Building Evidence-Based Decision Making Capacity in State Public Health Agencies

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Purpose

Explore university-practitioner collaborations to increase evidence-based decision making (EBDM) capacity among individuals and within chronic disease prevention organizational units.

Background

- Evidence-based approaches to chronic disease prevention and control can reduce the burden of chronic diseases such as cancers, cardiovascular disease, and diabetes.
- Extensive reviews through efforts such as Cancer Control P.L.A.N.E.T. and The Community Guide provide recommended evidence-based policies, environmental changes, programs, and services.



- Federal agencies fund state health departments to contract with in-state and local partners for implementation of recommended approaches.
- While awareness of evidence-based approaches is high, implementation varies widely.
- Implementation process knowledge varies widely (e.g. prioritization, planning, adaptation, reach in priority population groups, evaluation)

Methods

Study Design

- Two arm group randomized trial
- Six randomly selected state health department chronic disease prevention units (states) pair matched to six states by state population
- Each pair of states randomized to intervention or control after enrollment, no blinding
- Staggered enrollment, training, and pre-post data collection 2014-2016

Measures

- 65-item online Qualtrics survey informed by literature review, prior study, study team/consultants, cognitive response, reliability test-retest
- Perceived importance & availability of 10 EBDM skills (11-point Likert)
- Perceived supervisory EBDM expectations, access to evidence and resources, evaluation, participatory decision making (7-point Likert)

Participants and Data Collection (staggered)

- EBDM training attendees in 6 intervention states
- Control states: Chronic disease unit staff and partners within and external to the state health departments
- Pairs of states did pre-survey in 2014 shortly before intervention state's EBDM training. Post-survey 18-24 months post-training, through 2016

Data Analyses

- Unit of analysis: Individuals
- State a random effect in SAS 9.4 PROC MIXED analysis of covariance models adjusted for participant and state demographic covariates
- EBDM skill gaps = perceived importance minus perceived availability
- Views on organization: Exploratory factor analysis, factor scores

Methods: Intervention

Intervention (six states)

- 3.5 day EBDM training in each of six states in 2014 or 2015
- Supplemental webinars
- Chronic disease leaders and teams chose and instituted management supports with staff input
- Follow-up conference calls with the chronic disease leaders

Table 1 . Chronic disease unit EBDM capacity building activities 2014-2016.

Domain	Activity
Accreditation	Led or contributed to state health assessment and plan, formalized decision making, documentation of evidence
Workforce development	➢ Hosted EBDM training: in-state, in-person, 3.5 days, provided by study team and consultants ➢ Provided supplemental brief EBDM skill trainings (webinar or in-person), 3 emphasized evaluation skills ➢ Started new employee EBDM orientation via archived webinars, course notebooks, facilitated discussions
Leadership, management supports	➢ Section leaders, supervisors continually asked 'what is the evidence', communicated EBDM expectations ➢ Improved in-house data accessibility, use in planning ➢ Shared evidence and work plans across programs ➢ Incorporated EBDM in job descriptions, performance
Organizational climate	➢ Created common EBDM language across programs ➢ Embedded EBDM into day-to-day work ➢ Supported ongoing professional development, learning
Relationships and partnerships	➢ Provided EBDM guidance, training to funded partners ➢ Partnered with in-state universities for evaluation, internship placements, partner training
Financial practices	➢ Required funded partners to select and implement evidence-based approaches, and evaluate

Results: Participants

- Response at baseline was 82.0%; 73.5% of baseline completed post-survey
- Recruited group sizes varied from 65 to 102 per state with a median of 73
- Loss to survey follow-up was primarily due to staff turnover

Table 2. Participant characteristics at baseline in 2014, 12 states, N=567.

Characteristics	Intervention (n=148)	Control (n=419)	P value
State health department	81.8%	47.7%	<.001
Female	84.4%	79.3%	.74
Master's degree or doctorate in any field	64.9%	64.1%	.86
Age ≥ 50 years	42.4%	50.1%	.02
Program manager position	50.0%	47.6%	.74
Urban percentage of state population, mean (SD)	67.4% (10.1)	69.4% (16.6)	.09

Results: EBDM Skill Gaps

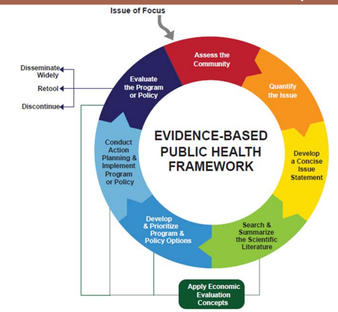

Table 3. Intervention effects on skill gaps adjusted for participant and state characteristics, 12 states, 2014-2016, N=567.

Dependent variable	B	SE	95% CI	P
EBDM Skill Gaps (10-item sum)	-5.56	1.6	(-9.3, -1.8)	.01
Communicating research to policy makers	-0.96	0.3	(-1.6, -0.3)	.01
Adapting interventions	-0.69	0.2	(-1.2, -0.2)	.03
Community assessment	-0.59	0.2	(-1.1, -0.1)	.03
Quantifying the issue	-0.59	0.2	(-1.1, -0.1)	.03
Prioritization	-0.58	0.2	(-1.1, -0.1)	.03
Qualitative evaluation	-0.59	0.2	(-1.2, -0.0)	.05
Evaluation designs	-0.43	0.2	(-1.0, 0.0)	.11
Action planning	-0.35	0.2	(-0.9, 0.2)	.18
Quantitative evaluation	-0.23	0.2	(-0.8, 0.3)	.33
Economic evaluation	0.18	0.3	(-0.5,0.9)	.54
Use of research evidence for job tasks (6-item mean)	0.12	0.1	(-0.0, 0.3)	.12

Results: Views About the Organization

Table 4. Intervention effects on perceptions about participant organizations, adjusted for participant & state characteristics, 12 states, 2014-2016, N=567.

Dependent variable	B	SE	95% CI	P
Access to evidence and skilled staff (4-item factor)	0.37	0.1	(0.0, 0.7)	.04
Program evaluation (3-item factor)	0.03	0.1	(-0.2, 0.3)	.78
Supervisory expectations for EBDM (3-item factor)	-0.06	0.3	(-0.7, 0.6)	.84
Participatory decision making (3-item factor)	-0.06	0.1	(-0.4, 0.2)	.59

Results: Other

Non-Course Attendees

Findings were attenuated when tested among 342 survey participants from the six intervention states that did not attend EBDM training, when compared to the 419 control state participants in fully adjusted models, with smaller effect sizes that were no longer statistically significant.

Discussion

Overall

- Study sought to reduce gap between evidence generation and use in practice settings –to reduce leakage in pipeline from discovery to use
- Participants with the highest intervention dose (attended in-state EBDM training) showed reduced perceived skill gaps and increased access to evidence compared to controls in fully adjusted mixed ANCOVA models
- No intervention effects found for other organizational behaviors

Individual Skills

- Skills improved overall, and in six of ten competencies among those that attended initial multi-day training
- Those that attended only supplemental brief trainings showed no significant skill improvement compared to controls

Perceived Organizational Behaviors

- Access to research evidence and skilled staff was the only factor that improved among EBDM course attendees versus controls
- Although non-attendees from intervention states were exposed to management practices, exposure was diluted among external partners.

Limitations

- Self-reported survey data, skill perceptions, and views on organization
- Control states sought to enhance EBDM capacity during study period
- Perceptions of organizational behavior may not adequately assess management practices in the organization; objective data hard to get
- Participants included staff from multiple types of organizations
- More intensive interventions needed to change organizational capacity

Implications for Public Health

- EBDM skills:
  - ➢ Communicating research to policymakers and adapting interventions are large gaps amenable to current training methods
  - ➢ Ability to use economic evaluation information in decision-making, and evaluation designs, persist as large gaps & may require different training objectives and modalities
- More tailored, active, intensive approaches are warranted to enhance organizational capacity and supports for EBDM despite staff turnover
- Chronic disease section leaders need agency leadership support to fully institute management practices in support of EBDM and embed EBDM processes within a supportive organizational climate
- Need better measures of organizational capacity

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