

Knowledge Brokering as an Evidence-Based Strategy

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Knowledge Translation for Employment Research



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Knowledge Brokering as an Evidence-Based Strategy

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Objectives

- Define knowledge brokering
- What does the science say
- Evidence-informed decision-making (EIDM) model
- Stages of change theory to guide evaluation
- Examples from public health in Canada
- Recommendations for vocational rehabilitation (VR) settings



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The NCCMT

The mission of the National Collaborating Centre for Methods and Tools (NCCMT)

- Enhance **evidence-informed public health** in practice, programs, and policy in Canada
- Provide leadership and expertise in supporting the uptake of **what works** in public health



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Outreach**

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Knowledge Broker

“A **knowledge broker** [KB] is an [intermediary](#) (an [organization](#) or a [person](#)), that aims to develop relationships and networks with, among, and between producers and users of knowledge by providing linkages, [knowledge sources](#), and in some cases knowledge itself (e.g., technical [know-how](#), [market insights](#), research evidence) to organizations in its [network](#).”

Source: https://en.wikipedia.org/wiki/Knowledge_broker



Knowledge Broker

In the field of public health, knowledge brokers facilitate the appropriate use of the best available research evidence in decision-making processes, enhancing individual and organizational capacity to participate effectively in evidence-informed decision making. In this setting, knowledge brokers promote research use.

Adapted from Dobbins, M., Robeson, P., Ciliska, D., Hanna, S., Cameron, R., O'Mara, L., . . . Mercer, S. (2009). A description of a knowledge broker role implemented as part of a randomized controlled trial evaluating three knowledge translation studies. *Implementation Science*, 4, 23. Retrieved from <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2680804/>



Activities

- Knowledge management
- Linkage and exchange
- Capacity development

Sources: Ward, V., House, A., & Hamer, S. (2009). Knowledge brokering: The missing link in the evidence to action chain? *Evidence & Policy*, 5(3), 267–279. <https://doi.org/10.1332/174426409X463811>

Oldham, G., & McLean, R. (1997). *Approaches to knowledge-brokering*. Winnipeg, Canada: International Institute for Sustainable Development.



Knowledge Management

- Identify and obtain relevant information
- Facilitate development of analytic and interpretive skills
- Create tailored knowledge products
- Project coordination
- Support communication and knowledge sharing
- Monitor the process of implementation

Source: Bornbaum, C. C., Kornas, K., Peirson, L., & Rosella, L. C. (2015). Exploring the function and effectiveness of knowledge brokers as facilitators of knowledge translation in health-related settings: A systematic review and thematic analysis. *Implementation Science*, 10(1), 162.



Linkage and Exchange

- Identify, engage, and connect with stakeholders
- Facilitate collaboration
- Connect stakeholders to relevant information sources
- Support peer-to-peer learning
- Support communication and information sharing
- Network development, maintenance, and facilitation

Source: Bornbaum, C. C., Kornas, K., Peirson, L., & Rosella, L. C. (2015). Exploring the function and effectiveness of knowledge brokers as facilitators of knowledge translation in health-related settings: A systematic review and thematic analysis. *Implementation Science*, 10(1), 162.



Capacity Development

- Define problem/research question
- Appraise quality of evidence
- Design and deliver tailored training sessions
- Facilitate knowledge dissemination
- Assess readiness/capacity for change
- Generate buy-in among stakeholders
- Facilitate organizational change
- Sustain organizational engagement

Source: Bornbaum, C. C., Kornas, K., Peirson, L., & Rosella, L. C. (2015). Exploring the function and effectiveness of knowledge brokers as facilitators of knowledge translation in health-related settings: A systematic review and thematic analysis. *Implementation Science*, 10(1), 162.



Characteristics of a KB

- Entrepreneurial (networking, problem solving, innovating)
- Trusted and credible
- Clear communicator
- Understands the cultures of both the research and decision-making environments
- Able to find and assess relevant research in a variety of formats
- Facilitates, mediates, and negotiates
- Understands the principles of adult learning

Sources: Clark, G., & Kelly, E. (2005). New directions for knowledge transfer and knowledge brokerage in Scotland. Edinburgh, Scotland: Scottish Executive, Office of the Chief Researcher. Retrieved from <https://www2.gov.scot/Resource/Doc/69582/0018002.pdf>

Canadian Health Services Research Foundation. (2003). The theory and practice of knowledge brokering in Canada's health system. Ottawa, Quebec, Canada: Canadian Health Services Research Foundation. Retrieved from https://www.cfhi-fcass.ca/migrated/pdf/Theory_and_Practice_e.pdf

symbiosis = living together

mutualism (both organisms benefit)

commensalism (one benefits, one unaffected)

parasitism (one benefits, one is harmed)

competition (neither species benefits)

neutralism (both species are unaffected)

Source: <https://en.wikipedia.org/wiki/Symbiosis>



Knowledge Brokering Impact

From published systematic reviews:

- Few published studies
- More rigor needed

Sources: Starkies, M. N., Bowles, K., Haas, R., Lane, H., & Haines, T. P. (2017). The effectiveness of research implementation strategies for promoting evidence-informed policy and management decisions in healthcare: A systematic review. *Implementation Science*, 12, 132.

Bornbaum, C. C., Kornas, K., Peirson, L., & Rosella, L. C. (2015). Exploring the function and effectiveness of knowledge brokers as facilitators of knowledge translation in health-related settings: A systematic review and thematic analysis. *Implementation Science*, 10(1), 162.



Knowledge Brokering Impact

May be a link between KBs and

- Knowledge
- Skills
- Practice behaviours

Source: Bornbaum, C. C., Kornas, K., Peirson, L., & Rosella, L. C. (2015). Exploring the function and effectiveness of knowledge brokers as facilitators of knowledge translation in health-related settings: A systematic review and thematic analysis. *Implementation Science*, 10(1), 162.



A Model for Evidence-Informed Decision Making in Public Health



Source: <https://www.nccmt.ca/about/eiph>



Photo courtesy of the author.



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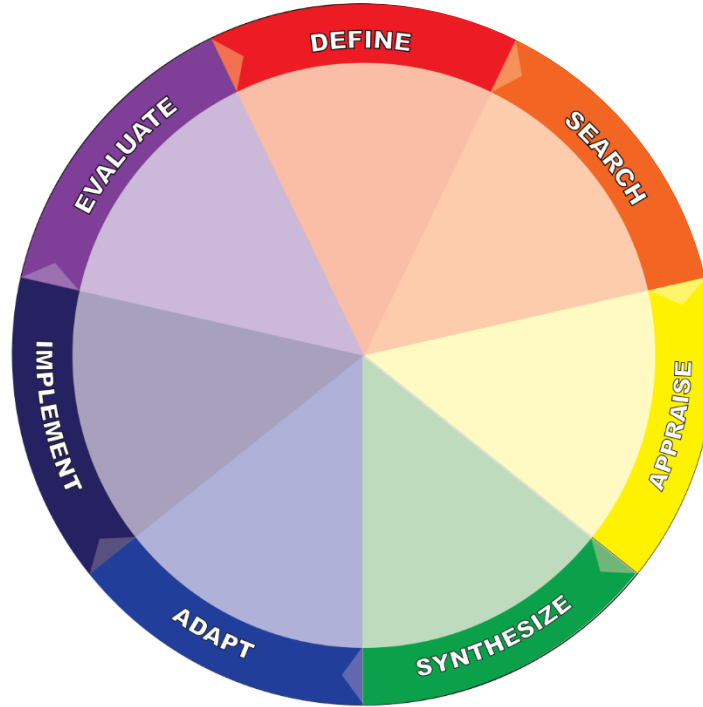
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Stages of Evidence-Informed Public Health



Source: <https://www.nccmt.ca/about/eiph>



VR Setting and Knowledge Brokering

- Changing health professional behaviour
- Changing client/patient behaviour
- Context
- Culture



EIDM: Where Do Practitioners Fit In?

- Questioning practice
- Critical consumer
- Knowledge
- Skills
- Program decisions
- Organizational structures
- Influence/motivate peers



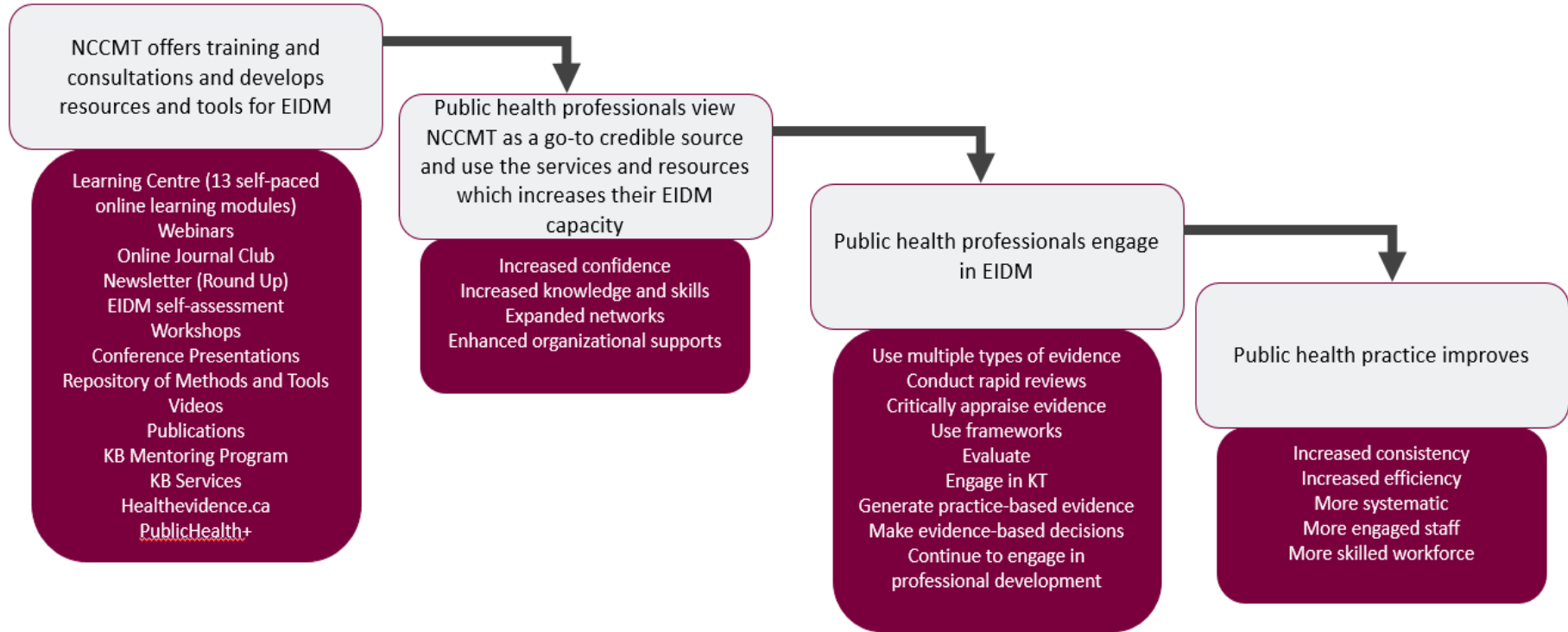


Photo courtesy of the author.



Photo courtesy of the author.

NCCMT Pathway to Change





Partnership for Health System Improvement

- Integrated Knowledge Translation (KT) program
- Collaborative approach to applied health systems/services research
- Partnerships between researchers and knowledge users



CIHR IRSC

Source: Canadian Institutes for Health Research (CIHR):
<http://www.cihr-irsc.gc.ca/e/38778.html>



We asked . . .

What is the impact of a tailored KB intervention on **knowledge, capacity, & behaviour** for EIDM?

What contextual factors **facilitate** and/or **impede** impact?

Source: Dobbins, M., Traynor, R. L., Workentine, S., Yousefi-Nooraie, R., & Yost, J. (2018). Impact of an organization-wide knowledge translation strategy to support evidence-informed public health decision making. *BMC Public Health*, 18(1), 1412. <https://doi.org/10.1186/s12889-018-6317-5>



Methods

Case study

- Three cases: Ontario health departments
- Tailored intervention, delivered by a KB

Data collection

- Quantitative and qualitative; triangulation
- Three time points: baseline, interim, follow-up

Source: Dobbins, M., Traynor, R. L., Workentine, S., Yousefi-Nooraie, R., & Yost, J. (2018). Impact of an organization-wide knowledge translation strategy to support evidence-informed public health decision making. *BMC Public Health*, 18(1), 1412. <https://doi.org/10.1186/s12889-018-6317-5>



Total Activities

Case A	Case B	Case C
<ul style="list-style-type: none"> • 18 rapid reviews • Large-scale training sessions provided • KB facilitated/ contributed to Critical Appraisal Club • Presentations of research to staff colleagues and senior management 	<ul style="list-style-type: none"> • 5 questions/reviews • Additional divisional training delivered (e.g., half-day workshops) • Presentations to senior management • Abstracts submitted to present research 	<ul style="list-style-type: none"> • 5 questions/reviews • EIDM policy and procedure developed and approved • RKEC presentations • All-staff training delivered

Source: Dobbins, M., Traynor, R. L., Workentine, S., Yousefi-Nooraie, R., & Yost, J. (2018). Impact of an organization-wide knowledge translation strategy to support evidence-informed public health decision making. *BMC Public Health*, 18(1), 1412. <https://doi.org/10.1186/s12889-018-6317-5>



Results

EIDM behaviour

- Attending large-group sessions alone was **not effective** in changing EIDM behaviours
- Significant improvement in EIDM behaviour among those who worked **intensively** with KB

EIDM knowledge and skills

- Increase in EIDM knowledge and skills among staff who worked with KB in Cases A and C across time

Source: Dobbins, M., Traynor, R. L., Workentine, S., Yousefi-Nooraie, R., & Yost, J. (2018). Impact of an organization-wide knowledge translation strategy to support evidence-informed public health decision making. *BMC Public Health*, 18(1), 1412. <https://doi.org/10.1186/s12889-018-6317-5>



Contextual Factors

Identified supports

- KB knowledge/skills and support; external
- EIDM process/template as embedded organizational structure
- Peer support; culture of inquiry
- Visible senior management support; EIDM valued in the organization

Source: Dobbins, M., Traynor, R. L., Workentine, S., Yousefi-Nooraie, R., & Yost, J. (2018). Impact of an organization-wide knowledge translation strategy to support evidence-informed public health decision making. *BMC Public Health*, 18(1), 1412. <https://doi.org/10.1186/s12889-018-6317-5>



Contextual Factors

Potential challenges

- Time, competing priorities; varied staff engagement and progress
- Anxiety, uncertainty (process, expectations)
- Inefficient library services; disconnect
- Differing definitions of “EIDM”; communication

Source: Dobbins, M., Traynor, R. L., Workentine, S., Yousefi-Nooraie, R., & Yost, J. (2018). Impact of an organization-wide knowledge translation strategy to support evidence-informed public health decision making. *BMC Public Health*, 18(1), 1412. <https://doi.org/10.1186/s12889-018-6317-5>



Conclusions

Tailored KT interventions, developed through partner engagement, had an impact on EIDM in public health by

- Enhancing individual staff capacity
- Addressing organizational factors to facilitate a culture conducive to EIDM in practice

Source: Dobbins, M., Traynor, R. L., Workentine, S., Yousefi-Nooraie, R., & Yost, J. (2018). Impact of an organization-wide knowledge translation strategy to support [317-5](#)evidence-informed public health decision making. *BMC Public Health*, 18(1), 1412. <https://doi.org/10.1186/s12889-018-6>



Knowledge Broker Mentoring Program

- Objective: advance uptake and use of EIDM in public health practice at public health units
- Evidence supports a multifaceted knowledge translation and exchange strategy
 - Decision maker involvement
 - Prioritization by organization
 - Staff training
 - Infrastructure support

Source: Dobbins, M., Traynor, R. L., Workentine, S., Yousefi-Nooraie, R., & Yost, J. (2018). Impact of an organization-wide knowledge translation strategy to support evidence-informed public health decision making. *BMC Public Health*, 18(1), 1412. <https://doi.org/10.1186/s12889-018-6317-5>



Strategy

Recruit public health units to KB program

1. Assess organizational needs
2. Build individual capacity of “internal” knowledge brokers

Source: Dobbins, M., Traynor, R. L., Workentine, S., Yousefi-Nooraie, R., & Yost, J. (2018). Impact of an organization-wide knowledge translation strategy to support evidence-informed public health decision making. *BMC Public Health*, 18(1), 1412. <https://doi.org/10.1186/s12889-018-6317-5>



Participating Organizations



Cohort 1 (red):

- Timiskaming
- Simcoe-Muskoka District
- Hamilton
- Brant County
- Middlesex-London

Cohort 2 (yellow):

- Ottawa
- Niagara Region
- Waterloo Region
- Lambton County
- Southwestern Public Health



Phase 1: Organizational Needs



- Senior management
 - Individual review
 - 2.5-hour team focus group
- Consensus on future directions

Is research working for you?

A self-assessment tool and discussion guide
for health services management and policy
organizations

PART ONE: ACQUIRE

1.1 ARE WE ABLE TO ACQUIRE RESEARCH?

RATING

1 = Strongly disagree 2 = Disagree 3 = Neither agree nor disagree 4 = Agree 5 = Strongly agree

We have **skilled staff** for research.
Our staff has **enough time** for research.
Our staff has **the incentive** to do research (it is used in our decision-making).
Our staff has **the resources** to do research.
We have **arrangements with external experts** who search for research, monitor research, or do research for us.

PART TWO: ASSESS

2.1 CAN WE TELL IF THE RESEARCH IS VALID AND OF HIGH QUALITY?

RATING

1 = Strongly disagree 2 = Disagree 3 = Neither agree nor disagree 4 = Agree 5 = Strongly agree

Staff in our organization has **critical appraisal skills and tools** for evaluating the **quality** of methodology used in research.
Staff in our organization has the **critical appraisal skills** to evaluate the **reliability** of specific research by identifying related evidence and comparing methods and results.
Our organization has **arrangements with external experts** who use **critical appraisal skills and tools** to assess methodology and evidence reliability, and to compare methods and results.

PART THREE: ADAPT

3.1 CAN WE SUMMARIZE RESULTS IN A USER-FRIENDLY WAY?

RATING

1 = Strongly disagree 2 = Disagree 3 = Neither agree nor disagree 4 = Agree 5 = Strongly agree

Our organization has enough skilled staff with **ives, and resources who use research** **tion skills to present research results** **d in accessible language.**

PART FOUR: APPLY

4.1 DO WE LEAD BY EXAMPLE AND SHOW HOW WE VALUE RESEARCH USE?

RATING

1 = Strongly disagree 2 = Disagree 3 = Neither agree nor disagree 4 = Agree 5 = Strongly agree

Using **research is a priority** in our organization.
Our organization has committed **resources** to ensure **research is accessed, adapted, and applied** **in making decisions.**
Our organization ensures **staff is involved in** **discussions on how research evidence** relates to our main goals.



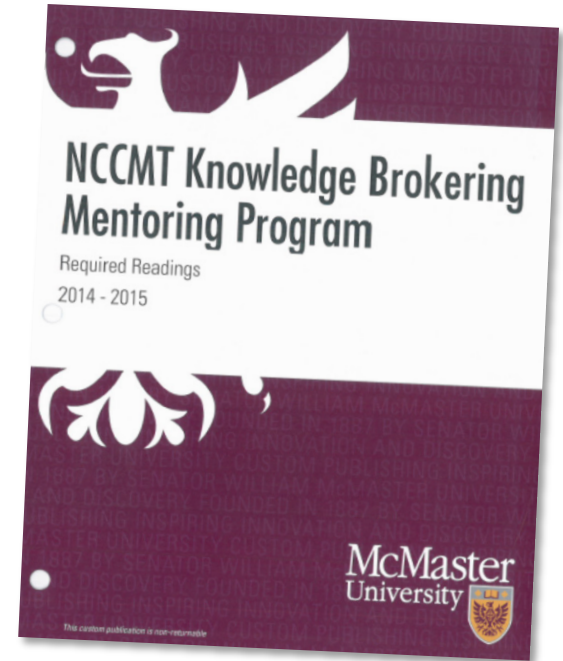
Phase 2: Individual Capacity Building

- Staff trained as knowledge brokers to help champion EIDM at health unit
- Up to six individuals selected by senior management
- Activities:
 - Workshops at 0, 6, and 12 months
 - Monthly webinars
 - Biweekly e-mail/telephone mentor support
 - Final rapid review project
- Led by senior KT experts as mentors



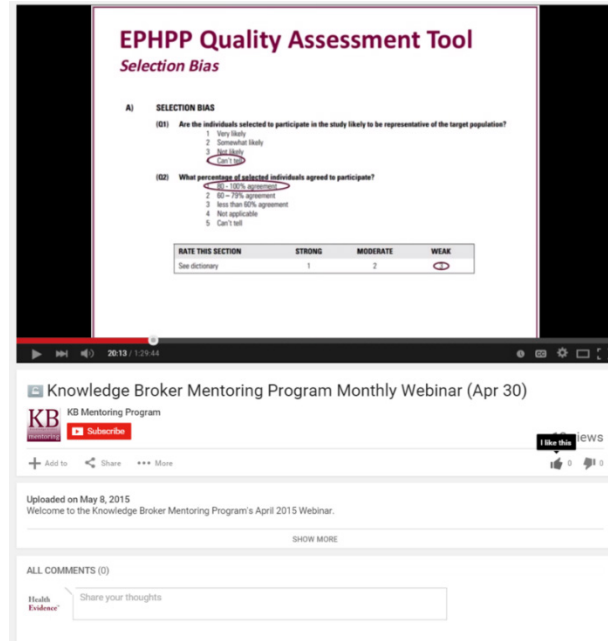
In-Person Training Workshops

- 10 training days
 - Start (5 days)
 - 6 months (3 days)
 - 12 months (2 days)
- Course readings
- Lectures
- Individual and group critical appraisal practice





Monthly Webinars



- 90-minutes; led by program mentors
- Open discussion: Ongoing activities, progress, concerns
- Practice critical appraisal skills



Final Rapid Review Project

- Culmination of knowledge and skills gained through curriculum
 - Develop research question
 - Search for evidence
 - Appraise evidence
 - Extract and synthesize data
 - Apply results to local context
- Topics selected with senior management team



Results: Change in EIDM Knowledge and Skills

- Skills assessment administered pre-post program completion
- Statistically significant improvement in performance for both cohorts

	Cohort 1	Cohort 2
Pretest mean score	60.7	63.1
Posttest mean score	77.6	77.5
Mean difference	16.9, $p < 0.001$	14.4, $p < 0.001$

- Limitations: small sample size; ceiling effect



Program Impact

- Participants increased confidence, knowledge, and skills
 - Leading rapid reviews
 - Acting as consultants for health unit
- Organizations implementing EIDM
 - Conducting additional rapid reviews
 - Requiring evidence to support new initiatives
 - Critically appraising evidence
- KB program seen as impetus for organizational change to support EIDM



“I think what it’s done is it’s increased consistency and, I would say, elevated the importance and understanding for people about the use of evidence and really, what is good evidence, what are we looking at? And also being more critical about it, not just, oh, I found something on Google.”—KB Participant

“I think the training was very well done. It was nice to actually go to [on-site training location] to have days concentrated on the training.”

—KB Participant

“Well, we have a journal club now, which is led by a member of the original cohort. And it’s a monthly kind of get-together and staff are welcome to come and discuss articles. That’s been one major change.”—KB Participant

“It gave me confidence in supporting other people to follow that cycle and mentor people or support them in going through the steps to incorporate evidence in their work.”—KB Participant

“The combination of hands-on practice, audio visual materials, and one-on-one support—it really helped. You can tell that they’ve taken evidence-informed teaching styles and really implemented that into the program.”—KB Participant



After the program, participants are able to . . .



Find
evidence

"Since the program, I do a lot of my searches myself. So in the past I would figure out my question and the hub librarians did everything; now it's much more collaborative. I'm doing my own search terms; I'm really more involved in the process. It saves me time because I get stuff that's more relevant to what I'm doing."



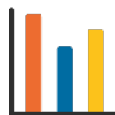
Critically
appraise
evidence

"The program has elevated the importance of and understanding about the use of evidence and, really, what is good evidence . . . and being more critical about it, not just, oh, I found something on Google."



Use a variety
of types
of evidence

"The need to consider research as well as community desire and political environment and all those different set of bubbles [NCCMT's model for EIDM]. The activity needs to be assessed on an ongoing basis; you can't just think of what you want to do and do it, you have to take a look at the larger picture of what's going on in the communities before you approach it."



Produce
evidence

"At the end of every year, I evaluate the practice by looking at the hard numbers. I'm actually doing that right now. I can tell you what works and what didn't work, and then we can think of what needs to change and what do we keep on doing. And I can go to management and say I have proof that what we're doing is working, as opposed to just randomly guessing or doing it because we've always done it."



Conclusions

- Knowledge brokering holds promise in a variety of settings
- Still much to learn about the KB role and personality characteristics
- Still much to explore on training and capacity development of KBs



Thank You

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