



Introduction to Evidence-Informed Public Health

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APHEO

November 26th, 2018

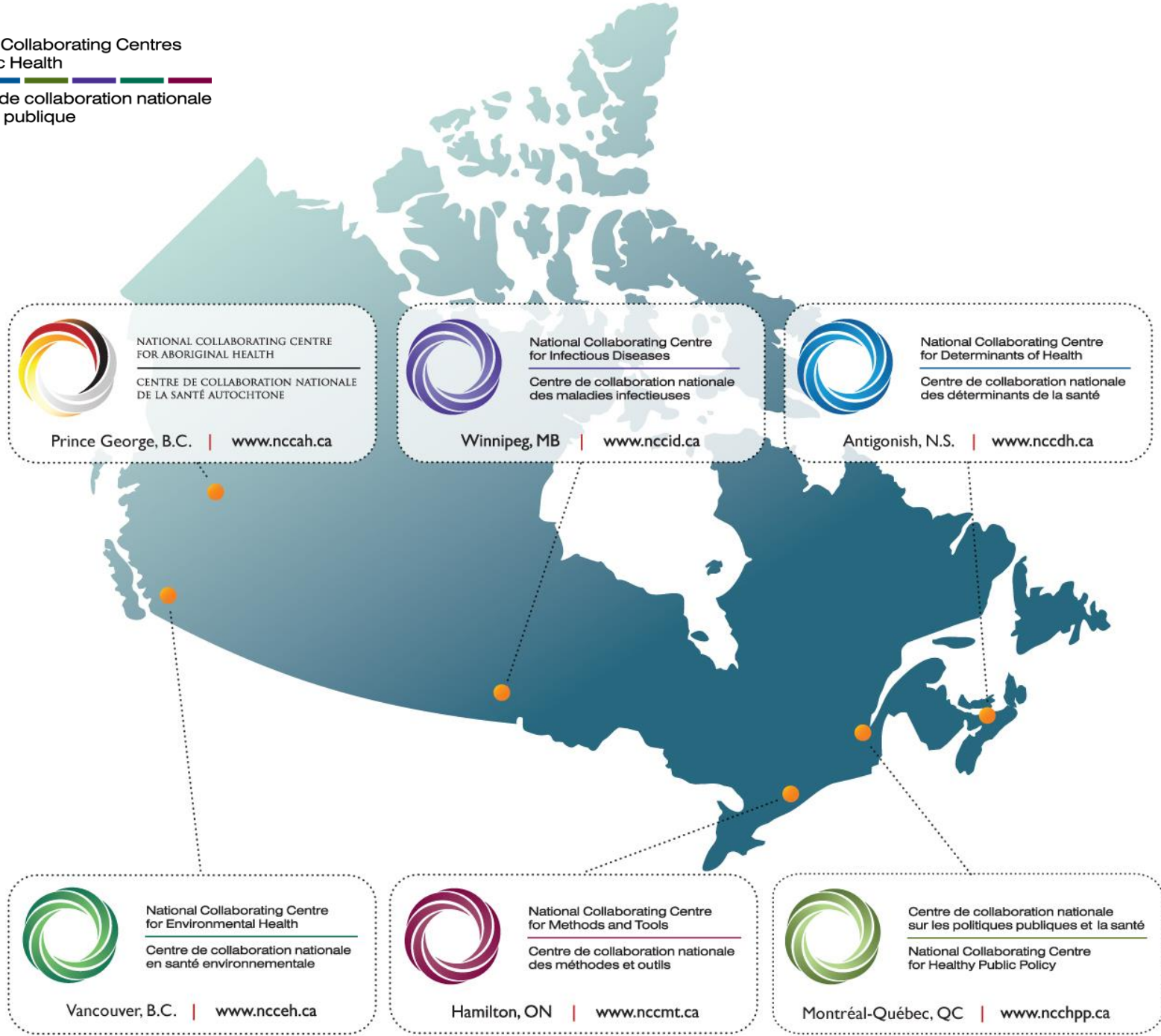


Objectives:

- Provide an introductory overview of evidence-informed public health
- Discuss the experiences of using evidence-informed decision making from an epidemiologists perspective



National Collaborating Centres
for Public Health
Centres de collaboration nationale
en santé publique



NATIONAL COLLABORATING CENTRE
FOR ABORIGINAL HEALTH
CENTRE DE COLLABORATION NATIONALE
DE LA SANTÉ AUTOCHTONE

Prince George, B.C. | www.nccah.ca



National Collaborating Centre
for Infectious Diseases
Centre de collaboration nationale
des maladies infectieuses

Winnipeg, MB | www.nccid.ca



National Collaborating Centre
for Determinants of Health
Centre de collaboration nationale
des déterminants de la santé

Antigonish, N.S. | www.nccdh.ca



National Collaborating Centre
for Environmental Health
Centre de collaboration nationale
en santé environnementale

Vancouver, B.C. | www.ncceh.ca



National Collaborating Centre
for Methods and Tools
Centre de collaboration nationale
des méthodes et outils

Hamilton, ON | www.nccmt.ca



Centre de collaboration nationale
sur les politiques publiques et la santé
National Collaborating Centre
for Healthy Public Policy

Montréal-Québec, QC | www.ncchpp.ca



The **NCCMT** provides leadership and expertise in evidence-informed decision making to **Canadian public health professionals and organizations.**

Building capacity for evidence-informed public health

Our goal is to support the use of the best available research evidence in public health practice and policy to optimize the health of Canadians. We support public health professionals in finding and using innovative, high quality, up-to-date methods and tools to build capacity for evidence-informed public health.



What is Evidence-Informed Public Health?

The process of **distilling** and **disseminating** the best available evidence from research, context and experience, and using that evidence to **inform** and **improve** public health practice, programs and policy.



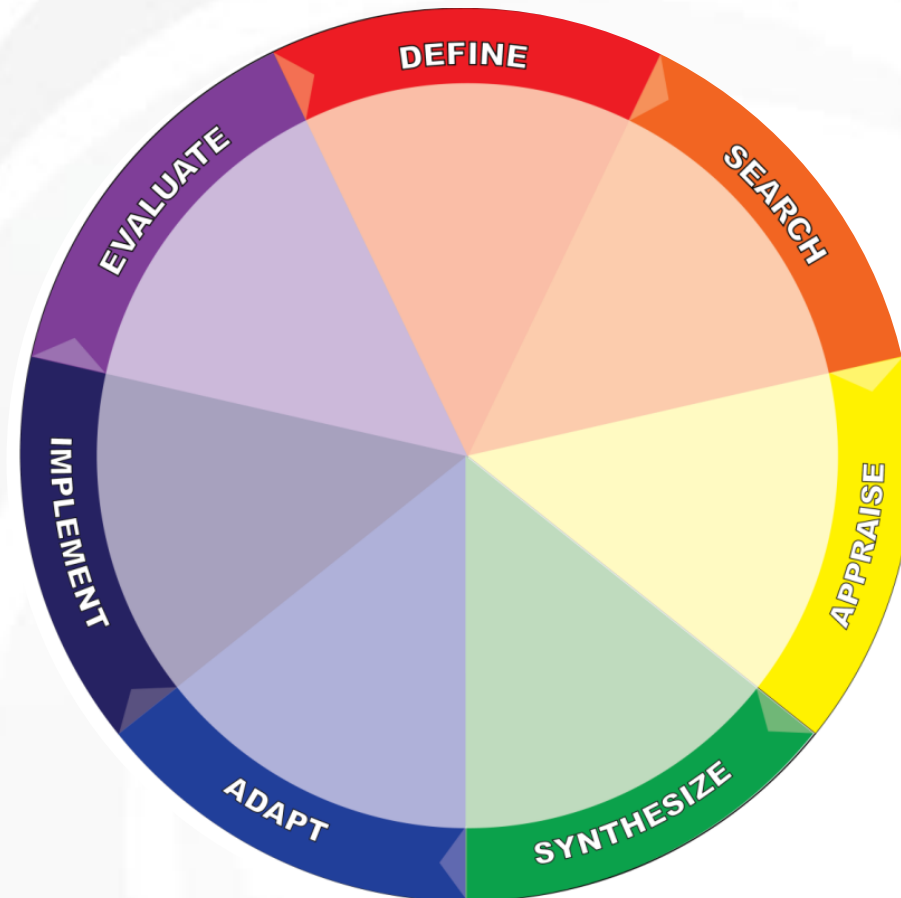


A model for evidence-informed decision making in public health





Steps in the process of evidence-informed public health





NCCMT Products and Services

Online Learning Resources

Networking
and Outreach

Video Series



Webinars

Workshops

Knowledge
Repositories



Panelists

John Barbaro

Epidemiologist, Simcoe Muskoka District Health Unit

Katherine Russell

Epidemiologist, Ottawa Public Health

Po-Po Lam

Epidemiologist, Peel Public Health

KEY LEARNINGS FROM PARTICIPATING IN THE NCCMT KNOWLEDGE BROKER (KB) MENTORING PROGRAM

Simcoe Muskoka District Health Unit
John Barbaro, Epidemiologist

APHEO Conference
November 26th, 2018

OUTLINE

- Background
- Lessons Learned
 - No Substitute for Experience
 - Going Beyond the PICO
 - Taking a Deep Dive
 - Meta-Analysis – Yes You Can!
- Final Thoughts

BACKGROUND

- 2015/16 NCCMT Knowledge Broker (KB) Mentoring Program
- 5 PHUs Participated
- Staff & Management
- Cross-disciplinary
- Rapid Review

LESSON LEARNED #1 – NO SUBSTITUTE FOR EXPERIENCE

- Especially for Critical Appraisal.
- Epidemiologists are seen as Experts; however:
 - Practice makes perfect
 - Value of group discussions
 - Subtleties of the process
 - Building confidence.

LESSON LEARNED #2 – GOING BEYOND THE PICO

- Clear Inclusion/Exclusion Criteria
- Complete with Definitions,
- Based on the PICO
- Consistency for:
 - Screening,
 - Appraisal and
 - Extraction.

LESSON LEARNED #3 – TAKE A DEEP DIVE (IN TO THE DATA)

- Draw Your Own Conclusions.
- Even Cochrane Reviews can be Wrong.

	PCS	MCS	EPDS	EPDS ≥13
Mean of cluster means*				
Control	47.84	47.54	8.06	21.25%
Intervention	46.68	50.50	6.00	14.39%
Difference (95% CI)	-1.17 (-2.52 to 0.19)	2.96 (1.16 to 4.77)	-2.06 (-2.49 to -0.83)	-6.85% (-11.99 to -1.71)
p-value	0.089	0.002	<0.001	0.010
Multilevel model				
Study group				
Control	Reference			Reference
Intervention (odds ratio 95% CI)	-0.79 (-1.91 to 0.33)			0.57 (0.43 to 0.76)
χ² (1 df)	1.89			15.14
p value	0.1692			0.0001
Mean reference values	47.57			**
Intra-class correlation	0.00002			**

Original Study

Reference
0.57 (0.43 to 0.76)
15.14
0.0001

For physical component score (PCS) and mental component score (MCS) a higher score is better and for EPDS a lower score is better. *Unweighted mean of the cluster means. Values are coefficients except where indicated.

Table 3: Physical and psychological health measures at 4 months

Study or subgroup	Experimental n/N	Control n/N	Risk Ratio M-H,Fixed,95% CI	Weight	Risk Ratio M-H,Fixed,95% CI
I Flexible schedule vs routine visits MacArthur 2002 (I)	121/569				1.47 [1.13, 1.92]
Total (95% CI)	569				1.47 [1.13, 1.92]
Total events: 121 (Experimental), 72 (Control)					
Heterogeneity: not applicable					
Test for overall effect: Z = 2.86 (P = 0.0042)					
Test for subgroup differences: Not applicable					

0.01 0.1 1 10 100
Experimental Controls

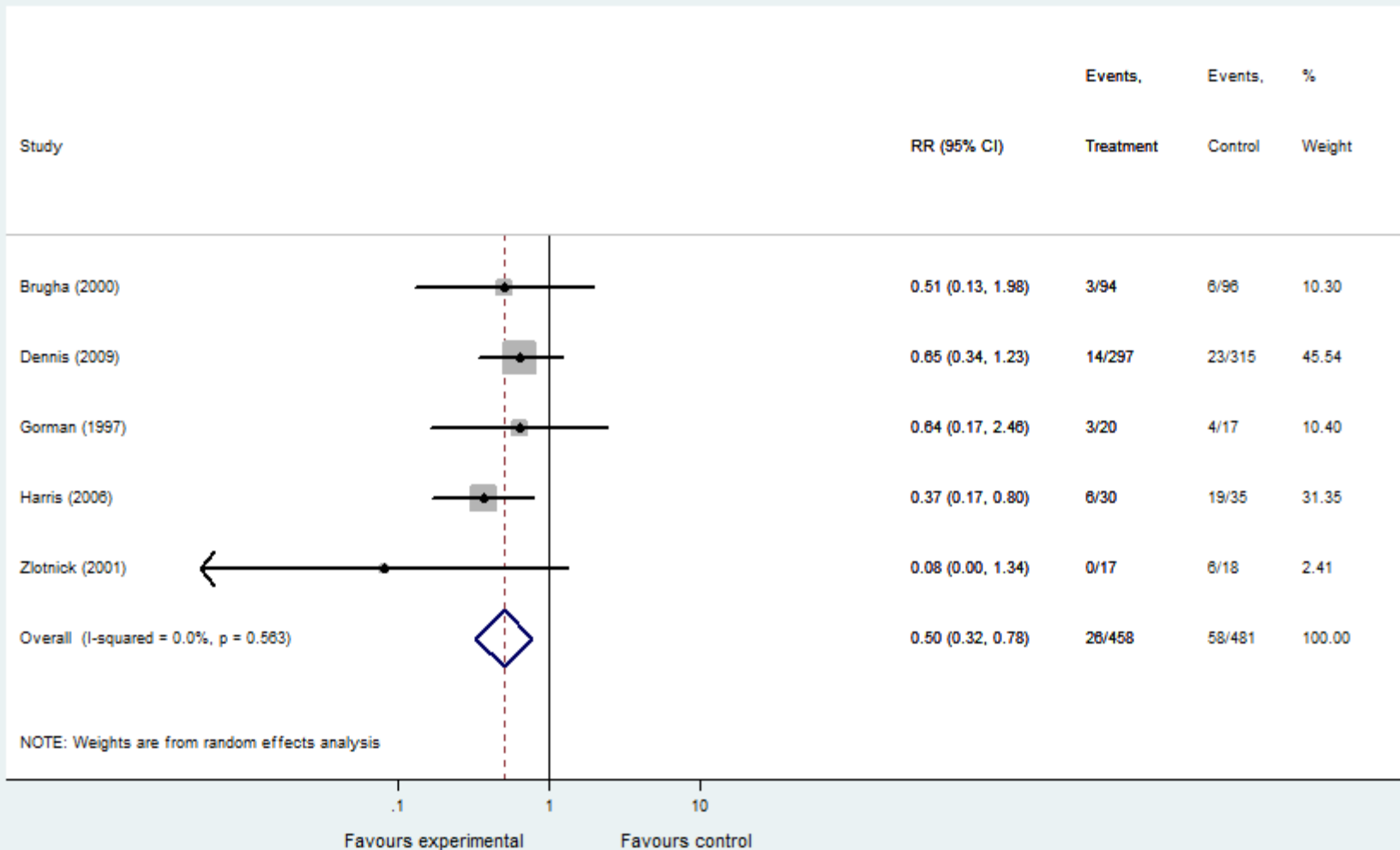
Cochrane Review

1.47 [1.13, 1.92]

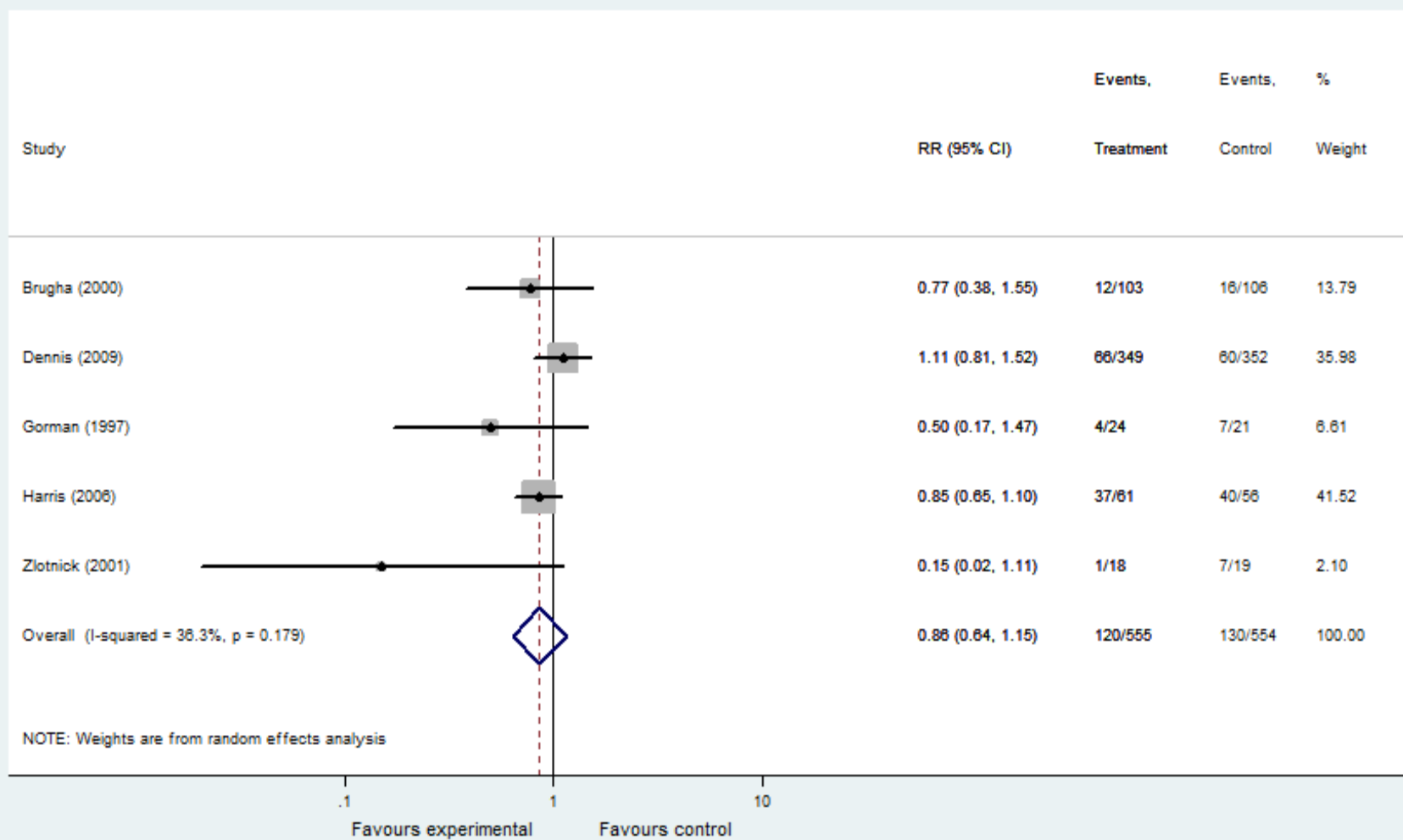
LESSON LEARNED #4 – META-ANALYSIS – YES YOU CAN

- Metan Stata package can be used to run meta-analysis and to produce custom forest plots.
- This can be done to check published results for errors, or to produce alternative results using different study inputs.
- Example: a published Cochrane Review was re-analyzed using study outcomes based on intention-to-treat (ITT). Showing non-significant results.

Re-Analysis of available case analysis from Table 1.3 of Dennis-Dowswell Cochrane Review



New intention-to-treat (ITT) analysis from using same studies from the Dennis-Dowswell Cochrane Review



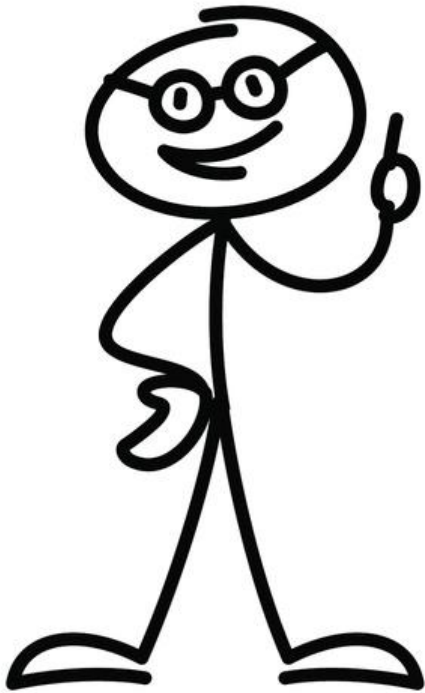
FINAL THOUGHTS

- The role of the epidemiologist will be extremely important as health units continue to operationalize evidence informed decision making processes into routine practices.
- This will likely require working in multi-disciplinary project teams. Epidemiologists will have to use and build on their existing analytical skills sets as well as contribute in potentially non-traditional ways.

Building PHU Research Capacity: The OPH Innovation Fund

Katherine Russell
Epidemiologist
Ottawa Public Health

High Value on Research



95%

- It is important for me to use research evidence in my work

91%

- Our organization (OPH) believes it is important to use research evidence in public health practice

96%

- Critically appraising research evidence is an important step to using evidence in practice

Source: OPH staff survey on Evidence Informed Decision Making, 2017 (n=128, ~30% response rate). Mostly front-line staff who responded (69%), leadership (16%) and program supports (22%).

Less Experience, Lower Confidence



54%

- Developed a research question to search for research evidence

16%

- Critically appraised a research study/article with an appraisal tool

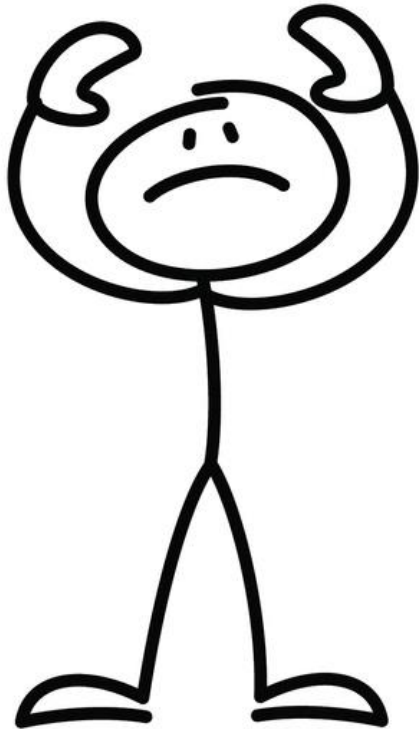
28%

- Moderately/highly confident to develop a research question

11%

- Moderately/highly confident to use an appraisal tool

Barriers to Research & EIDM



69%

- Workload/time

46%

- Lack of resources (e.g. staff with research expertise or appraisal tools)

43%

- Feel they lack adequate knowledge or skills (for research and EIDM)

EIDM = Evidence Informed Decision Making

Support for EIDM at OPH

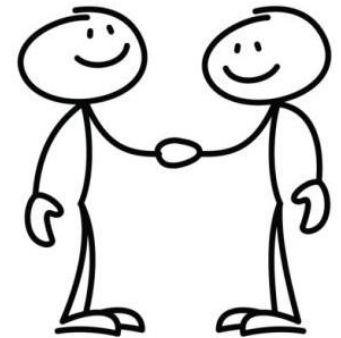
■ Centralized services for Foundational Standard

- Epidemiology & Evidence
- Population Health Approach
- Health Planning & Organizational Best Practices
- Communications & Municipal Relations
- Public Health Medicine Team

■ Knowledge Broker program

- Skill building, application, mentoring
- Focus on critical appraisal of research

■ Evidence Generation and Dissemination Committee (formerly “Research Committee”)



OPH Innovation Fund



Goals

- To foster practice-based public health research
- To encourage employees to initiate research activities important to successful program development and operation

OPH Innovation Fund

■ Grant-like

- Total budget: \$10K to \$15K + in-kind
- Expect to fund multiple projects
- All OPH staff eligible to apply

■ Annual application

■ 12m project

- funding spent within budget cycle (1 yr)

■ Peer support for application

■ Peer review

Types of Projects Funded

1. Research that contributes to OPH priorities or the OPHS
2. Other public health research

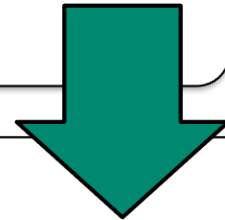
Types of Projects Funded

- Practice improvement
- Program design, program improvement
- Seed funding
- Knowledge exchange for previously funded project

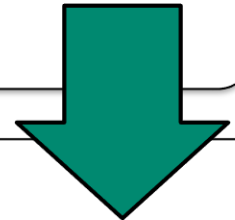
Application Process

Expression of Interest (May/June)

- Research Committee reviews all ideas and supports applicants that meet criteria
- Not necessary. Promotes innovation and safe environment for vetting ideas.



Manager approval & Innovation Application submitted (July)

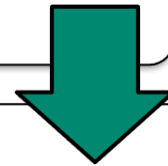


Research Committee reviews applications (Aug/Sept)

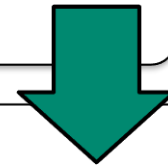
- Clarifications, feedback

Application Process

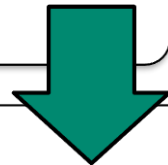
Revisions (Oct)



**Selection of projects
(Nov)**



**OPH REB submission
(Nov/Dec)**



**Project carried out (Jan-
Dec)**

Application Form Sections

- Research summary (Abstract)
- Research question & objectives
- Study rationale & novelty
- Funding sources & budget
 - Internal vs external in-kind
- Timelines & deliverables
- Methods & tools
- Risks
- Knowledge dissemination plans

Example 1: Evaluation of a Four-Week Group Smoking Cessation Program

- To what extent did the group program influence quitting behaviours
- Retrospective analysis of participant data at end of program and 3m follow up

McCulloch D., Meloche A, 2014

Example 2: Implementing Results from the Harm Reduction Needs Assessment: A Pilot Project to Expand Peer Involvement in Service Delivery

- Involve peers in the design, delivery and evaluation of Peer Overdose Prevention Program (peer naloxone administration) training
- To increase understanding of their experiences and how to effectively involve peers

Example 3: Risk Mapping of Lyme Disease in Ottawa

- More accurately profile Lyme disease risk in Ottawa
- Coordinated with U of Ottawa, veterinary clinics
- Assessed data from annual tick submissions

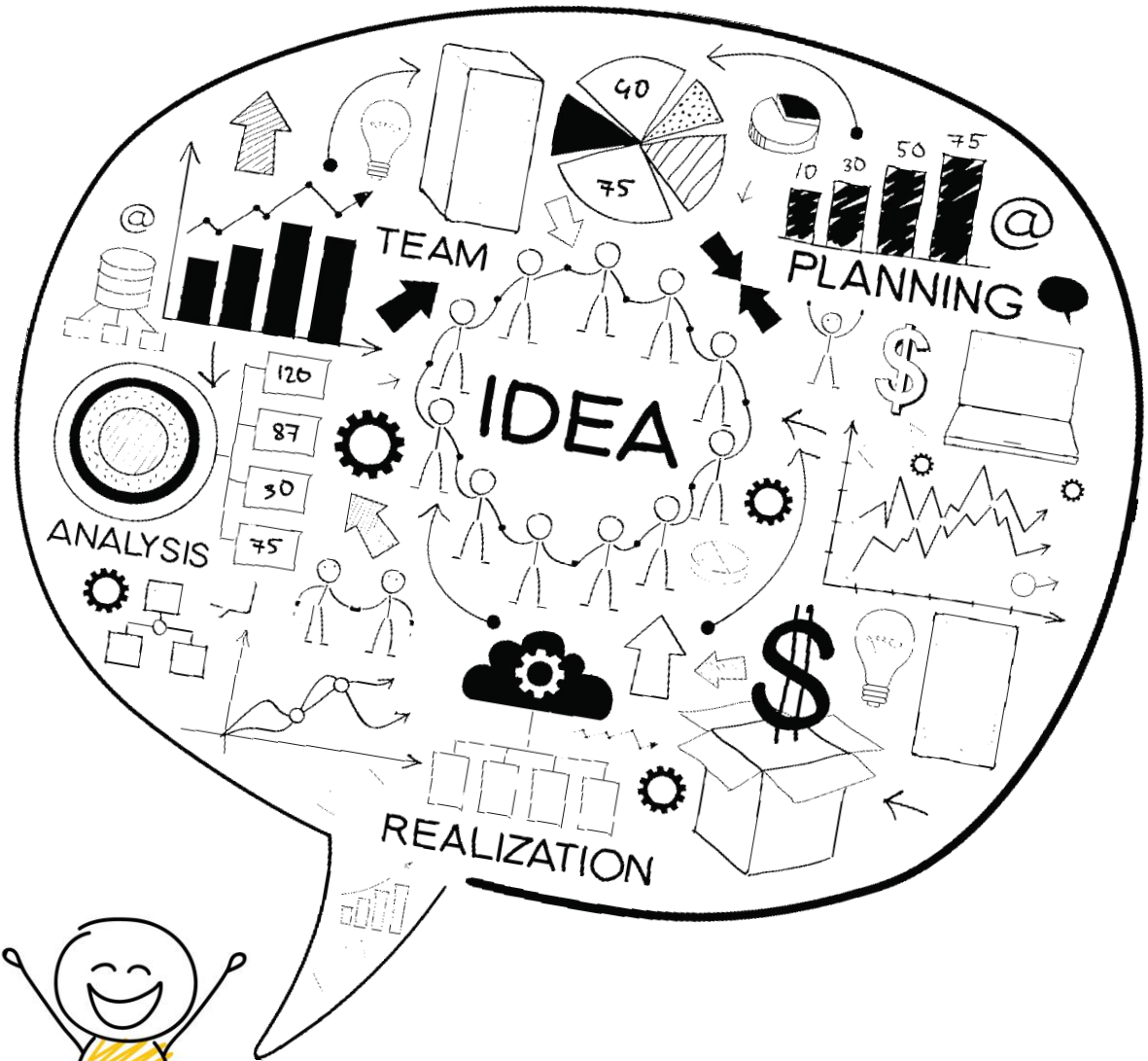
Example 4: Healthy Eating Guidelines in Child Care Centres: Does it really cost more to serve healthier food to preschoolers?

- Evaluate cost of healthy eating before and after implementation of Healthy Eating Guidelines
- Food costing, compliance, staff knowledge, programming/site changes, parent perceptions

Building Capacity



- Tools
 - FAQ, Expression of interest, Application
- Review process
 - Peer support, feedback
- Engage front line staff as researchers (non-traditional)
 - e.g., PHNs, PHIs
- Encourage knowledge dissemination
 - Presentation
 - Publication



THANK YOU!

Katherine.Russell@Ottawa.ca

End-to-End Public Health



Evidence-Informed Decision Making at the Region of Peel

Po-Po Lam, Epidemiologist

Key messages

- End-to-End Public Health: An organizational approach to decide what we do and how.
- Evidence-informed decision making is one component of End-to-End Public Health.
- Capacity and relationship building is an important component of evidence-informed decision making.

Region of Peel



Forks of the Credit, Caledon

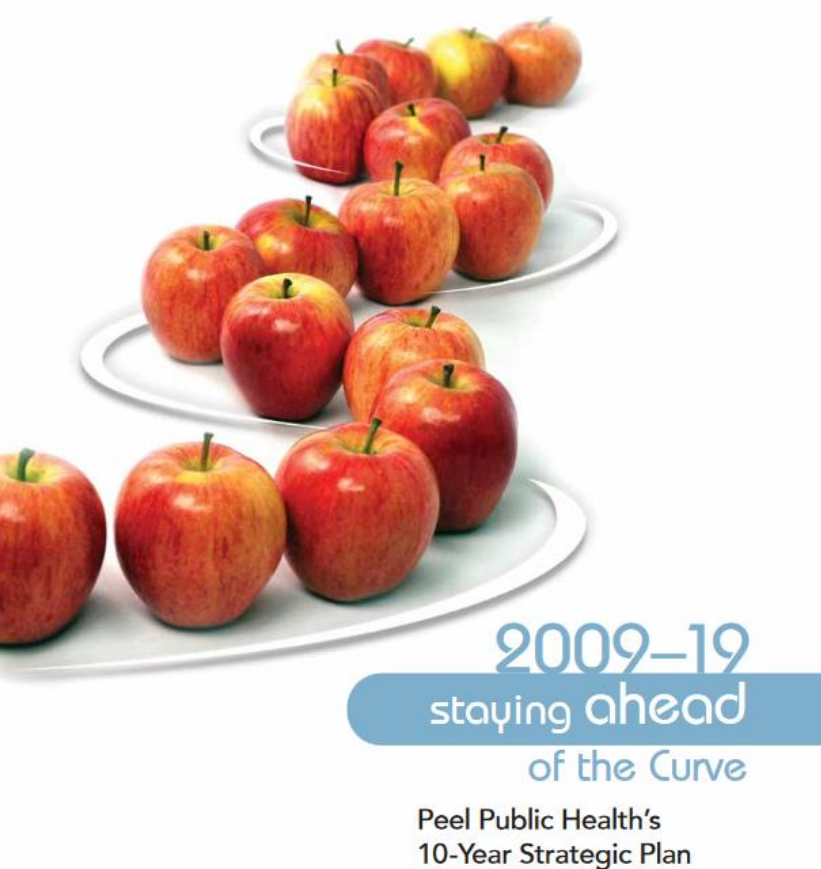


Peel Art Gallery Museum, Brampton



Port Credit, Mississauga

End-to-End Public Health

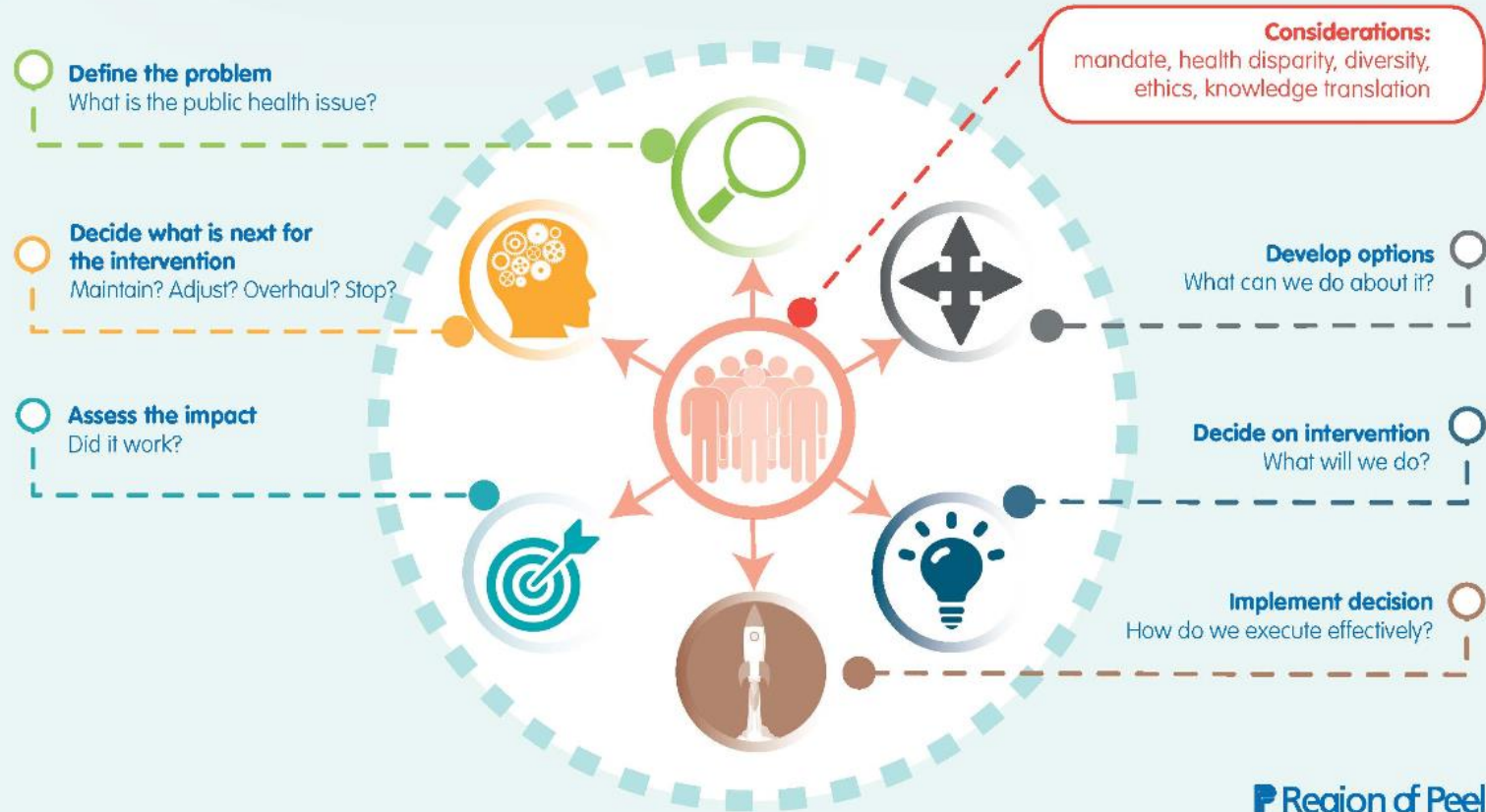


When teams are engaged in E2E public health practice:

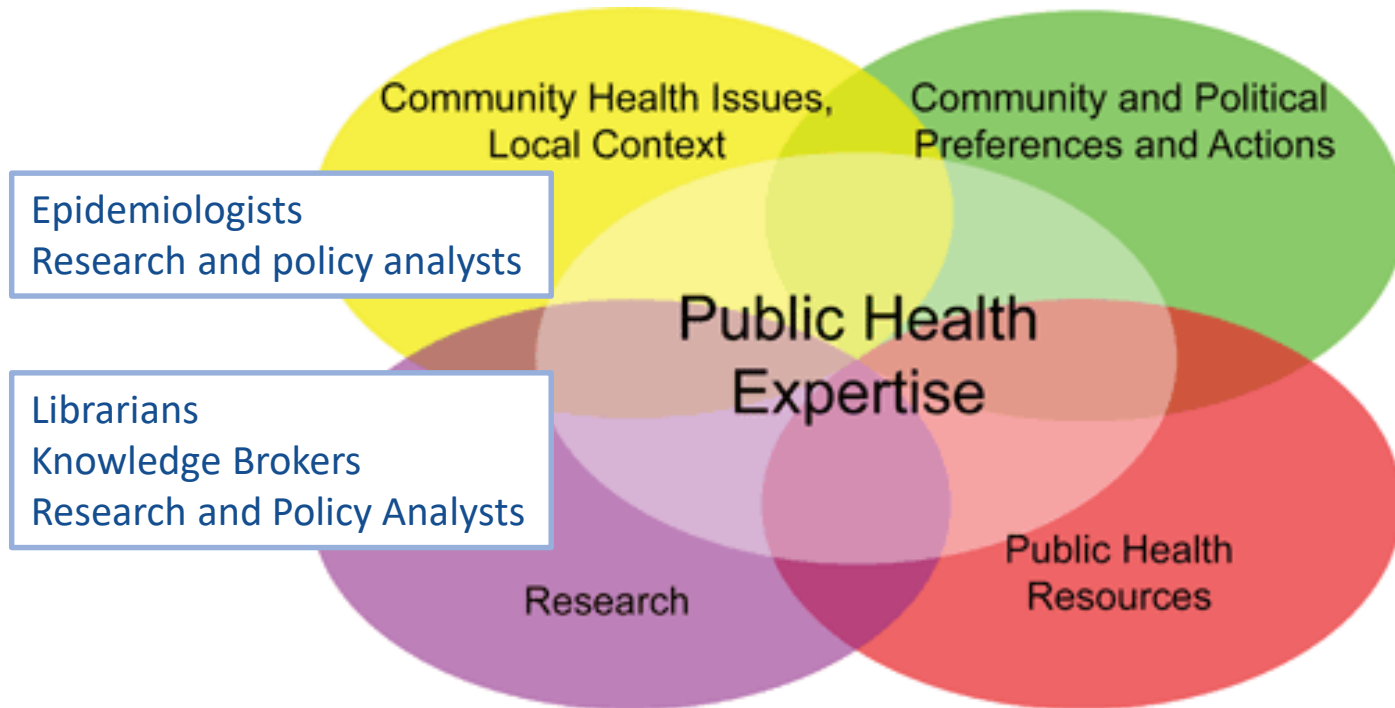
- Staff using the full set of processes and tools to solve public health problems
- Problem solving occurs at a team level
- Public health problem solving where we use the best available research and health data in a consistent way

End-to-End Public Health Practice

Our Approach to Improving Public Health Outcomes



Collaborative Evidence-Informed Decision Making



End-to-End in action: School-Based Mental Health Strategy



School-based mental health strategy



Peel Healthy Schools Partnership Declaration

Declaration Statement
Dufferin-Peel Catholic District School Board (DPCDSB), Peel District School Board (PDSB) and Peel Public Health (PPH) commit to partner in order to create and sustain healthy school communities that contribute to the well-being of children and youth.

Purpose
The purpose of this declaration is to demonstrate the commitment of public health and education in Peel to use the potential of collaboration and collective action to positively influence the lives of children and youth. The link between health and education is paramount. Healthy students are better learners, and education is a key determinant of health. Through collaboration between education and public health in Peel, we can achieve greater collective impact to create healthy school communities that foster student well-being and success.

Goals
The goals of Peel Healthy Schools Partnership are to:

Signatories agree to:

DPCDSB and PDSB agree to:

1. Delegate responsibility to responsible school staff.
2. Commit to annual joint strategy and reporting to move agenda forward.

M. Mazzorato
Marianne Mazzorato, Ed.D.
Director of Education
Dufferin-Peel Catholic District School Board

Peter Joshua
Peter Joshua
Director of Education
Peel District School Board

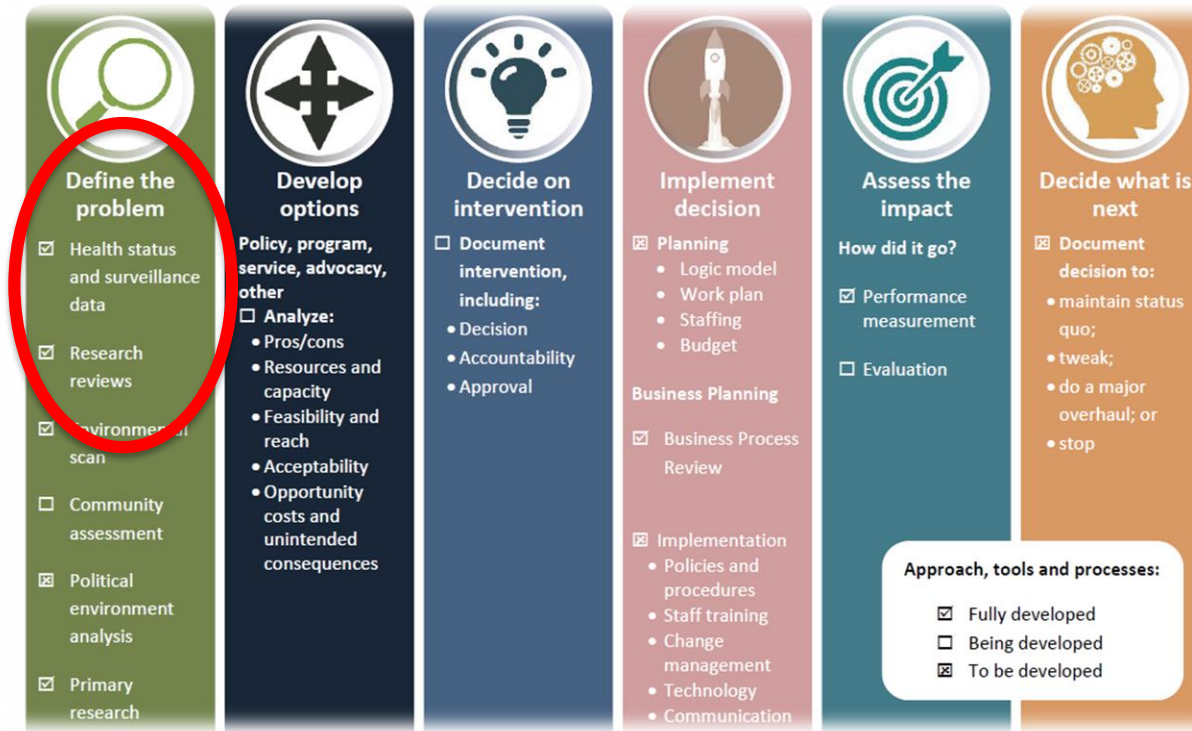
J. Hopkin
Jessica Hopkin
Medical Officer of Health
Peel Public Health

Dufferin-Peel Catholic District School Board

peel District School Board

Region of Peel
working with you

Developing a School-Based Mental Health Strategy



Conceptual Framework

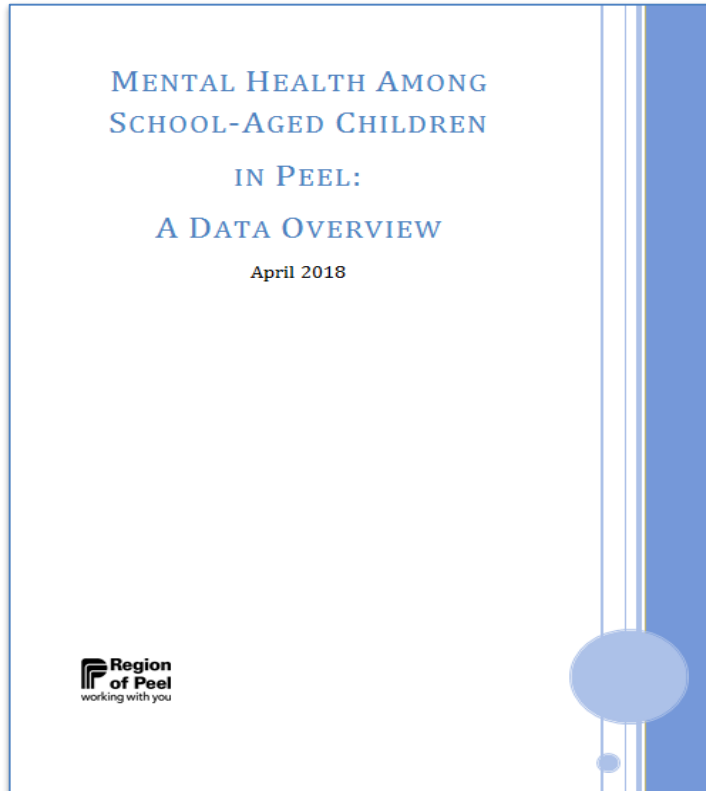
Understanding the Determinants of the Mental Health of School-aged Children and Youth A Rapid Review

Kim McAdam, Analyst, Research and Policy
Wendy Dobson, Analyst, Research and Policy
Rosanna Morales, Supervisor
Sue French, Manager

March 2018



Data Overview: Mental Health



Team:

- School Health Manager
- School Health Supervisor
- Health Promoter
- Research and Policy Analyst
- Public Health Nurse
- Epidemiologist



School-based mental health strategy: Next steps

- **Shared results with school boards**
- **Literature search on social media use and mental health**



Key messages

- End-to-End Public Health: An organizational approach to decide what we do and how.
- Evidence-informed decision making is one component of End-to-End Public Health.
- Capacity and relationship building is an important component of evidence-informed decision making.

Acknowledgments

- School-Health Mental Health Data Overview Team:
 - Sue French
 - Rosanna Morales
 - Kim McAdam
 - Alin Herciu-Ivascu
 - Sonia Seebachan
- Nancy Ramuscak, Education and Research

Thank You!



Introduction to Evidence-Informed Public Health

THANK YOU!