

Economic Evaluation Across the Four Faces of Prevention: A Canadian Perspective

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and Healthy Public Policy

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The logo for Simon Fraser University (SFU) is located in the bottom right corner. It consists of a solid red rectangular background with the letters "SFU" in a white, bold, sans-serif font centered within it.

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Presentation Outline

1. Study context
2. Literature review and overall state of economic evaluation evidence
3. Trends in economic evaluation evidence for healthy public policy
4. Economic evaluation syntheses for five preventive interventions
5. Conclusions and next steps

Part 1:
Study Context

Russell's "Is Prevention Better Than Cure?"

- Demonstrated that prevention rarely results in cost savings
- Prevention should be judged on whether it is a worthwhile investment in health, rather than on its cost-saving potential
- Notion that prevention is invariably cost-saving still grips policymakers and the public

Our Study

- Situated Russell's work in a contemporary Canadian context
- Updated review of economic evaluation evidence to assist health and health care priority setting
- Examined a broad range of disease and injury prevention and health promotion interventions (the “four faces of prevention”)

Four Faces of Prevention

- Clinical Prevention – one-on-one activities involving a provider and recipient
 - E.g., physicians counselling a patient to quit smoking

Four Faces of Prevention

- Clinical Prevention – one-on-one activities involving a provider and recipient
 - E.g., physicians counselling a patient to quit smoking
- Health Promotion – encourage individual behaviours with positive health effects, often delivered to a population
 - E.g., media-based, anti-smoking campaign

Four Faces of Prevention

- Health Protection – changing the physical or social environment to improve health
 - E.g., prohibiting smoking in public places

Four Faces of Prevention

- Health Protection – changing the physical or social environment to improve health
 - E.g., prohibiting smoking in public places
- Healthy Public Policy – social or economic interventions that affect health but not as the main objective
 - E.g., early childhood education

Feedback From 1st Workshop:

Definitional Issues

- Need to redefine health promotion, health protection, and healthy public policy to be more in line with current use by public health practitioners
- Healthy public policy defined more narrowly in the paper than it is used in public health practice

Part 2:

Literature review & overall state
of economic evaluation evidence

Economic Evaluation Evidence

- Initial exploration of literature yielded over 5,000 articles
- Focused literature search by requiring studies to:
 - Be set in Canada, Australia, New Zealand, Europe, or the United States
 - Report incremental ratios if set outside of Canada
 - Evaluate specific preventive interventions

Peer-Reviewed Literature Search

- 1980 onward
- Employed strategy of Sassi and colleagues (2002) designed for systematic reviews of economic evaluations
- Conducted search in Medline only
- Used exploded MeSH headings of:
 - Primary prevention
 - Preventive health services
 - Preventive medicine
 - Public health

Supplements to Our Peer-Reviewed Literature Search

- Grey literature obtained through a variety of web-based searches and other reference lists
- Similar literature search conducted by Rush and colleagues at U of Calgary (2002)
- Online National Health Services Economic Evaluation Database (NHS EED)
- Economic evaluations cited by various Canadian and US Task Forces

Specific Preventive Interventions

Two-pronged approach to select preventive interventions:

1. Preventive activities recommended by others
2. Additional preventive activities with potentially large population health impacts

Prong #1: Preventive Activities Recommended by Others

- List 1: Clinical prevention interventions recommended by Canadian Task Force on Preventive Health Care
- List 2: Health promotion, health protection and healthy public policy interventions from multiple sources
 - US Task Force on Community Preventive Services
 - Supplemented by Canadian sources

Feedback From 1st Workshop:

Missing Interventions

- List of interventions driven by health conditions
- Preference for lists to be driven by “policy and range of health impacts” or determinants of health

Preventive Activities Recommended by Others

- Total of 290 preventive interventions

	n	% of total
Clinical prevention	121	42%
Health promotion	90	31%
Health protection	58	20%
Healthy public policy	21	7%

No Economic Evaluation Evidence

- No economic evaluations for 157 (54%) of the 290 recommended interventions

	% of face
Clinical prevention	41%
Health promotion	63%
Health protection	55%
Healthy public policy	86%

Prong #2: Additional Activities With Potentially Large Population Health Impacts

- From Canadian-based economic evaluations assessing interventions not included in previous lists
- Potentially large population health impact:
 - A large target population
 - Important health effects
 - A highly effective intervention

Additional Activities With Potentially Large Population Health Impacts

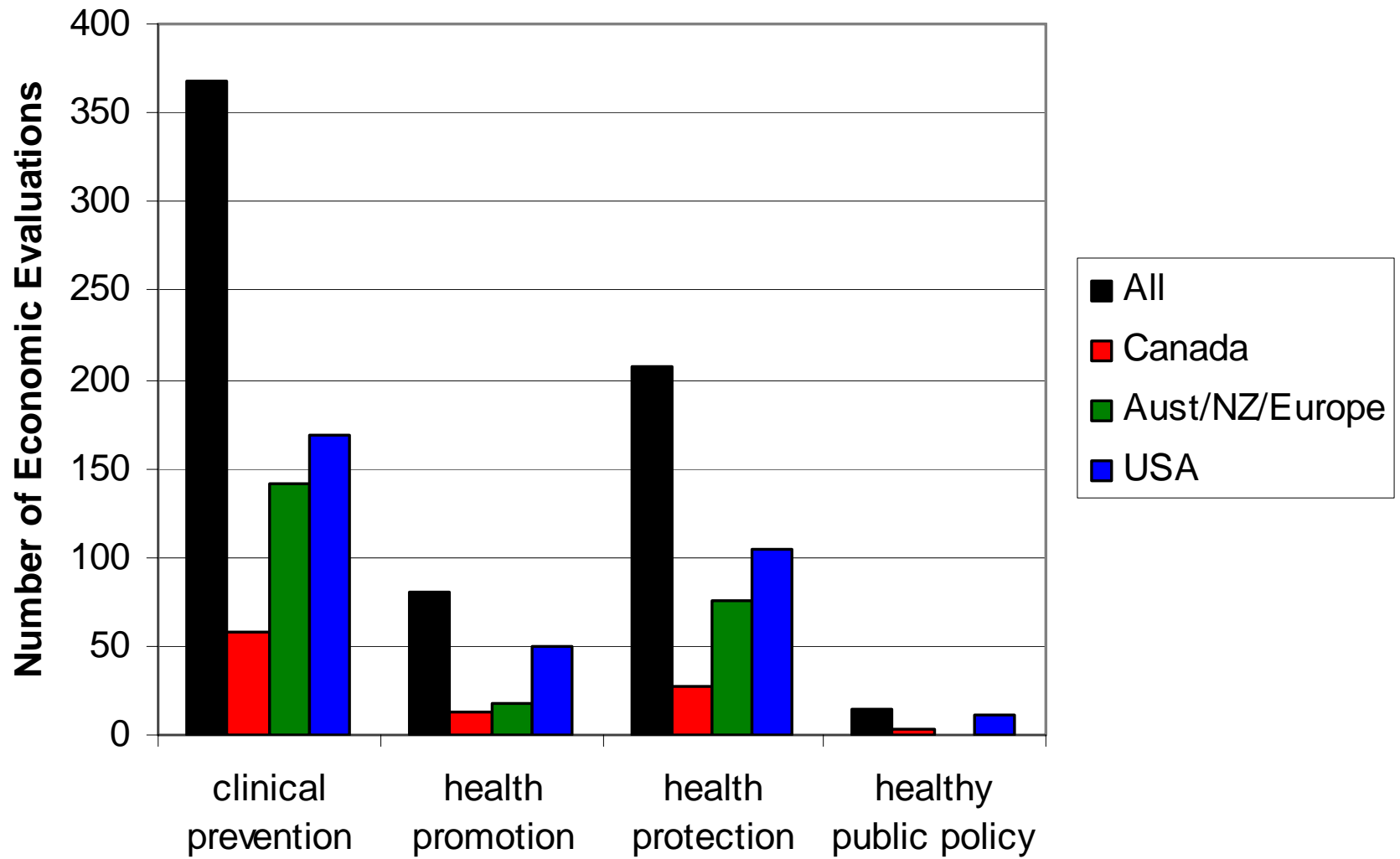
- Identified 23 preventive interventions
- 18 of the 23 examine clinical prevention interventions
- 4 examine health promotion interventions
- 1 examines a health protection intervention

Economic Evaluation Evidence

- We found 672 economic evaluations in 567 publications

	n	% of total
Clinical prevention	368	55%
Health promotion	81	12%
Health protection	208	31%
Healthy public policy	15	2%

Economic Evaluations by Four Faces



Intensively Studied Interventions

- 13 clinical prevention interventions with at least 10 economic evaluations
- 6 health protection interventions with at least 10 economic evaluations
- 3 health promotion interventions and 1 healthy public policy intervention had 9 economic evaluations

Part 3:
Trends in economic evaluation
evidence for healthy
public policy

Cautions

- Our list of economic evaluations should not be considered a definitive list
- Literature review designed to be comprehensive without conducting reviews specific to each of the 290 recommended interventions
- Future work should include searches specific for each recommended preventive intervention

Changing Health Risk Behaviours

Intervention	Effectiveness evidence	Number of Economic Evaluations		
		Canada	Aust/NZ/ Europe	USA
Zoning regulations for urban design that facilitates physical activity	(+)			
Community youth development programs				
Strengthening family, social networks and other support systems				

Injuries Due To Violence

Intervention	Effectiveness evidence	Number of Economic Evaluations		
		Canada	Aust/NZ/ Europe	USA
Community policing programs				
Community organizing projects				
Anti-hate crime programs				

Injuries Due To Violence

Intervention	Effectiveness evidence	Number of Economic Evaluations		
		Canada	Aust/NZ/ Europe	USA
Anti-hate crime legislation				
Social skill development programs	(+)			5

Early Childhood Development

Intervention	Effectiveness evidence	Number of Economic Evaluations		
		Canada	Aust/NZ/ Europe	USA
Day care or preschool	++	2		7
Parenting classes		1		2
Funding for expansion of community preschool programs				

Early Childhood Development

Intervention	Effectiveness evidence	Number of Economic Evaluations		
		Canada	Aust/NZ/ Europe	USA
Development of high-quality foster childcare systems				
Programs to support young mothers				

Affordable Family Housing in Safe Neighbourhoods

Intervention	Effectiveness evidence	Number of Economic Evaluations		
		Canada	Aust/NZ/ Europe	USA
Rental vouchers allowing choice in residential location	+			
Mixed-income housing developments	?			
Legislative support for subsidized housing				

Affordable Family Housing in Safe Neighbourhoods

Intervention	Effectiveness evidence	Number of Economic Evaluations		
		Canada	Aust/NZ/ Europe	USA
Building codes requiring developers to apportion low-cost units in new developments				
Habitat for Humanity				

Access to Higher Education

Intervention	Effectiveness evidence	Number of Economic Evaluations		
		Canada	Aust/NZ/ Europe	USA
Reducing costs of higher education (e.g., increased scholarships, decreased tuition)				

Income Redistribution

Intervention	Effectiveness evidence	Number of Economic Evaluations		
		Canada	Aust/NZ/ Europe	USA
Redistributive tax policies				
Child benefits for low income families				

Part 4:

Economic evaluation syntheses
for five preventive interventions

A Closer Look at Five Preventive Interventions

- Colorectal cancer screening (clinical prevention)
- Varicella vaccination (clinical prevention/health protection)
- Needle exchange programs (health promotion)
- Water fluoridation (health protection)
- Day care and preschool programs (healthy public policy)

Synthesis for the Five Selected Preventive Interventions

- Does the intervention produce a net benefit from the societal perspective?
- Is the intervention cost-saving from the payer perspective?
- If neither, might the intervention still be a worthwhile investment in health?

Economic Evidence Synthesis for Five Selected Preventive Interventions

- All five interventions produced a net benefit to society
- Needle exchange programs and water fluoridation are cost-saving from the payer perspective
 - Both cases have multiple payers with program costs borne by one payer and benefits obtained by another payer

Economic Evidence Synthesis for Five Selected Preventive Interventions

- Not cost-saving from the payer perspective:
 - Varicella vaccination
 - Colorectal cancer screening using FOBT
 - Day care or preschool programs
- These interventions may still be worthwhile investments in health

Considerations for Decision-Making

- Differential timing of costs and benefits
 - Immediate costs, sometimes very large
 - Delayed benefits
- Opportunity costs
 - Which other opportunities will be forgone?
- Availability of required technology and human resources

Considerations for Decision-Making (2)

- Program scope
 - Broad-based vs. targeted programs
- Nature of benefits
 - Life-saving vs. quality of life
- Who benefits
- Who pays

Part 5:
Conclusions & Next Steps

Key Findings From Our Review

- Massive volume of unappraised and unsynthesized economic evaluation evidence
- No economic evaluation evidence for the majority of recommended interventions
- Health promotion and healthy public policy interventions are less likely to have economic evaluation evidence

Next Steps

- Systematic reviews of effectiveness evidence for health promotion, health protection, and healthy public policy interventions
- Economic evaluations of effective preventive interventions for which economic evaluation evidence is currently lacking
- Systematic reviews of economic evaluation evidence for effective preventive interventions

Cautions

- These activities will require substantial resources
- Care must be taken not to disadvantage health promotion, health protection, and healthy public policy interventions in particular

Weaknesses of “Four Faces” Paper for Healthy Public Policy Focus

- Medline not best search location
 - Suggestions?
 - Predominantly grey literature?
- Non-comprehensive list of healthy public policies
 - Suggestions for pre-existing lists?

Your Input

- How to examine this issue with a focus on healthy public policy?
- Strengths? Limitations?
- Issues to Explore?

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Economic evaluation synthesis for
day care and preschool
programs

Day Care and Preschool Programs

- 10 articles in original literature search
 - 5 on Perry Preschool Program
 - 1 review article
 - 1 measured costs but no benefits
- 1 additional economic evaluation
- 5 economic evaluations, 1 set in Canada

Day Care or Preschool Economic Evaluations

- 4 = cost-benefit analyses
- 1 = cost-effectiveness analysis, using number of serious crimes prevented

- 4 = societal perspective
- 1 = mixed public payer and societal perspective

Day Care or Preschool Program Economic Evaluation Results

- Cost-saving from societal perspective
- Substantial net costs for national day care program from public payer perspective
- Stronger evidence of cost-saving for programs targeting disadvantaged children

What is Happening Elsewhere?

- Department of Health on Aging, Australia
 - In “Returns on Investment in Public Health,” summarized government expenditure on and benefits from five public health programs consisting of multiple interventions
 - Reduce tobacco consumption
 - Reduce coronary heart disease
 - Reduce HIV and AIDS
 - Improve immunization
 - Improve road safety and reduce road trauma

What is Happening Elsewhere? (2)

- CDC's "An Ounce of Prevention...What Are the Returns?" (second edition)
 - Review of cost-effectiveness literature for 19 prevention strategies divided into clinical, community, and policy areas of intervention
 - Breast cancer
 - Smoking
 - Bicycle-related head injuries
 - Dental caries

What is Happening Elsewhere? (3)

- Harvard University
 - Web-based league table of cost-utility analyses of clinical interventions
 - Plans to expand registry to include “non-health care” interventions
- US Preventive Services Task Force
 - Reviewing economic evaluations in addition to effectiveness evidence

What is Happening Elsewhere? (4)

- US Committee on Clinical Preventive Service Priorities
 - Combine burden of disease prevented and cost-utility analysis to compare and rank clinical preventive services recommended by the US Preventive Services Task Force
 - Where cost-utility evidence not available, committee estimated values
 - Report identified services that have low delivery rates but should be of high priority

What is Happening Elsewhere? (5)

- US Task Force on Community Preventive Services
 - Review effectiveness and economic evaluation evidence for prevention
 - 14 investigators supported by 20 staff and consultations with experts
 - Started in 1996; to date they have reviewed effectiveness data for 7 of 15 topics and economic evaluation data for 3 topics