make the healthy choice the easy choice
- Guide choices, change the default
- Guide choices through incentive
- Guide choices through disincentives
- Restrict choice
- Impose conditional obligations
- Eliminate choice