Practices Among Local Public Health Agencies to Support Evidence-Based Decision Making: A Qualitative Study

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ABSTRACT

Objectives: Evidence-based decision making (EBDM) capacity in local public health departments is foundational to meeting both organizational and individual competencies and fulfilling expanded roles. In addition to on-the-job training, organizational supports are needed to prepare staff; yet, less is known in this area. This qualitative study explores supportive management practices instituted as part of a training and technical assistance intervention.

Design: This qualitative study used a semistructured interview guide to elicit participants' descriptions and perceptions via key informant interviews. Verbatim transcripts were coded and thematic analyses were conducted.

Setting: Local public health departments in a US Midwestern state participated in the project.

Participants: Seventeen middle managers and staff from 4 local health departments participated in remote, audio-recorded interviews.

Intervention: Following delivery of a $3\frac{1}{2}$-day in-person training, the study team met with health department leadership teams for department selection of supportive agency policies and procedures to revise or newly create. Periodic remote meetings included collaborative problem-solving, sharing of informational resources, and encouragement.

Main Outcome Measures: Included management practices instituted to support EBDM and impact on day-to-day work as described by the interview participants.

Results: *Leadership* and middle management practices deemed most helpful included dedicating staff; creating specific guidelines; setting expectations; and providing trainings, resources, and guidance. Health departments with a preexisting supportive *organizational culture and climat*e were able to move more quickly and fully to integrate supportive management practices. *Workforce development* included creation of locally tailored overviews for all staff members and onboarding of

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Justification for more than 6 authors: *Ross C. Brownson was the principal investigator of the study, guided intervention design and data collection methods, and led the trainings. Renee G. Parks managed the project and coordinated the trainings, technical assistance, and data collection. Ms Parks led communication with participating health departments. Sarah J. Kang conducted the qualitative interviews, cleaned transcripts, and assisted Dr Allen and Ms Parks with qualitative data analyses. Debra Dekker advised the study team on methods, data instrument development, and intervention design and progress. Rebekah R. Jacob participated in intervention design; led quantitative data management, analyses, and reporting; and edited qualitative findings. As coinvestigators, Peg Allen and Stephanie Mazzucca-Ragan helped develop the data collection instruments and conduct data analyses.*

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new staff. Staff wanted additional hands-on skill-building trainings. Several worked with *partners* to incorporate evidence-based processes into community health improvement plans.
Conclusions: Ongoing on-the-job experiential learning is needed to integrate EBDM principles into day-to-day public health practice. Management practices established by leadership teams and middle managers can create supportive work environments for EBDM integration.

KEY WORDS: evidence-based decision making, evidence-based public health, governmental public health, management practices

The public health workforce increasingly fulfills a broad range of roles to engage with multiple sectors to collaboratively meet complex community health challenges, in part, by addressing social determinants of health.[1-3] Evidence-based decision making (EBDM) involves a set of processes and skills that are foundational to today's (and future) public health roles.[4] EBDM includes the application of the best available evidence from intervention effectiveness studies and program evaluation findings, surveillance data, and information on community preferences to improve population health.[5] The 2021 Core Competencies for Public Health Professionals emphasize skills needed to distill and use quantitative and qualitative data, plan programs, communicate information, address health equity, partner with other agencies, apply available evidence, manage programs, and lead public health teams.[6] On-the-job training in these and related skills is essential, given the diverse educational and occupational backgrounds of the public health workforce.[7-9] Public health agencies also need structures and procedures that continuously build and maintain capacity to apply EBDM, meet the many EBDM-related accreditation standards,[10] and fulfill the broad set of public health roles.[4]

A literature review identified 5 domains of administrative evidence-based practices (A-EBPs) that are locally applicable and modifiable to improve the infrastructural and operational supports for EBDM and health department performance: leadership, workforce development, organizational culture and climate, partnerships, and transparency of financial practices.[11] Since the original review,[11] several quantitative studies documented use of A-EBPs among US local health departments (LHDs). They found low attention to ensuring intraorganizational cultures and climates supportive of EBDM,[12] low use of leadership practices supporting EBDM use,[13] and implementation of a higher number of evidence-based interventions for chronic disease prevention.[14,15] These findings motivated the present study design that included technical assistance with LHDs to support A-EBP implementation.

The purpose of this qualitative study was to describe LHD manager and staff: (1) experiences adopting or revising LHD policies and procedures to support EBDM; and (2) advice for other LHDs. Other LHDs can build from the LHDs' experiences and recommendations in the present study to support integration of EBDM into day-to-day public health practice.

Methods

Overview

Starting in 2018, we conducted a stepped-wedge cluster randomized trial with 12 LHDs from a single Midwestern state to test impact of the training and technical assistance intervention described in the following text.[16] After the intervention period, we conducted qualitative interviews with select participants of the trial—those qualitative results are reported in the current study. The institutional review board of Washington University in St Louis approved the study, and informed consent was obtained for all participants.

Training

Each LHD sent up to 10 employees to a $3\frac{1}{2}$-day in-person training in 2018.[17] Because of the stepped-wedge study design, a separate training was provided to each group of LHDs as they crossed over from control, that is, usual practice into the intervention. Two of the 4 LHDs participated in the combined training and technical assistance intervention for 24 months (March 2018-February 2020) and 2 for 16 months (November 2018-February 2020). The training addressed the 9 components of the EBDM framework shown in Figure 1, and a 10th component on communicating and disseminating evidence to local policy makers. At the end of the training, each LHD team brainstormed ways they could incorporate the EBDM principles into LHD policies, procedures, community health improvement plans (CHIPs), and day-to-day work. The study team also provided a set of 6 evaluation webinars via remote technology.

Technical assistance

Within 1 to 2 months of training, the study team met with each LHD separately to review their team's brainstorming list and the study team list of potential

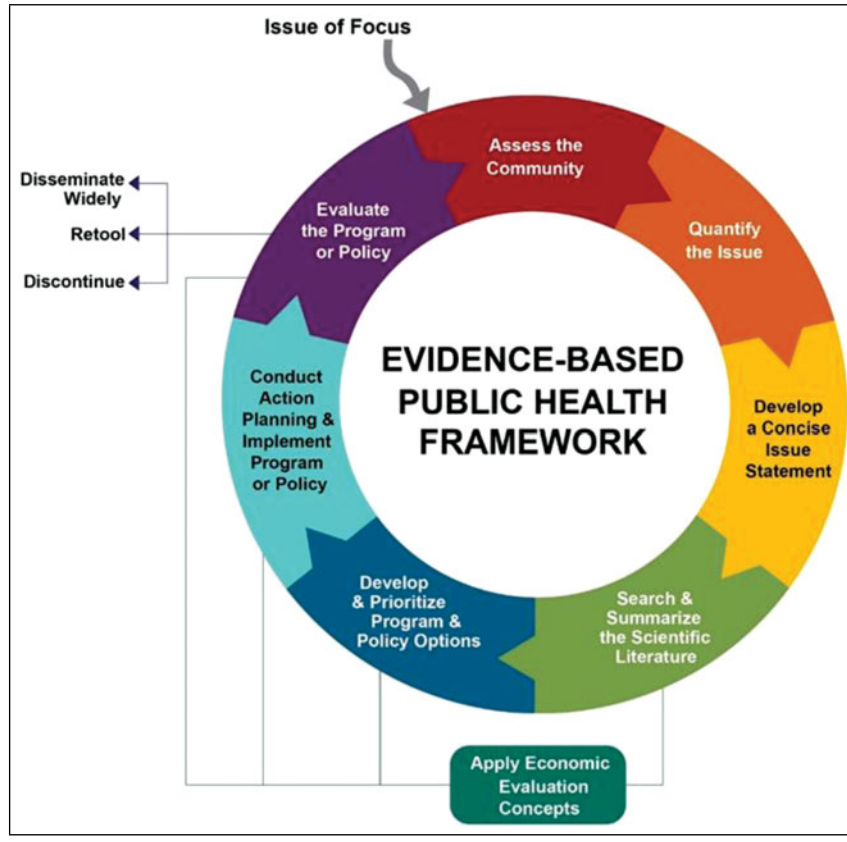

FIGURE 1 Evidence-Based Decision-Making Processes

management practices intended to support further EBDM capacity building developed from the literature and our previous research (Table 1). LHD leadership and staff then selected a single or a few management practices to initiate or revise in their LHD. Two study team members conducted phone calls every 6 to 8 weeks with each LHD to check in on progress, address barriers, and provide informational resources and technical assistance. In 2019, we also offered remote technical assistance for evaluation planning. Figure 2 shows the framework that guided the A-EBP technical assistance portion of the intervention and development of the interview guide. We based the framework on our previous work,[11,16,18] including findings from our related national surveys,[12,14] and the work of Kramer and Cole.[19,20]

Interviews

From October 2020 to January 2021, we conducted in-depth individual interviews with health promotion managers and staff who had participated in the technical assistance portion of the intervention. Because of challenges faced by LHDs in addressing the COVID-19 pandemic during this time period, we selected only 4 of the 12 LHDs—LHDs that had high engagement during the intervention period and showed favorable change in key quantitative measures in the larger study.[17] Three of the 4 participating LHDs had received Public Health Accreditation Board accreditation before the study started.

Recruitment and data collection

We coordinated with each of the 4 LHDs' health promotion/community health unit managers to purposively sample LHD managers and staff who were involved in LHD management practices identified or undertaken as part of the intervention. We invited 33 selected managers and staff via e-mail and phone, but only received e-mailed or verbal agreement from 17. We sent the interview guide ahead of time to each who agreed and re-received verbal agreement at the beginning of each phone interview.

Interview guide

We developed the interview guide based on the framework in Figure 2, prior research with state health

TABLE 1
Menu of Organizational Supports for EBDM LHDs Could Select After Cross Over to Intervention and Completion of EBPH Training

Area	Activity	Description
Accreditation	Initial accreditation or reaccreditation preparations, annual reporting to maintain accreditation	The Public Health Accreditation Board 2022 standards[a] address 10 domains, with EBDM essential to fulfill most, especially domains 1, 4, and 5, including identify community health status, factors that influence health, strengths, and needs; investigate health problems; communicate data and best practices; assess access to health services; develop a diverse multidisciplinary skilled workforce; improve public health performance by building a culture of quality and using evidence for decision making; create and maintain strong organizational infrastructure; promote health through collaborative processes; and provide expertise in establishing health policies
Access to scientific information	Electronic targeted messages	Participants receive an e-mail indicating a systematic review related to diabetes or chronic disease control is available—short summary of the research and actions that might be taken on the basis of the evidence
Workforce development	EBPH training	In-person multiday training in EBPH and EBDM skills (in St Louis), 9 modules, initial intervention (kickoff activity for intervention period)
	Supplemental brief skill trainings	Provided by study team or consultant, in-person or webinar (eg, evaluation skills)
	Nonstudy national trainings	Hosted in-person EBPH and EBDM skill trainings by national organizations and/or encouraged out-of-state training beyond those required by funders
	Quality improvement	Quality improvement or performance management trainings, guidance
	New employee orientation in evidence-based practice	Via archived webinars or course materials, facilitated discussions, meetings
	Grant writing training and/or support	Training provided by study team or consultant; study team provided list of foundations that fund LHD programmatic priority areas; study team connected LHD leadership with funders
Leadership, management supports	Chronic disease leadership teams expect evidence-based practice	Leaders and supervisors continually ask "what is the evidence," communicate expectations to staff, champion evidence-based practice, encourage use of data for decision making, encourage skill building
	Use of data for decision making	Use data to prioritize programs, develop work plans, and monitor progress; share performance measures, data on intranet or centralized data systems
	Centralized data systems	Dashboard development to prioritize, measure, and track objectives and link to evidence base; share performance measures and data
	Meetings incorporate	Work group and cross-section meetings address evidence-based practice, present evidence, plans (in leadership and in training)

(*continues*)

TABLE 1
Menu of Organizational Supports for EBDM LHDs Could Select After Cross Over to Intervention and Completion of EBPH Training (*Continued*)

Area	Activity	Description
	Performance reviews and EBDM	Work unit employee evaluations include objectives on evidence-based practice and decision making learning and application
	Hiring practices address EBDM	Job descriptions, interview questions address EBDM; hire people with public health competencies; hire specialty staff including evaluators and epidemiologists
	Participatory decision making	Staff and partner input obtained, sharing of information for decision making
	Common language for evidence-based practice	Creating and using common evidence-based practice and decision making language across program areas
	Administrative reorganization for coordination	Organizational restructuring at the group or division/section levels to increase coordination across programs and conduct joint projects across programs
Organizational changes	Evidence-based practice engrained	Evidence-based practice and decision making an embedded inseparable aspect of day-to-day work; strong expectation from leadership; high priority
	Learning orientation	Culture supports professional development and ongoing learning, providing links to webinars, bringing in guest speakers
Relationships and partnerships	Partnerships with in-state universities	Ongoing partnering for evaluation, trainings, internship placement
	Partner technical assistance and training	Phone and in-person guidance for partners' evidence-based work plans, evaluation, logic models; provide evidence-based practice and decision making trainings to partners
	Relationship building	Active steps to build or maintain positive partner relationships with open communication, trust, mutual respect, ensuring partner engagement and coalition development
Financial practices	Performance-based contracting	Funded partners required to implement evidence-based approaches as prescribed or selected from a menu, with performance objectives, work plans, and evaluation; holding partners accountable for evidence-based interventions
	Proposals approved internally for evidence-based practice prior to submission to funder	LHD preapproval process for grant applications to funders with requirements to show objectives, evidence basis, performance measures, evaluation plan

Abbreviations: EBDM, evidence-based decision making; EBPH, evidence-based public health; LHD, local health department.

[a] *From Public Health Accreditation Board.*[10]

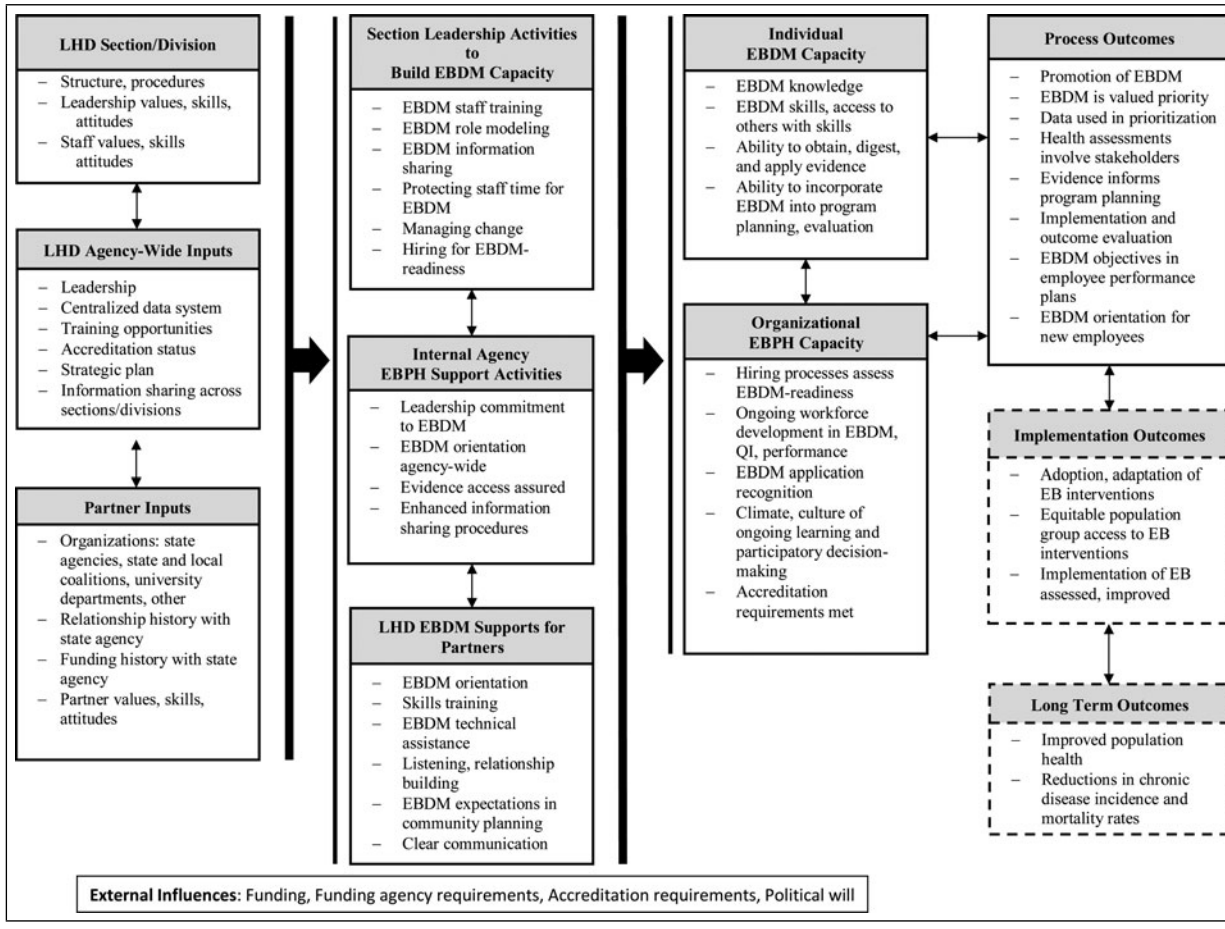

FIGURE 2 Map of Local Health Department Capacity Building in Evidence-Based Decision Making
Abbreviations: EB, evidence-based; EBDM, evidence-based decision making; EBPH, evidence-based public health; LHD, local health department; QI, quality improvement.

departments and LHDs,[21,22] and published literature (Table 2). We inquired about employees' experiences with management practices selected by their LHD to support EBDM, advice for other LHDs, and advice for researchers wanting to partner with LHDs (see Table 2 for exact question wording).

Data analysis

We audio-recorded each interview, which rev.com transcribed verbatim. We checked the transcript against the recording to clean and de-identify each transcript. Two study team members developed a deductive codebook and independently coded 4 of the 17 transcripts (23%), refined the codebook, and recoded the initial transcripts plus an additional 5 of the 17 to reach more than 95% agreement and κ at least 0.70 among the 9 transcripts (53%).[23] A single team member coded the remaining transcripts. Three study team members participated in thematic analyses, with pairs independently identifying themes and illustrative quotes for each topic and then meeting to reach consensus on themes.[23-25]

Results

Participants

Seventeen employees from 4 LHDs completed phone interviews. Interview duration averaged 28 minutes. Participant roles included leadership team members, chronic disease or health promotion managers, program or policy coordinators, quality improvement and performance management staff, and public health nurses. Of the 17 interview participants, 12 were women and 5 were men. Participants reported working in public health an average of 9.3 years and in their current LHD for 6.7 years on average. Most (14/17) interview participants attended the initial training and were involved throughout the intervention period. The other 3 participants had been at the LHD 2.0, 4.5, or 9.0 years at time of interview and were involved during the intervention period but did not

TABLE 2
Interview Questions on LHD Management Practices to Support EBDM

Area	Question and Prompts
New or revised management practices	Since [initial EBDM training date], what, if anything, has been added or changed with policies and practices to support use of EBDM/evidence-based processes within your unit or your health department overall?
Support for staff	How does your unit or LHD overall prepare staff to use EBDM?
	How does your unit or LHD overall encourage staff to use EBDM?
Organizational climate	How would you describe your unit and the overall health department environment as it relates to using evidence-based processes? Some people call this organizational climate and culture.
	How have the management practices to support EBDM been perceived?
	Thinking of the management practices and other evidence-based processes you described at the beginning, which one(s) was the most useful or successful?
Acceptance	How well or poorly has [most useful practice] been accepted?
Day-to-day work impact	What difference has [most useful practice] made in the day-to-day work of you and your colleagues?
Facilitators	What has made it easier to get [most useful practice] in place to support EBDM use?
Challenges	Were there challenges encountered, and if so, how were challenges addressed?
Partners	Have any supports or expectations been created for partnering organizations for evidence-based processes since [EBDM training date]? If yes, what are they?
Pandemic impact	How do staff in your department view EBDM amidst the additional demands of COVID-19/the pandemic?
	How, if at all, have the additional demands during COVID-19/the pandemic affected the procedures and management practices you described earlier?
Sustaining EBDM use	What steps, if any, have been taken to sustain the use of EBPH/EBDM in your work group/division or agency overall that have not already been discussed?
Desired future steps	Are there any other steps you would like to see put into place in your unit or LHD overall to reinforce these practices that we have not already discussed?
Recommendations for academics	What things could a university/academic partner do or offer that may make a research collaboration more helpful and productive?
	If we were to start this with other LHDs, what would you recommend we do differently?
Recommendations for other LHDs	What advice do you have for other health departments like yours that want to build additional capacity for and use of EBDM?

Abbreviations: EBDM, evidence-based decision making; EBPH, evidence-based public health; LHD, local health department.

attend the training. Each of the 4 LHDs served a mid-sized county in the Midwestern United States,[8,26] with the number of employees ranging from 35 to 106.[27]

Management practices implemented

Management practices LHDs implemented to support incorporation of EBDM included establishing a department-wide EBDM committee, revising organizational procedures or policies, providing additional training, planning program evaluation, reviewing current programs, and creating processes for new program selection (Table 3). Chronic disease prevention units were the first to set up protocols to review new programs for integration of EBDM steps; 2 LHDs also reviewed current programs for EBDM integration. *Leadership supports* deemed most helpful included dedicating staff; creating specific guidelines; setting expectations for EBDM use; providing trainings, resources, and guidance; and applying for or maintaining accreditation, given that EBDM is woven into many accreditation standards and domains.[10] Having leaders who were already supportive of EBDM before the intervention began also helped. LHDs with a preexisting supportive *organizational culture and climate* for EBDM were able to move more quickly and comprehensively to integrate supportive management practices. Participants noted dialogue helped "ingrain" EBDM use. While the emphasis was on internal LHD practices and procedures, *partnering* for EBDM also came into play. The 4 LHDs incorporated EBDM into CHIPs and facilitated partner use of EBDM through CHIP implementation work groups or other community coalitions.

Regarding *workforce development*, participants not only appreciated the initial multiday training but also wanted more staff members to receive an EBDM overview. Since only a limited number of staff attended the multiday trainings, several LHDs

TABLE 3

Management Practices LHDs Instituted to Support EBDM, Including an Advice Domain for LHDs Wanting to Integrate EBDM Into Agency Practices

Domain	Management Practices	Illustrative Quotes
Leadership	Leadership expected all staff members to use EBDM	"Leadership and their department heads set the bar high for themselves. So they're not going to expect anything less from us."
		". . . setting that expectation from the top that we are consulting with the literature, we were utilizing project plans, and making sure that we were setting goals and working towards that."
	Leadership provided follow-up trainings, resources, guidance to ensure EBDM use	"So my superiors sat me down to make sure I understood what evidence-based programming was and examples of evidence-based programs, and if there wasn't evidence readily available, how to get it."
	Reviewed data for data-driven decision making	"So when you can view the data easily, it becomes part of meetings and you start to make those decisions based on what the data is telling you."
	Dedicated staff to support evidence-based policies and practices	"We have our data team . . . . Having a specific team that is involved in that, and that's what we do. I think that has helped because it takes the burden off those supervisors to do that."
	Created specific guidelines for EBDM rollout	"I think the most useful was just several of us getting into a room and just kind of talking about how we're going to roll this out."
		"I think that foundational conversation is what led to the ability to get there and for people to get onboard."
Organization culture/climate	Fostered a culture shift to ingrain EBDM practices	"The process has really caused a culture shift and that was definitely needed." "Looking back from how far we've come, I would say that we have definitely seen a culture shift, and seen more and more of those conversations around evidence-based decision making . . . . It's been very successful and we definitely have seen a change in the overall atmosphere of the health department since the start of that culture shift."
		"It's [EBDM] an ingrained part of our culture."
Workforce development	Dedicated time for EBDM in-person training for shared learning and planning	"Training, so we're continuing to include the evidence-based public health training as a requirement for staff."
	Conducted staff-led training sessions for other staff members to establish shared department EBDM language and learning	". . . we now do an evidence-based public health training course for all new staff. We thought that was probably the easiest way to introduce new staff to what that is and our processes and what we do."
	Incorporated EBDM into job descriptions	"We were actually in the process before COVID, as we evaluated the staff, we were updating job descriptions to include evidence-based decision making in the job description, and it will also be a part of evaluation."
	Incorporated EBDM into employee performance evaluations	"And then even tying [EBDM] back to our employee evaluations. There was tie in there so that people had accountability not only to the program and to the daily work, but also being accountable for their yearly review to have to be accountable to that they are continually working on that [EBDM]. The other piece of that too, is that we had implemented quarterly check-ins."
	Hired staff who embraced or had prior knowledge of EBDM	"But we're starting to see more and more folks that come into our department that are new staff that are embracing it, so that's definitely a positive."
	Engaged student interns to obtain data to support programs	"Interns from the [local university] . . . that resource in our community keeps us on top of things in relation to mining data, like the MICA systems and all that, to get the relevant data necessary to support our programs."

(*continues*)

TABLE 3

Management Practices LHDs Instituted to Support EBDM, Including an Advice Domain for LHDs Wanting to Integrate EBDM Into Agency Practices (*Continued*)

Domain	Management Practices	Illustrative Quotes
Agency-level plans or systems	Incorporated EBDM into LHD strategic plan	"Everything that we do, we make sure it relates back to our strategic plan and our strategic plan is based on EBDM."
	Integrated EBDM into performance management system	"I think it started with a foundational performance management system, and that was what helped, that was the catalyst for the culture shift in our department."
		"It opened up that conversation, it now allows us to have one system that's used for all programs . . . so it helps streamline how we do things, we have the same conversation with each and every program."
	Incorporated EBDM in CHIP development	"Learning about how we could make our CHIP more evidence-based and using what really I felt was emphasized, measurable outcomes and making sure that we could collect data to show our work and to show progress."
Programmatic review	Found evidence-based approaches	"We do a lot more research before implementing any programs as far as if it's evidence-based."
		"We've just taken the time to do more research on what evidence-based practices other health departments are doing."
	Aligned programs with LHD priorities	"Everything that we do, we make sure it relates back to our strategic plan and our strategic plan is based on EBDM."
	Reviewed new or existing project plans through EBDM manual or protocol	"It makes people think before they adopt a program. There's more thought behind it. More research that goes into it and evaluation planning that goes into it prior to adoption as well."
		"I think adapting to protocol so it's part of our department requirements is probably going to be the one that is the most long-lasting."
	Enhanced or initiated program evaluation	"We have implemented some of the strategies outlined, including the implementation of logic modeling and evaluation matrices in order to evaluate our programs effectively."
Partners	LHDs facilitated use of EBDM through CHIP work groups or other community coalitions, especially in setting objectives and evaluation planning	". . . helping partners select smart objectives and things that were measurable and figuring out ways that we can actually figure out whether or not we've been successful" "They were fairly robust in their data collection, at least the ones I partner with and work with."
	LHDs dedicated staff to provide support to partners on use of EBDM	". . . sit down with these individuals of the different partnering organizations and help walk through, and facilitate, those meetings to determine some actual goals that made sense to the people . . . to then help them create a project plan that had some steps of how they needed to get to where they wanted to go"
Accreditation	Documented processes for state or PHAB accreditation or reaccreditation	"Public health reaccreditation is . . . really the driver behind us maintaining that foundation and still having the intent of driving it [EBDM] forward after of course we are done responding to a pandemic."
		"The process of accreditation does 100% elevate the performance of your programming and it is one benefit that we didn't necessarily probably fully understand when we went for accreditation the first time. But it has led to enormous growth within our staff and our programming and just our understanding of the way things could be versus the way things actually are when it comes to impact on your community."
Advice to other LHDs		"Starting in one program or one division and really putting in the energy . . . being able to find the cheerleaders or the people that are willing to take on that work and to help lead it and then just also just to continually look back at it and how do we expand."
		"Stay the course, be consistent, build a foundation . . . starting with a foundation, being consistent in the language that we use really helped us to get to where we are today. I think that it would have been easy to stop at any point and give up . . . but we stayed the course and we did push through a lot of times where it was hard."

Abbreviations: CHIP, community health improvement plan; EBDM, evidence-based decision making; LHD, local health department; PHAB, Public Health Accreditation Board.

provided brief EBDM orientations with all staff members. Several LHDs set up an abbreviated EBDM course as part of onboarding new staff. Several employees from one LHD emphasized the usefulness of integrating EBDM into their LHD's electronic performance management system. Several LHDs tied EBDM supports and accountability into employee annual plans and reviews. And at least one LHD included EBDM in job descriptions to hire people with training or experience in EBDM when possible. Despite the additional trainings in EBDM principles and specific steps, such as evaluation, many interview participants stated staff needed more training that included hands-on examples and guidance in their specific program areas.

LHDs incorporated EBDM into agency-wide strategic plans, internal policies and procedures, and performance management to enhance staff capacity to apply EBDM principles in day-to-day public health practice and create organizational and individual accountability. Interview participants shared how their LHD put in place programmatic reviews or step-by-step guidance for new or existing program plans to support individual and work unit/division accountability for use of EBDM and to meet accreditation or reaccreditation requirements.

Impact of management practices

LHDs experienced initial reluctance with the instituted management practices to support EBDM use. Employees described this reluctance in 3 ways: (1) LHD leadership was unsure how to best integrate or operationalize EBDM into practice, despite their strong support and prioritization for employees to use EBDM; (2) staff were concerned about how this would impact their work, specifically additional work or potential ending of some programs or services; and (3) some said the practices initially slowed program development or implementation. After an initial hesitancy or reluctance period, participants accepted and used the management practices or changed processes. Interview participants found examples, tools, or resources that came from similar sized health departments especially easy to apply in their own work. A few practices did not gain universal acceptance if a work group or division needed more capacity to be able to institute the practice. For example, a new protocol for reviewing current or new initiatives called for evaluation plans, which some staff members said they did not feel adequately prepared to develop.

LHD employees mentioned numerous ways these practices impacted or influenced their day-to-day work. Some participants shared employees had a new paradigm or approach for addressing any health area or topic that was more responsive and efficient and resulted in increased confidence in carrying out their work, "Everybody feels like they know what they're doing better than they used to." LHD employees indicated impact on program planning, delivery, and evaluation, which included the following: (1) LHD use of the step-by-step guidance from the EBDM training with program planning and development; (2) development of plans with measurable goals and objectives connected to outcomes; (3) more focused efforts in program implementation and service delivery and in examining and evaluating efforts or programs; (4) dedicated time to plan and discuss plans; and (5) sharing of information that enhanced transparency in decision making. "It makes people think before they adopt a program. There's more thought behind it. More research that goes into it and evaluation planning that goes into it prior to adoption as well."

Advice for other health departments

Interview participants provided a number of recommendations for other LHDs seeking to integrate EBDM into day-to-day work. Participants reiterated that it is important for health department leadership to make EBDM a priority, build an EBDM foundation, and ensure staff are on the same page on the mission and goals. "Give yourself the time, the space, the funding to make it a priority." Participants offered several selling points that other LHDs can use when promoting EBDM with staff, including the opportunity to diversify funding. They discussed the heightened need to demonstrate impact due to the COVID-19 pandemic, because "given the climate of things, everything is going to be under the microscope." "Making sure that there's the most bang for your buck, I think from that alone, that's a big sell."

Participants emphasized the importance of educating the staff in EBDM and the need to offer ongoing training to help ensure that all LHD staff members understand the public health concepts of EBDM:

> Realize that there is an investment that's required with that in terms of training staff. And particularly, we have the issue of staff turnover . . . . It is quite a bit of training if they don't have a public health background so you just have to be aware of that investment of time that's required.

Participants also talked about the need to start small, roll out new policies and procedures slowly, be consistent, monitor and reassess, and keep moving EBDM forward. Participants recommended starting in one unit with champions leading the way and then expand (Table 3).

Participants also recommended connecting with other health departments and organizations for "more brainstorming and idea-sharing between health departments," as happened during the multiday EBDM training.

Discussion

EBDM involves a set of processes and skills foundational to public health roles.[4] To incorporate EBDM into day-to-day public health practice after the initial EBDM training, LHD leadership teams in the present study communicated their expectations for EBDM use and instituted a variety of management practices to enhance staff EBDM capacity and application. The management practices LHDs instituted addressed administrative best practices, mostly in the domains of leadership, organizational culture and climate, and workforce development.[11]

Leadership team support helped create organizational cultures and climates that facilitated use of EBDM, employee buy-in, and new or revised internal policies to facilitate application of EBDM principles. Top agency leadership set the tone and overall expectations for EBDM use and dedicated staff time for additional EBDM training and support, as found in earlier studies.[22,28-30] But it was the section managers and unit supervisors who drove procedural changes, addressed staff concerns, and provided additional training and technical assistance with staff to translate EBDM principles into day-to-day activities, as found earlier with state health departments.[18,31] The roles identified in the present study are consistent with identified middle manager roles in support of evidence-based practice in health care: mediating between strategy and day-to-day activities by addressing staff concerns, holding staff accountable, and coaching staff; diffusing information, selling implementation of evidence-based practice, and synthesizing information.[32,33]

Participants in the current study attributed the presence of a preexisting organizational culture and climate supportive of EBDM to more fully integrate EBDM principles into procedures and day-to-day practice. Participants highlighted internal agency discussions around EBDM as what helped embed positive staff beliefs around EBDM and staff awareness that agency leadership values EBDM. A review noted additional ways leadership can communicate evidence-based practice as a priority to embed it in the organizational climate (eg, through deliberate role modeling, coaching, resource allocation, rewards allocation).[34] Other studies identified access to information, support of innovation, having a voice through participatory processes, and a learning environment as organizational culture and climate aspects supportive of EBDM.[22,35] Participants' recommendations to start small with EBDM use in a single unit to make it more feasible and build buy-in parallel a review finding that making incremental changes within a broader strategy helps sustain the desired organizational culture and climate.[35]

LHDs will continue to need ongoing LHD on-the-job training in EBDM principles and application, given high LHD staff turnover[36] and the high proportion (86% as of 2017) of US LHD employees without formal training in public health.[37,38] Interview participants strongly expressed wanting more staff members to receive the $3\frac{1}{2}$-day training and additional step-by-step support. To build LHD capacity, other academic research teams have provided embedded knowledge brokers in local public health agencies[39,40]; leadership coaching[41]; change management training by the National Association of County and City Health Officials (available at: https://www.pathlms.com/naccho/courses/24251)[7,42,43]; broad leadership training[44,45]; or support of LHD establishment of broad ongoing partnerships with nearby universities and colleges.[46,47]

In-person or remote technical assistance can facilitate organizational supports for EBDM and EBDM use but is difficult to sustain without grant funding.[48] A more sustainable approach that holds promise and is associated with EBDM use is the academic health department, in which LHDs partner with a university or college in their vicinity.[47,49] Through mutually beneficial partnerships, LHDs receive assistance with program development and evaluation, get staff support and help prepare future public health employees through mentoring students during internships, serve as adjunct faculty and thereby receive online university library access to journal articles useful for EBDM, and sometimes share staff with a university partner for program implementation.[46,50]

This study has several limitations. Because of the added burdens of LHD staff responding to the COVID-19 pandemic, we only interviewed a small number of middle managers and professionals from 4 of the 12 LHDs that participated in the intervention, which limits generalizability of the findings. All participating LHDs were from the same state, also limiting generalizability since statewide environments vary in EBDM supportiveness. Although the interviewer was not involved in the intervention, participants may still have been reticent to share their full views. LHDs were at different stages in EBDM integration and had chosen different approaches during the intervention period to support EBDM use, making it difficult to interpret which management practices were most feasible for beginning LHDs to implement. Because of the COVID-19 pandemic, there was an 8- to

Implications for Policy & Practice

To support and sustain use of EBDM in day-to-day public health practice:

- Health departments and professional associations can establish systems for ongoing on-the-job training in EBDM skill building.
- Health department leadership teams can create organizational cultures and climates supportive of EBDM by communicating expectations for EBDM use (eg, in new employee onboarding processes and staff meetings) and designating staff time to champion EBDM (eg, committees, mentoring staff).
- Health department middle managers can revise internal LHD protocols and procedures to incorporate EBDM into program planning and evaluation and can mentor staff in EBDM use.
- Health departments can start small in a single unit to incorporate EBDM into day-to-day practice and then extend to other sections.

10-month lag time between completion of technical assistance and the interviews; despite recall bias, learning which management practices LHDs sustained was beneficial.

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