

# Chapter 5: Evidence-Based Public Health

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The term *evidence-based public health* entered the professional lingo in the late 1990s. In brief, an evidence-based public health approach combines the best available research, practitioner expertise, and community preferences to inform all the stages of program planning, implementation, and evaluation to improve population health. As a **lead chronic disease epidemiologist**, using an evidence-based approach provides you a collaborative yet systematic process for identifying opportunities for integration that leads to data-driven, effective strategies for implementation. This approach builds the collaborative team, the common understanding of effective strategies, a common agenda, mutual reinforcing activities, and shared performance measures (or a full evaluation plan). In other words, you can use this approach for collective impact, if you add continuous communication, and “backbone support.”<sup>59</sup> For the **senior epidemiologist** or professional who supervises or mentors the lead epidemiologist, begin thinking about what issue or problems in your state could benefit from this approach. Or identify which existing chronic disease prevention activity needs evaluation. For the **entry-level epidemiologist**, ask to help with a literature review or read the literature supporting strategies that CDC recommends for chronic disease prevention and control.

Public health departments increasingly need to justify public health activities to funders. Indeed, both the American Recovery and Reinvestment Act of 2009<sup>60</sup> and the Patient Protection and Affordable Care Act of 2010<sup>61</sup> emphasized evidence-based prevention strategies. As more federal grants require evidence-based programs, evidence-based public health is becoming a default expectation at all levels of government, because while an evidence-based public health approach makes public health practice more rigorous, it also makes public health more effective. Though evidence can be limited on specific interventions for chronic disease prevention and control, reviewing what, if any evidence, is available provides information for making the best-informed decision as possible, including deciding to find funding to evaluate a promising intervention that does not have a strong evidence base.

An evidence-driven approach to public health practice depends upon (1) availability of scientific evidence to support specific interventions or policies, (2) translation of the science-base for community-focused public health practice, (3) a well-defined process to apply the evidence to decision-making, and (4) mechanisms to share the science base for chosen interventions at the state and local levels.

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<sup>59</sup> Kania J, Kramer M. Collective impact. *Stanford Social Innovation Review*. Winter 2011.

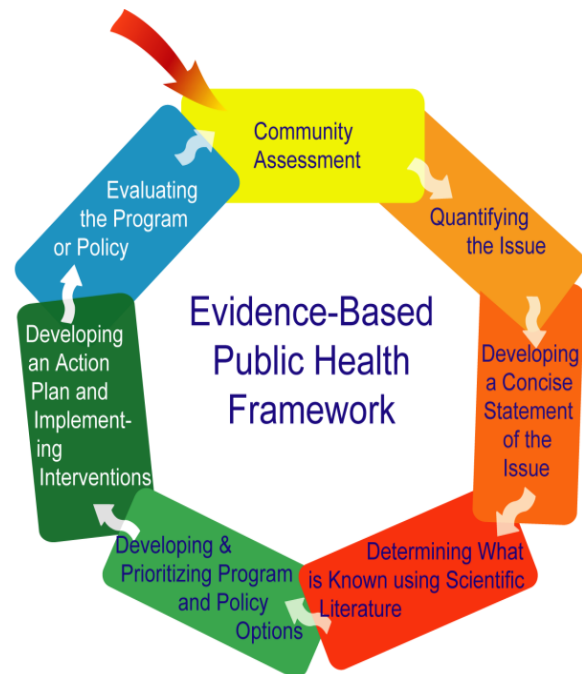
<sup>60</sup> American Recovery and Reinvestment Act of 2009, Pub L No 111-5, 123 Stat 233. 2009.

<sup>61</sup> Patient Protection and Affordable Care Act of 2010, Pub L No 111-148, 124 Stat 199. 2010.

Although different approaches to evidence-based practice exist, there are several common components:<sup>4</sup>

- Use of the best available scientific evidence to inform decision-making
- Systematic use of data and information systems
- Use of program-planning constructs
- Community engagement in assessment and decision-making
- Evaluation at every stage of the process
- Dissemination of findings to stakeholders and program implementers

The underlying skills needed to execute these components are not new. A popular construct for applying these skills is Ross Brownson's seven-step framework (Figure 5-1). Though sometimes depicted otherwise, this process is nonlinear and may require multiple iterations before the team develops a refined strategy for public health practice.



**Figure 5-1. Training approach for evidence-based public health.** Parts of this material were adapted with permission, from the Annual Review of Public Health

Whether ensuring that program activity is properly informed or delivering technical assistance to stakeholders, you as the lead chronic disease epidemiologist might have the challenge of insuring that public health activity is grounded in scientific evidence. Before embarking on your own evidence review, look for existing reviews. Organizations, like the Institute of Medicine<sup>5</sup> and the CDC,<sup>6,7</sup> have recommended public health interventions for various chronic diseases and risk factors, based upon expert reviews of the evidence at the time that they were created. If the review is not recent, then you can consider repeating the review with only the more recently published literature. Training a team in evidence-based public health combined with the systems thinking frameworks from the previous chapter is one way for developing capacity to address the challenge of providing effective public health practice in chronic disease prevention. Mutual understanding

<sup>62</sup> Brownson RC, Fielding JE, Maylahn CM. Evidence-based public health: a fundamental concept for public health practice. *Annu Rev Public Health*. 2009;30:175-201.

<sup>5</sup> Glickman D, Parker L, Sim LJ, Cook HDV, Miller EA, editors. Accelerating progress in obesity prevention: solving the weight of the nation. Washington: National Academies Press (US); 2012. Available from: <http://www.iom.edu/Reports/2012/Accelerating-Progress-in-Obesity-Prevention.aspx>. Accessed April 11, 2015.

<sup>6</sup> Keener D, Goodman K, Lowry A, Zaro S, and Kettel Khan L. Recommended community strategies and measurements to prevent obesity in the United States: Implementation and measurement guide. Atlanta, GA: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention. 2009. Available at: [http://www.cdc.gov/obesity/downloads/community\\_strategies\\_guide.pdf](http://www.cdc.gov/obesity/downloads/community_strategies_guide.pdf). Accessed April 11, 2015.

<sup>7</sup> Overweight and Obesity: Recommendations. Centers for Disease Control and Prevention Website. Available at: <http://www.cdc.gov/obesity/resources/recommendations.html>. Updated February 7, 2014. Accessed April 11, 2015.

among epidemiologists, program colleagues and external partners can result as each of you gains greater insight on how your respective expertise contributes to improving population health.

## Resources

These resources are provided for your future reference, if needed, based on your assessment of your knowledge and skills and on the priorities for your position in the short term and long term.

### Background Reading

- Brownson RC, Baker EA, Leet TL, et al. *Evidence-Based Public Health*. 2<sup>nd</sup> Ed. New York: Oxford University Press; 2011.
  - Fielding JE, Teutsch SM. So what? A framework for assessing the potential impact of intervention research. *Prev Chronic Dis*. 2013;10:120160. Available at: <http://dx.doi.org/10.5888/pcd10.120160>.
  - Jacobs JA, Jones E, Gabella BA, Spring B, Brownson RC. Tools for Implementing an Evidence-Based Approach in Public Health Practice. *Prev Chronic Dis*. 2012;9:110324.
  - Jenicek M. Epidemiology, evidence-based medicine, and evidence-based public health. *J Epidemiol Commun Health*. 1997;7:187–197.
  - Kohatsu ND, Robinson JG, Torner JC. Evidence-based public health: an evolving concept. *Am J Prev Med*. 2004;27(5):417-21.
  - Brownson RC, Fielding JE, Maylahn CM. Evidence-based public health: a fundamental concept for public health practice. *Annu Rev Public Health*. 2009;30:175-201.
  - Green LW. Public health asks of systems science: to advance evidence-based practice, can you help us get more practice-based evidence? *Am J Public Health*. 2006;96(3):406-409.
  - Briss PA, Brownson RC, Fielding JE, Zaza S. Developing and using the *Guide to Community Preventive Services*: lessons learned about evidence-based public health. *Annu Rev Public Health*. 2004;25:281-302.
- The last three articles are available from the ASTHO website at:  
[www.astho.org/Programs/Evidence-Based-Public-Health/Articles-on-Evidence-Based-Public-Health/?terms=evidence-based+public+health](http://www.astho.org/Programs/Evidence-Based-Public-Health/Articles-on-Evidence-Based-Public-Health/?terms=evidence-based+public+health)

### Online Tutorials and Tools

- The Community Toolbox: <http://ctb.ku.edu/en/default.aspx>.
- University of Washington Health Sciences Library: <http://libguides.hsl.washington.edu/ebptools>
- University of Massachusetts Medical School Library: <http://library.umassmed.edu/ebpph/>
- Public Health Partners: <http://phpartners.org/tutorial/04-ebph/index.html>
- Supercourse: <http://www.pitt.edu/~super1/lecture/lec18061/index.htm>
- University of Michigan School of Public Health: <http://www.sph.umich.edu/mi-info/10-ebph/index.html>

### Organizations Advancing Evidence-Based Public Health

- The American Heart Association: [http://my.americanheart.org/professional/StatementsGuidelines/ByTopic/TopicsD-H/Hypertension\\_UCM\\_321621\\_Article.jsp](http://my.americanheart.org/professional/StatementsGuidelines/ByTopic/TopicsD-H/Hypertension_UCM_321621_Article.jsp)
- The Campbell Collaboration: <http://www.campbellcollaboration.org>
- The Cochrane Collaboration: <http://www.cochrane.org>
- The Guide to Community Preventive Services: <http://thecommunityguide.org/index.html>
- National Association of Local Boards of Health: <http://nalboh.org/>
- National Network of Public Health Institutes: <http://nnphi.org/program-areas/evidence-based-public-health>
- The Prevention Research Center: <http://prcstl.wustl.edu/EBPH/Pages/default.aspx>  
*Since 1997, the Prevention Research Center in St. Louis has offered an evidence-based public health training course to promote the practical application of these concepts. This course is available to chronic disease health officials directly and through a competitive, state-based train-the-trainer program. State health officials who have received this training then train their respective local health departments, health coalitions, and community stakeholders.*
- Public Health Foundation: <http://www.phf.org/programs/communityguide/Pages/default.aspx>
- The Robert Wood Johnson Foundation: <http://www.rwjf.org> Search the Research & Publications section for “evidence base” to see journal articles and program results reports.

## Summary

This chapter covered an evidence-based public health approach as a collaborative, systematic process for connecting data, science, stakeholders, partners, policy makers, and effective strategies for public health action. The steps of the Brownson model are common in isolation. However, you as the lead chronic disease epidemiologist have the opportunity to connect these steps in a way that furthers chronic disease integration.

- Surveillance: Your analysis and interpretation of the chronic disease surveillance data, especially risk and protective factors related to health outcomes, is necessary to quantify the issue, a key step in evidence-based public health and in focusing the review of the scientific literature (a subsequent step in evidence-based public health).
- Communication: Your ability to summarize, interpret, and communicate information from each step in an evidence based public health approach makes the next step more focused and relevant to the overall goal. You ensure that relevant, understandable information inform decisions about what public health action is warranted and appropriate.
- Consultation: Your consultation on each step of evidence-based public health truly connects the science and data to the policy options and policy makers in your state. Your competency in searching, reading, synthesizing and interpreting scientific research, regardless of the topic, ensures that effective strategies are options for public health programming and implementation. Using your talents to guide your program and department in planning and implementing

evidence-based strategies for chronic disease prevention and thereby meeting a CSTE recommendation is immensely satisfying.<sup>8</sup>

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<sup>8</sup> CSTE Chronic Disease Epidemiology Capacity Assessment Workgroup. 2009 National Assessment of Epidemiology Capacity. Supplemental Report: Chronic Disease Epidemiology Capacity Findings and Recommendations. Atlanta, GA: CSTE; 2009. Available at: <http://www.cste2.org/webpdfs/09ECACDECFINAL.pdf>