Chapter 3: Chronic Disease Integration and Collaboration

Various definitions of chronic disease collaboration and integration exist. One oft-quoted definition of integration is “the strategic alignment of chronic disease categorical program resources to increase the effectiveness and efficiency of each program in a partnership, without compromising the integrity of categorical program objectives.”

Regardless of the precise definition used, the goals of chronic disease integration include, but are not limited to:

- Stimulating learning and capacity building (including having staff members learn about other programs in more depth).
- Increasing efficiency and effectiveness (e.g., by sharing and maximizing resources).
- Expanding the reach of programs and communications, particularly to reach underserved and high-risk populations.
- Encouraging dissemination of scientific knowledge, experiences and best practices.
- Instituting changes without increasing burden on partners.

As seen in the textbox example, opportunities for integration among public health programs abound.

Some general examples of integration efforts include:

- Developing integrated state plans.
- Implementing integrated interventions.
- Collaborating on policy, systems, or environmental change efforts.
- Collaborating on funding applications.
- Collaborating on funding announcements.

An Opportunity for Coordination: Combining Cardiovascular Health & Physical Activity

A Cardiovascular Health Unit is working extensively with the African American community to educate, prevent, and treat hypertension. Yet, the Physical Activity and Nutrition Unit in the same health department has virtually no contacts within this population and has been at a loss to get its message across, despite spending significant resources. Can the two units devise a cost-effective—even cost-saving—strategy to work together to jointly advance the effectiveness of their own programs?


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- Aligning policies and programs.
- Developing a common set of chronic disease indicators and corresponding data dictionary, a common reporting format (e.g., fact sheet template), and a common distribution list for chronic disease communications.
- Integrating the content of data reports across diseases, conditions, and risk factors.
- Integrating funding for communication efforts.
- Enhancing collaboration with external partners.
- Sharing staff across programs (i.e., developing job descriptions that include responsibilities for more than one program).
- Conducting cross-program competency assessments, trainings, and learning communities (i.e., groups of people who actively engage in learning from one another);
- Using common evaluation methodologies across programs.
- Sharing lessons learned across programs.

Recognize Opportunities for Program Integration

Chronic disease integration and collaboration can occur across all chronic disease-specific programs and with other programs, such as Maternal and Child Health, Oral Health, Violence and Injury Prevention, Mental Health, Substance Abuse, Environmental Health, Occupational Health, and Communicable Disease.

For instance, recognizing the opportunities for collaboration with Maternal and Child Health Programs requires an understanding of the roles and responsibilities of epidemiologists working in this field. Maternal and child health epidemiology often focuses on women from pregnancy through the postpartum period and on children from birth through adolescence. However, the field of maternal and child health epidemiology is broad and encompasses multiple sub-disciplines focused on the myriad infectious and chronic diseases that occur among women of reproductive age (15–44 years) regardless of their pregnancy status. As such, there is a natural intersection between chronic disease and maternal and child health epidemiology, illustrated by the *life course approach* to public health. Women of reproductive age experience the onset of chronic disease as well as the underlying causes of inherent, latent chronic disease.² Working together in areas such as diabetes (including gestational and Type 2 diabetes), hypertension, and heart disease, chronic disease and maternal and child health epidemiologists can monitor the development and progression of disease patterns. Both disciplines can then focus on primary prevention efforts targeting women of childbearing age populations. To do so, however, both chronic disease and maternal and child health epidemiologists must recognize commonalities in their respective responsibilities:

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• Monitoring health status, risk indicators, and health service usage, especially preventive services.
• Investigating determinants and distribution of adverse conditions, risks factors, and adequate health care utilization.
• Developing surveys and surveillance systems.
• Conducting needs assessments.
• Performing process and impact evaluations of programs and policies.
• Assessing program performance.
• Conducting quality assurance activities, including analyses and training.
• Studying funding and costs, (e.g., service cost-benefit and efficiency analyses).
• Inventorying available service resources.
• Providing information and analyses for resource allocation decisions.

These commonalities could lead to endless opportunities for the two programs to learn from one another to improve health outcomes at the population level. Similar lists could be constructed for other public health programs. In all cases, enhancing collaboration across specialty areas, while committing to continuously learning the specifics within each area of interest, furthers the field of epidemiology as a whole.

Learn from Other States
States have recent collaborative efforts between diabetes, tobacco, obesity, aging and disability, cancer control, and oral health programs to collect and use data on the oral health of persons with diabetes and/or tobacco users, oropharyngeal cancer and human papillomavirus, obesity prevalence among children, and health risk factors among seniors. These programs have also collaboratively shared staff.

• Many states use the Behavioral Risk Factor Surveillance System to collect and analyze data on the oral health of persons with diabetes and/or tobacco users. For example, in 2012, one state expanded their surveillance system to assess if persons with diabetes get appropriate dental care services and if persons who smoke tobacco report that dentists encouraged them to stop smoking.
• States have made their results publicly available by publishing fact sheets on oral health among persons with diabetes and/or oropharyngeal cancer and human papillomavirus.
• Several states have collected body mass index (BMI) data to assess obesity rates among Head Start children as part of the Basic Screening Survey administered by the oral health program, and many states have also collected BMI data as part of their Basic Screening Survey of kindergarten and grade school students.
• The oral health program and the aging and disability program in one state have collaborated to expand their oral health assessment on seniors to ask about health risk factors.
• Leveraging partnerships for disseminating and using data to drive action, one state is planning to develop standardized chronic disease data results in a user-friendly format for county
medical officers to present with broad audiences at town hall meetings.

- Some states share epidemiology and/or evaluation staff between programs, such as the oral health and heart disease and stroke prevention programs.

Think about the Multiple Chronic Conditions Framework and Initiative

The U.S. Department of Health and Human Services recognizes the large proportion of persons with multiple chronic conditions, its toll on quality of life, and on health care costs.\(^3\) Given its role in funding prevention of chronic disease, health services, and research, this department created an initiative with four major goals:\(^4\)

1. Foster health care and public health system changes to improve the health of individuals with multiple chronic conditions
2. Maximize the use of proven self-care management and other services by individuals with multiple chronic conditions
3. Provide better tools and information to health care, public health, and social services workers who deliver care to individuals with multiple chronic conditions
4. Facilitate research to fill knowledge gaps about, and interventions and systems to benefit, individuals with multiple chronic conditions

This department acknowledges the complexity in improving health of persons with multiple chronic conditions and the challenge that this group might be heterogeneous. The Patient Protection and Affordable Care Act to reform health care in the United States is encouraging “health homes” for persons with multiple chronic conditions enrolled in Medicaid. As a result of this initiative, the Centers for Medicare and Medicaid Services provide data on chronic conditions among beneficiaries.\(^5\) For example, state reports on the prevalence of the 15 most common chronic conditions are available for the years 2007-2011 with comparison to national estimates. The second report presents the prevalence, utilization and Medicare spending for Medicare beneficiaries with multiple chronic conditions and allows for the comparison of a specific state to national estimates. Figures of national data are in a separate chartbook. Finally, the chronic conditions dashboard allows users to query state data on prevalence and spending and map it. Preventing Chronic Diseases provides previously-published articles on this topic under their collections.\(^6\)

Follow a Systematic Approach to Program Integration

To assure successful integration efforts, epidemiologists can follow basic guiding principles:\(^7\)

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- Do no harm to categorical program integration.
- Clearly identify and state mutual benefits and opportunities.
- Be guided by efficiency-oriented processes.
- Focus on health outcomes.
- Evaluate integration outputs and health outcomes.
- Engage stakeholders.
- Mobilize leaders.

Authorities also recommend specific state health agency actions to support integration of chronic disease programs:
- Engage the agency leadership.
- Develop crosscutting epidemiology and surveillance programs.
- Leverage the use of information technology.
- Build state and local partnerships.
- Develop integrated state plans.
- Engage management and administration.
- Implement integrated interventions.
- Evaluate integration initiatives.

Utilize System Dynamics
System dynamics is an approach used to understand relationships and causal mechanisms within complex systems, such as the social systems in which chronic diseases develop. System dynamics considers feedback (causal) loops and time delays, and demonstrates the nonlinearity of system events. A chronic disease system dynamics model or map illustrates, in detailed graphic form, the complex relationships among risk factors, intermediate outcomes, and disease outcomes. Figure 3-1 depicts a system dynamics model for cardiovascular disease, showing the major health conditions related to cardiovascular disease and their causes. Boxes identify risk factor prevalences modeled as dynamic stocks. In Figure 3-1, the three boxes identify the risk factors for first time cardiovascular events and deaths and their associated costs: obesity, smoking and the chronic disorders of high cholesterol, high blood pressure, and diabetes. The population flows associated with these stocks—including people entering the adult population, entering the next age category, immigrating into the system, dying, etc—are not shown.

In the context of chronic disease collaboration, system dynamics models can highlight potential areas for collaboration by demonstrating how diverse risk factors, such as smoking and obesity in Figure 3-1, link to adverse health outcomes, such as cardiovascular disease in Figure 3-1. Thus, both smoking prevention and cessation and obesity prevention can be considered part of

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cardiovascular disease prevention. At least two other systems dynamics models have been
published: one for tobacco and one for obesity.\textsuperscript{9,10}


\textbf{Key:}

- **Blue solid arrows:** Causal linkages affecting risk factors and cardiovascular events and deaths.

- **Brown dashed arrows:** Influences on costs.

- **Purple italics:** Factors amenable to direct intervention.

- **Black italics:** Other specified trends.

- **Black non-italics:** All other variables (affected by italicized variables and by each other).


Leveraging Funding and Strategies to Prevent and Control Chronic Diseases

To optimize public health’s efficiency and effectiveness, the Centers for Disease Control and Prevention (CDC) recommends coordinating chronic disease prevention efforts in four key domains:12

1. Epidemiology, surveillance, and evaluation to inform, prioritize, and monitor diseases and risk factors and the delivery of interventions.
2. Environmental approaches that reinforce healthful behaviors and expand access to healthy choices.
3. Health systems interventions that improve the delivery and use of clinical and other preventive services.
4. Clinical and community linkages to better support chronic disease self-management.

This approach addresses multiple behaviors, environments, and chronic conditions at the same time, because many of the risk factors for obesity, diabetes, heart disease, and stroke are related and the proven interventions are similar. So integration is not only an idea that makes sense, this CDC example demonstrates that funders might require it.

Resources

Background Reading


Program Integration Checklist by the National Association of Chronic Disease Directors

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The National Association of Chronic Disease Directors has developed a checklist of tasks to help health agency leaders establish and maintain a program integration initiative. Although not comprehensive, it can be adapted for use with a wide range of integration efforts. Available at: http://c.ymcdn.com/sites/www.chronicdisease.org/resource/resmgr/Coordinated_CD_/Coordinated_CD.RecCsChecklist.pdf

Community of Learning

The National Association of Chronic Disease Directors supports a coordinated chronic disease learning community to "assist integration, collaboration, and coordination in addressing chronic disease prevention and control." It is accessible at: http://www.chronicdisease.org/?CCD

Case Studies

ASTHO has developed ten case studies highlighting how state chronic disease and maternal and child health programs are working together to deliver chronic disease prevention programs to maternal and child populations using either preconception health or life course health perspectives as the theoretical underpinnings. The 10 case studies listed below are accessible at: http://www.astho.org/Collaboration_Between_MCH_and_Chronic_Disease/

- **Seizing a “Golden Opportunity” to Improve Birth Outcomes in Louisiana**
  Case study of Louisiana's Birth Outcomes Initiative to engage stakeholders in a process aimed at improving outcomes for women and children.

- **Collaborating to Change Arkansas' Health Trajectory**
  Case study on the Arkansas Department of Health engaging public and private stakeholders to change the health trajectory for Arkansans.

- **Colorado's Collaborative Strategies to Improve Health of Women and Children**
  Case study on Colorado's strategies to address the causes for low birth weight babies.

- **Partnering to Improve Health Outcomes throughout the Lifespan in Delaware**
  Case study on Delaware's Healthy Women, Healthy Babies program, aimed to reduce infant mortality and morbidity across the lifespan.

- **Missouri Partners to Reduce Chronic Disease Risk Factors for Women and Children**
  Case study on coordinated approach that the Missouri Department of Health took to reverse troubling public health trends with a focus on youth, pregnant women, and systems change.

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• **Building on Partnerships to Achieve Goals in Massachusetts**  
  Case study on Massachusetts partnerships to reduce the prevalence of gestational diabetes and to improve health outcomes for women of reproductive age.

• **Using Data to Drive Diabetes Prevention Efforts in Ohio**  
  Case study on the collaboration of programs and data in Ohio to achieve better results.

• **Turning Public Health Challenges into Opportunities for Collaboration in Utah**  
  Case study on Utah's collaboration to improve data on gestational diabetes.

• **Promoting Healthy School-Aged Children in Vermont**  
  Case study on Vermont’s Department of Health's partnership with Medicaid, the Department of Education, the local pediatric community, and local school districts to build capacity among the state’s school health nurses and dental health professionals.

• **Building on Seeds of Change in West Virginia**  
  Case study on West Virginia's network of partners that worked towards promoting provider awareness about gestational diabetes testing and follow-up care and improving patients' awareness of gestational diabetes as a major risk factor for Type 2 diabetes.

**Summary**

This chapter provides concrete, common activities across programs, a system dynamic model to broaden your view, and an integration checklist. Ask your colleagues to provide examples of collaboration and integration. Ask if any of the following would be helpful:

- **Surveillance:** Identify common target groups, settings, and risk or protective factors across populations with different chronic diseases. Identify subpopulations with multiple chronic conditions.
- **Communication:** Use the list of common activities in the “Recognize Opportunities for Program Integration section, the examples from other states and the program integration checklist by the National Association of Chronic Disease Directors to start the conversation with other programs about existing integrated activities and opportunities.
- **Consultation:** Ask other programs if any of the common activities is a priority. Identify mutually beneficial ways to collaborate.

The next two chapters—Chapter 4: System Approaches and the Social Ecological Model and Chapter 5: Evidence-based Public Health—review concepts that will assist you in thinking about integration and in taking steps to promote effective, collective public health approaches.