Collaboration Between Health Care and Public Health: Workshop Summary

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Collaboration Between Health Care and Public Health

Workshop Summary

Theresa Wizemann, *Rapporteur*

Roundtable on Population Health Improvement

Board on Population Health and Public Health Practice

INSTITUTE OF MEDICINE
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"Knowing is not enough; we must apply.
Willing is not enough; we must do."
—Goethe

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PLANNING COMMITTEE FOR PUBLIC HEALTH AND HEALTH CARE: COLLABORATION AND INNOVATION AT THE INTERFACE: A WORKSHOP[1]

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[1] Institute of Medicine planning committees are solely responsible for organizing the workshop, identifying topics, and choosing speakers. The responsibility for the published workshop summary rests with the workshop rapporteur and the institution.

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This workshop summary has been reviewed in draft form by individuals chosen for their diverse perspectives and technical expertise, in accordance with procedures approved by the National Research Council's Report Review Committee. The purpose of this independent review is to provide candid and critical comments that will assist the institution in making its published workshop summary as sound as possible and to ensure that the workshop summary meets institutional standards for objectivity, evidence, and responsiveness to the study charge. The review comments and draft manuscript remain confidential to protect the integrity of the process. We wish to thank the following individuals for their review of this workshop summary:

Dave Chokshi, New York City Health and Hospitals Corporation
Lynne Cuppernull, Alliance of Community Health Plans
Julie Gerberding, Merck and Co.
Josh Sharfstein, Johns Hopkins University

Although the reviewers listed above have provided many constructive comments and suggestions, they did not see the final draft of the workshop summary before its release. The review of this workshop summary was overseen by **Ned Calonge,** The Colorado Trust. Appointed by the Institute of Medicine, he was responsible for making certain that an independent examination of this workshop summary was carried out in accordance with institutional procedures and that all review comments were carefully considered. Responsibility for the final content of this workshop summary rests entirely with the rapporteur and the institution.

CONTENTS

APPENDIXES

Abbreviations and Acronyms

ACA	Affordable Care Act
ACO	accountable care organization
ASTHO	Association of State and Territorial Health Officials
BCBS	Blue Cross and Blue Shield
BCBSOK	Blue Cross and Blue Shield of Oklahoma
CDC	Centers for Disease Control and Prevention
CMMI	Center for Medicare & Medicaid Innovation
CMS	Centers for Medicare & Medicaid Services
EHR	electronic health record
FQHC	Federally Qualified Health Center
HHS	U.S. Department of Health and Human Services
HRSA	Health Resources and Services Administration
IOM	Institute of Medicine
NACCHO	National Association of County and City Health Officials
NQF	National Quality Forum
PCMH	patient-centered medical home
QI	quality improvement
SIM	State Innovation Models Initiative

1

Introduction[1]

On February 5, 2015, the Institute of Medicine (IOM) Roundtable on Population Health Improvement hosted a workshop to explore the relationship between public health and health care, including opportunities, challenges, and practical lessons. The workshop was convened in partnership with the Association of State and Territorial Health Officials (ASTHO)-Supported Primary Care and Public Health Collaborative.

Paul Jarris, executive director of ASTHO, welcomed participants and explained that the ASTHO-Supported Primary Care and Public Health Collaborative was organized in response to the IOM report *Primary Care and Public Health: Exploring Integration to Improve Population Health* (IOM, 2012). In 2012, the IOM, ASTHO, and the United Health Foundation convened a meeting of leaders in public health and primary care to develop a strategic map for the collaborative to move forward on the issue of integration of primary care and public health toward the goal of improving population health and lowering costs. Areas of focus, as described by Jarris, included collecting success stories; considering the value proposition; measuring the impact of collaboration on population health; investigating resources to support the infrastructure for collaboration; and discussing workforce integration. The group reconvened in 2014 to revisit the strategic map, review accomplishments, refine the focus, and set new directions.

As background for the discussion, Jarris listed four ideal outcomes of a collaborative: participating organizations make connections and become more informed by other sectors; organizations can work more effectively by aligning with others that are doing related work; some organizations in the collaborative may partner on projects; and the collaborative as a whole takes on initiatives that all the organizations work on jointly.

George Isham, senior advisor at HealthPartners, senior fellow at the HealthPartners Institute for Education and Research, and co-chair of the IOM Roundtable on Population Health Improvement, said that although collaboration between health care and public health is not a new topic, the roundtable was seeking new insights and fresh examples to motivate further progress. To foster discussion, Isham quoted *Wikipedia*, which states that collaboration is "working with others to do a task and to achieve shared goals." Furthermore, collaboration is "more than the intersection of common goals seen in cooperative ventures, but a deep collective determination to reach an identical objective."[2] In considering the intersection between the public health and the health care delivery sectors, Isham challenged participants to reflect on this deep, collective

[1] This workshop was organized by an independent planning committee whose role was limited to identification of topics and speakers. This workshop summary was prepared by the rapporteur as a factual summary of the presentations and discussion that took place at the workshop. Statements, recommendations, and opinions expressed are those of individual presenters and participants and are not necessarily endorsed or verified by the IOM or the roundtable, and they should not be construed as reflecting any group consensus.

[2] See http://en.wikipedia.org/wiki/collaboration (accessed June 18, 2015).

determination to reach a common goal or identical objective and think about what it will take to get there, including potential barriers.

WORKSHOP OBJECTIVES

A major activity of the roundtable is to hold workshops for its members, stakeholders, and the public to discuss important issues in the effort to improve the nation's health. An independent planning committee, co-chaired by Julie Wood and José Montero, and including Terry Allan, John Auerbach, Ron Bialek, Christopher Holliday, Paul Jarris, and Sarah Linde, was charged with developing a workshop to explore opportunities for collaboration and innovation at the interface of public health and health care (see Box 1-1). The workshop was designed to:

- discuss and describe the elements of successful collaboration between health care and public health organizations and professionals;
- reflect on the five principles of primary care–public health integration (which can be applied more broadly to the health care–public health relationship): shared goals, community engagement, aligned leadership, sustainability, and data and analysis; and
- explore the "elephants in the room" when public health and health care interact: what are the key challenges and obstacles and what are some potential solutions, including strengths both sides bring to the table.

As explained by Wood, vice president for Health of the Public and Interprofessional Activities at the American Academy of Family Physicians, the workshop was organized around exploring collaboration in the context of four topics: payment reform; the Million Hearts initiative; hospital and public health agency relationships and collaboration; and asthma care. Montero, director of the New Hampshire Division of Public Health Services, elaborated that the analysis of these four case examples would consider not only what was done to achieve improvement in the area but also what the drivers of system change were and how those drivers might also be used to impact population health. Wood and Montero both stressed that the four examples for discussion have areas of overlap and that these discussions about collaboration are not separate from, but rather build on, the previous workshop discussions of the IOM roundtable. For example, Montero said that it is not possible to talk about advancing payment reform without discussing how to finance the change, improving asthma outcomes without discussing social determinants of health, or improving high blood pressure rates without looking at the infrastructure for healthy activities.

BOX 1-1
Statement of Task

An ad hoc committee will plan and conduct a public workshop on current issues at the interface of public health and health care, including opportunities presented by and lessons learned from the Centers for Medicaid and Medicare Services State Innovation Models program. The workshop will feature presentations on several dimensions of the public health–health care relationship. The committee will develop the agenda and identify specific meeting objectives, select and invite speakers and other participants, and moderate the discussions. An individually authored summary of the presentations and discussions at the workshop will be prepared by a designated rapporteur in accordance with institutional guidelines.

ORGANIZATION OF THE WORKSHOP AND SUMMARY

The workshop explored collaboration between health care and public health in the context of four case examples over the course of four panel sessions. Chapter 2 discusses the advancement of payment reform in the state of Ohio as a result of collaboration between public health and clinical medicine. Chapter 3 describes the Million Hearts Initiative as an example of a successful national public health and health care collaborative. In Chapter 4, the collaboration between hospitals and public health agencies is considered, and in Chapter 5 the Boston Asthma Home Visit Collaborative is discussed as an example of a community-level multisector collaboration. Over lunch, participants were engaged in a facilitated conversation about how to enhance the culture of collaboration to build a culture of health; this discussion is summarized in Chapter 6. An overview of common themes across the case examples, as summarized by one of the workshop facilitators, is presented in Chapter 7, along with key takeaway messages highlighted by participants.

2

Collaborating to Advance Payment Reform

The first case example considered at the workshop was on the topic of payment reform, defined in the *Health Affairs* blog as "payment methods that reflect or support provider performance, especially the quality and safety of care that providers deliver, and are designed to spur provider efficiency and reduce unnecessary spending" (Delbanco, 2014). The session's moderator, Rear Admiral Sarah Linde, M.D., chief public health officer at the Health Resources and Services Administration (HRSA), referred participants to a recent blog post by Sylvia Mathews Burwell, U.S. Department of Health and Human Services (HHS) secretary, titled *Progress Towards Achieving Better Care, Smarter Spending, Healthier People* (Burwell, 2015a). In the post, Secretary Burwell said that significant progress had been made over the past several years, thanks in large part to the Affordable Care Act (ACA), and discussed how to build on that progress and take it to the next level. As summarized by Linde, Burwell described setting clear goals and establishing a clear timeline for moving from volume to value in Medicare payments and using benchmarks and metrics to measure progress and be accountable for reaching those goals. This is noteworthy, Linde said, because this is the first time in the history of the Medicare program that HHS has set explicit goals for alternative payment models and value-based payments.

The first goal is that by 2016, 30 percent of all Medicare provider payments should be in alternative payment models that are tied to value, rather than volume. The next target is to reach 50 percent by 2018. Examples of such models are accountable care organizations (ACOs), the patient-centered medical home (PCMH), and bundled payment models. The second goal is for all Medicare fee-for-service payments to be linked to quality and value, with targets of at least 85 percent in 2016 and 90 percent in 2018. This goal can be accomplished through programs or models such as hospital value-based purchasing and the hospital readmissions reductions programs. Linde noted that Burwell discussed making these goals scalable beyond Medicare. In the post, Burwell also announced the creation of a Health Care Payment Learning and Action Network to facilitate partnerships with private payers, employers, consumers, providers, states, state Medicaid programs, and other partners to expand alternative payment models into their programs.

Linde also highlighted the Center for Medicare & Medicare Innovation (CMMI, or the Innovation Center) at the Centers for Medicare & Medicaid Services (CMS), which is testing an array of alternative payment models and service delivery models through demonstration and pilot programs. For example, the State Innovation Models (SIM) Initiative funds states to develop

innovative linkages between advanced primary care and public health through avenues such as financing data exchange, integration, performance monitoring, and others.

Following the introduction by Linde, Theodore Wymyslo, chief medical officer of the Ohio Association of Community Health Centers, and Mary Applegate, medical director of the Ohio Department of Medicaid, discussed health care transformation and payment reform in Ohio as an example of successful collaboration between health care and public health organizations.

HEALTH CARE DELIVERY SYSTEM AND PAYMENT REFORM IN OHIO

You cannot have payment reform unless you have health care delivery system reform, Wymyslo began, and he provided a brief timeline of the activities related to the transformation of health care in Ohio. This transformation involved the coming together of public health and clinical medicine, which he noted are not accustomed to working closely together. At the time, however, several regional collaboratives in Cincinnati, Columbus, and Cleveland were diligently working on regional health transformation. In addition, the Cincinnati and Cleveland collaborative had been selected as one of seven regions in the country for the Comprehensive Primary Care Initiative by CMMI.

In January 2011, Ohio governor John Kasich issued an executive order establishing the Office of Health Transformation and bringing state health agencies (Medicaid, Health, Aging, Mental Health, and others) under unified leadership. In February 2011, Wymyslo was appointed director of the Ohio Department of Health and was directed to expand the PCMH model statewide. The four main priorities for improved health for the state of Ohio included expanding PCMH across the state, curbing tobacco use, decreasing infant mortality, and reducing obesity. He noted that it was very different for public health leadership to be engaged with PCMH expansion. In July 2011, the Office of Health Transformation issued its innovation framework, a three-part approach to modernize Medicaid, streamline health and human services, and pay for value.

As he traveled around the state, Wymyslo identified the need for a mechanism to allow people to exchange information on a regular basis, and in November 2011, the Ohio Patient-Centered Primary Care Collaborative was established. This forum, which currently has about 850 members, engages all interested parties in discussion about the variety of changes needed around

BOX 2-1
Key Themes of the Session on Payment Reform

Payment reform in Ohio:

- Requires paying for value, care coordination, alignment of efforts (Applegate, Wymyslo)
- Is linked with system transformation and has been informed by a Governor's Advisory Council on Healthcare Payment Reform that includes five major insurers covering 80 percent of the population (Wymyslo)
- Has been facilitated by CMS CMMI grant and Medicaid expansion (Wymyslo)
- Has required buy-in and support of public health staff and collaboration among public health agency, health care organizations, and other partners (e.g., state employees' insurance plan) (Wymyslo)
- Has required a shift to patient-centered medical homes and a combination of episode and population-based payment models (Applegate)

the state (members include payers, providers, patient advocates, patients, and others). The collaborative, facilitated by the Ohio Department of Health, is the venue for moving forward with the various partners around the state in a collaborative way, Wymyslo said. It coordinates communication among existing PCMH practices, facilitates statewide learning in collaboration with these practices, facilitates the start-up of new PCMH practices, and helps shape policy for statewide PCMH adoption.

In March 2012, the IOM report on the integration of public health and primary care was released, which Wymyslo said helped to energize the ongoing work in Ohio (IOM, 2012). In July 2012, the Ohio Patient-Centered Medical Home (PCMH) Education Pilot Project was funded and initiated. Wymyslo noted that the project was conceived in 2009 and signed into law in June of 2010, but despite full support to move this new model of care forward, it remained unfunded due to budget deficits. By partnering with Medicaid, Wymyslo was able to identify ways to fund the pilot project to train 44 practices in the PCMH model. Insurers were also considering ways to participate collectively in paying for care coordination, outcomes, and value, and in January 2013, the governor created the Governor's Advisory Council on Healthcare Payment Reform. The council brought together the five major insurers that covered 80 percent of the population in the state of Ohio, as well as many of the large health care delivery system leaders, many of the medical associations, and patient advocates and patients. The following month, Ohio received a planning grant from the CMMI SIM Initiative. In January 2014, Ohio expanded its Medicaid program under the ACA, and in December 2014, the state received a CMMI SIM Initiative Testing Grant for $75 million. To date, Ohio has made good progress with practices being able to achieve PCMH recognition, Wymyslo said.

In conclusion, Wymyslo said that a key lesson is to be sure that people understand what you are trying to achieve and why it makes a difference to them. For transformation of health care in Ohio, an important first step was ensuring that public health staff understood the importance of public health integration with primary care to be able to achieve meaningful change for the population they serve. This was especially important because there was no additional budget set aside, and these efforts had to be undertaken with existing resources. Without the buy-in and support of public health staff, the statewide success thus far would not have been possible, he said.

Collaboration, Cooperation, and Coordination

Applegate continued the discussion of the challenges of reorganizing to do a better job with the same resources. She shared data showing that 29 states have a healthier workforce than Ohio, yet Ohioans spend more per person on health care than all but 17 states. Ohio has perhaps the least healthy people at the highest cost, she said, and this was the impetus for reform.

The current health care system was designed to pay for sick care, Applegate said. Working together to make a difference in population health requires alignment at the front end. The planning process of a collaboration is very important to establishing common ground and goals. One reason a collaboration does not work, she suggested, is that partners cannot stop doing something that is not effective. This is often the case in a grant-funded environment, where an activity or approach must be carried out for the duration of the grant. Once the partners are aligned, the next steps are to design, develop, and implement a plan. The plan needs to be focused on a population, she stressed, with specific measurement targets. The plan should be based on sound evidence of the best clinical practice and carried out in the context of public health and sociopolitical systems. Finally, it is essential to determine how to sustain the plan

through value-based purchasing. Improving health is about collaboration, cooperation, and coordination, she continued. People who are cooperating often do not have the same end goal, but are part of the journey together, and coordination is really about communication. There is tension within this system, she noted. Moving too fast suggests that planners have not listened to the needs of the community, but moving too slowly means there is never any action.

Microsystems to Macrosystems

In the health system, microsystems are the building blocks that come together to form macro-organizations (see Figure 2-1). Much of the work at the microsystem level is not connected. For example, the person conducting Medicaid maternal and child health home visits is not necessarily connected to the family's pediatrician or obstetrician. Applegate said that after decades of home visits and millions of dollars invested, there has been no improvement in postpartum visit rates or reproductive health for the Medicaid population. There is an opportunity to get the different programs to come together and align for a common purpose. Continuing with maternal and child health as an example, she suggested that there are opportunities in "preconception health," which is really adolescent and adult woman wellness. Implementation of the ACA means that the role of public health as a safety net service for everybody who is uninsured is changing, as women and families now have access to care. There are also opportunities to align and makes progress on the identification of high-risk pregnancy and on postpartum health. There are communication barriers to alignment in the microsystem at the community level. For example, the Family Educational Rights and Privacy Act limits the information that can be disclosed about students. Applegate suggested that better communication among staff in public health, health care settings, and schools could have a possible effect on suicide rates.

The mesosystem is made up of collections of microsystems, such as health systems, hospitals, or managed care plans. Elements of the microsystem, such as health clinics, are often under contract with or otherwise related to elements of the mesosystem. State- and national-level organizations comprise the macrosystem. What is needed, Applegate said, is alignment of both top-down and bottom-up strategies to identify priority populations and have all stakeholders participate in activities that move known measures and report on progress publicly.

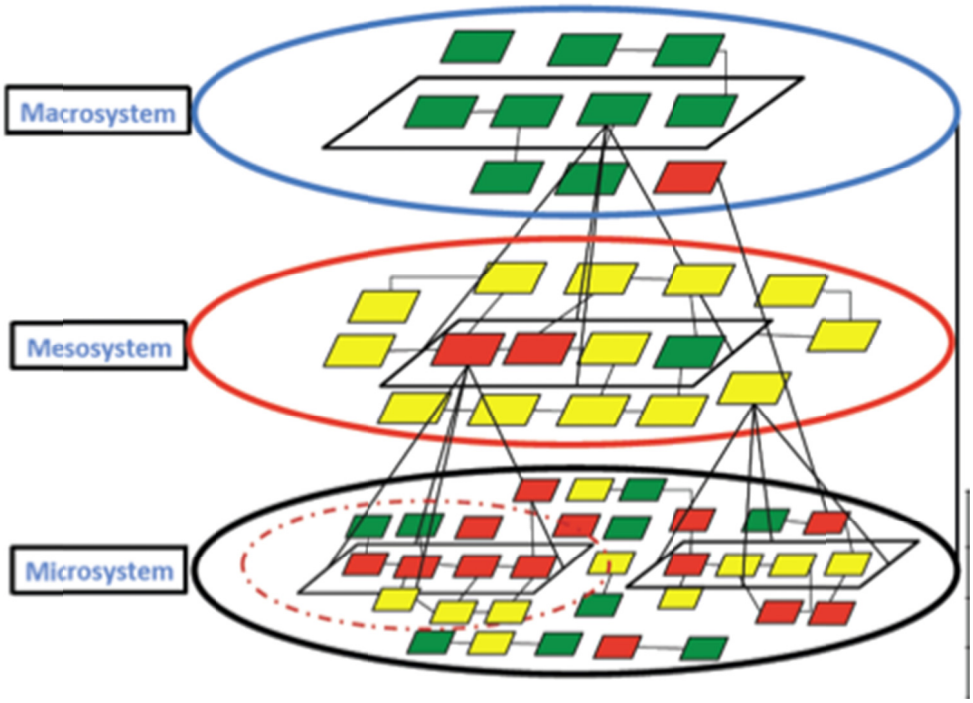

FIGURE 2-1 Collaboration, cooperation, and coordination. Microsystems are the building blocks that come together to form macro-organizations.
SOURCE: Applegate presentation, February 5, 2015.

Creating Systems to Improve Health Outcomes

Likening health to a pyramid, Applegate said that at the base are physical and mental health care, behavioral health/personal health decisions, education, and social determinants. Other countries invest more per person than the United States in the base of the pyramid, so they have fewer people at higher risk for health concerns (i.e., at the peak of the pyramid) (see, for example, Bradley et al., 2011). In an illness-based system, the costs are high, with ever-diminishing returns.

Applegate likened the emerging health system under the ACA to a relay race. The first runner is health care *coverage*; the next is smart use of *data* to target special populations; the third leg is addressing the disparate outcomes and issues of health *equity* at the neighborhood or local health district level; and the final runner is *community coordination*. No one wins, she said, until the final runner crosses the finish line, and it is the final coordination piece where there are often the largest issues. Community coordination spans housing, transportation, access to medications, health literacy, individuals or populations at risk, workforce, faith-based communities, safety net services, and PCMHs, for example. Success is improved population health, she said.

Paying for Value

As mentioned by Wymyslo, at the end of 2014 Ohio received a CMMI SIM Initiative Testing Grant, and one area of focus is paying for health care value. Applegate reiterated that the payment reform initiative is a public–private partnership, including the five largest payers in the state, along with Medicaid, the state employees' insurance plan, and numerous other

stakeholders. A challenge to reform, she noted, is that many of the health plans are national, and they are not going to change a specific element simply because Ohio wants them to.

Applegate briefly reviewed the three approaches to coverage of care. The current fee-for-service payment system was designed to pay for discreet services correlated with improved outcomes or lower cost, Applegate explained. There is a now shift toward population- and episode-based payment. Episode-based payment covers acute procedures, inpatient stays, and acute outpatient care (e.g., newborn delivery, treatment of asthma). Population-based payment approaches include PCMH, ACOs, and capitation. This approach is most applicable for primary prevention for a healthy population and care for chronic conditions. Accurate outcomes measurement will be important as payment approaches shift toward new models, she said. In a fee-for-service model, only the people who show up for care are counted, and many others are missed, impacting overall outcomes measurements, she noted.

The five-year goal for payment innovation in Ohio is to have 80 to 90 percent of the Ohio population in some value-based payment model. This effort involves a shift to PCMH and a combination of episode- and population-based payment models. In shifting to episode-based payment, the state is leading the effort to define episodes, including the episode trigger, episode window, claims included, principal accountable provider, quality metrics, potential risk factors, and episode-level exclusions (Table 2-1).

TABLE 2-1 Elements of the episode definition

Category	Description
Episode trigger	Diagnoses or procedures and corresponding claim types and/or care settings that characterize a potential episode
Episode window	• *Pretrigger window*: Time period prior to the trigger event; relevant care for the patient is included in the episode • *Trigger window*: Duration of the potential trigger event (e.g., from date of inpatient admission to date of discharge); all care is included • *Posttrigger window*: Time period following trigger event; relevant care and complications are included in the episode
Claims included	
Principal accountable provider	Provider who may be in the best position to assume principal accountability in the episode based on factors such as decision-making responsibilities, influence over other providers, and portion of the episode "spend" (i.e., cost)
Quality metrics	Measures to evaluate quality of care delivered during a specific episode
Potential risk factors	Patient characteristics, comorbidities, diagnoses, or procedures that may potentially indicate an increased level of risk for a given patient in a specific episode
Episode-level exclusions	Patient characteristics, comorbidities, diagnoses, or procedures that may potentially indicate a type of risk that, due to its complexity, cost, or other factors, should be excluded entirely rather than adjusted

SOURCE: Applegate presentation, February 5, 2015.

The process is based on retrospective thresholds that reward cost-efficient, high-quality care, Applegate explained. Patients seek care and select providers, providers submit claims, and payers reimburse for all services, as they already do today. After a 12-month performance

period, payers calculate the average cost per episode for each principal accountable provider and provide a comparison to other participating clinicians around the state. On the basis of the results, providers may be eligible for incentive payments if average costs are below a threshold and quality targets are met (see Figure 2-2). On the other hand, if average costs are above the acceptable level, providers may be required to pay part of the excess cost. There is no change in pay if costs fell in the mid-range or if costs are below threshold but quality did not pass metrics. Principal accountable providers will be able to access standardized Episode of Care Payment Reports through an online portal starting in 2015. In response to a question about how the threshold acceptable costs are defined and determined, Applegate said that the payers are allowed to determine the threshold. A question was asked about data collection for the measures that the providers agree to be rated on, noting that often the electronic health record (EHR) does not collect the data in a way that lends itself to useful analysis later. Applegate said that the measures related to claims and feedback to practitioners are in need of improvement, and there are several multistate work groups related to EHR-derived measures, but work is in the early stages.

DISCUSSION

During the discussion that followed, participants and panelists discussed how to identify the challenges to collaboration, engage public and private payers, link to social services, work across state lines, and focus and streamline safety net services.

Challenges to Collaboration

To start the discussion, moderator Linde asked the speakers to identify the main challenges to collaborating. Wymyslo said that many people wanting to collaborate simply do not ask for help. He reached out to potential partners and explained that although he did not have

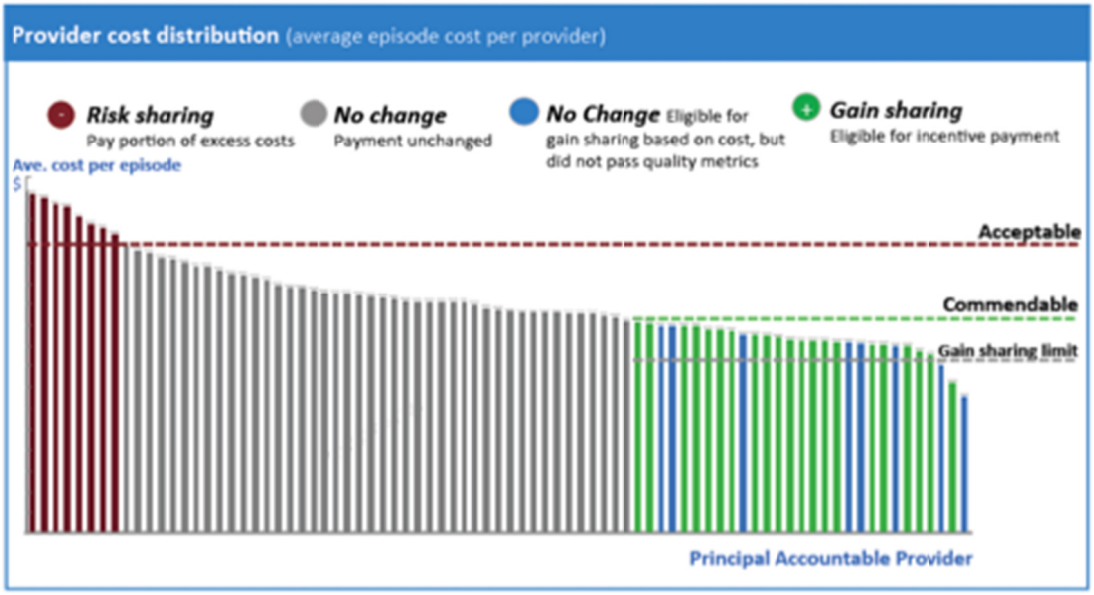

FIGURE 2-2 Retrospective thresholds reward cost-efficient, high-quality care.
SOURCE: Applegate presentation, February 5, 2015.

the necessary resources, the issue was important to him and to them. He found partners that brought different resources to the table when they were asked, but he stressed that you have to ask for help. Knowing who to ask and who needs to be at the table can be a challenge, he acknowledged. In addition, partners must leave their pet projects at the door and enter the collaboration ready to define and agree on common ground and stay focused until the end. Applegate likened collaboration to working with patients as a physician. It is about asking what matters to them, she said, meeting them where they are and finding out how to help them.

Money is also a challenge, and Applegate stressed that sustainability must be addressed at the start and should be more transparent. Time constraints also need to be made public, she added. Another challenge is group dynamics, especially when working with large groups. One approach that works, Applegate recommended, is to do a lot of listening in large groups. After the listening activities, a small group develops a draft for the others to provide feedback on. She reiterated the need to be transparent with timelines and processes and to use "parking lots," where issues not immediately relevant can be set aside, but not forgotten, and addressed later.

Applegate said that in working to reduce infant mortality, Ohio has struggled with a lack of stability in leadership, confusion about measurement, and lack of understanding about the framework and process for moving forward. People tend to want to do what they have already done, she said. It is important to be explicit in saying that this is new work, not just a rebranding of something that was done 5 years ago.

In many cases, the challenge is getting started. Cathy Baase of The Dow Chemical Company asked about the origins of payment reform in Ohio and how to stimulate similar activities in other communities, counties, or states. Wymyslo said that the state was in a financial crisis and a health crisis, and being in crisis opens people's minds to finding solutions. The governor had been developing plans for years about balancing the budget, and he brought people on board who wanted change to happen. Wymyslo said he personally became engaged because his former students, now family practice residents, told him that although public health was integrated into their clinical training, when they went into practice they could not implement it.

Bringing Public and Private Payers Together

Sanne Magnan of the Institute of Clinical Systems Improvement asked about bringing private and public payers together. Wymyslo responded that the state started by leveraging Medicaid, which covers more than 2.2 million Ohio patients, and the state employees' insurance plan, which covers 500,000 state workers, to demonstrate that these payment reform principles work. The state then challenged other insurers to do the same thing. It is not just telling everyone what to do, but showing them what to do, Wymyslo said. A crucial factor, Applegate said, was the leadership at the level of the Office of Health Transformation and the involvement of the governor. Another element was the investment by Medicaid in data analytics and sharing the data and analysis with private payers and clinicians. She noted that the financial officers of the institutions were not engaged until after the conversations on ideal clinical practice took place. Wymyslo added that another critical element was the existing high level of trust between stakeholders and the state, which was based on previous interactions to address opioid prescribing, infant mortality, and other health issues.

Linking to Social Services and Other Sectors

Participants discussed further the link between the clinical health care system and the social services system. Jeff Levi of the Trust for America's Health asked about establishing these

connections and filling gaps in available social services. It is important to pick priorities that are feasible in that there is evidence for effective action, interest from the top as well as on the ground, and a measurement system to support the initiative, Applegate said. In Ohio, infant mortality meets all of these criteria. The state lags behind other states in addressing disparities in infant mortality. The single largest contributor to infant mortality is preterm birth, which is greatly influenced by maternal health. A number of clinical interventions are available, but taking these to scale in small communities is a challenge, she said, in part because of social determinants of health. Another cause of infant mortality, sleep-related deaths, is largely preventable, but it is a challenge getting information to people. Infant mortality is also the result of birth defects, infectious diseases, violence, and other causes.

Applegate described a life course measurement framework around which partners can come together. Process measures include adolescent well checks (i.e., preconception health), vaginal progesterone as an intervention for preterm birth, early elective deliveries, postpartum visits, safe sleep environments for infants, and social determinants (e.g., tobacco exposure). Partners, including public health, Medicaid, clinical/health systems, patients/families, and others (e.g., schools, community- and faith-based organizations, and employers) are asked what they could do in each of these areas. For example, what could an entity do to help adolescents be seen for well visits? Data are used to work with partners and strategically target efforts to specific neighborhoods (e.g., those with the highest preterm birth and low birth weight rates). Community health workers seek out at-risk women and provide opportunities for them to receive maternal care through Medicaid Managed Care. Applegate noted that information is captured in the case management systems of the managed care plans, so there is no need to invest in an entirely separate data system. The key is to use existing systems to get to a different place with regard to data, transparency, and payment innovation, she said.

Applegate said that a current barrier to linking health efforts to social services is not having data about exact needs. Much of the information is anecdotal; however, there is now a data collection tool and plans to collect data on the social needs of priority populations (e.g., for affordable housing). Levi added that a challenge is getting data on social determinants of health to the clinician on the frontline of care. For example, a physician seeing a child in the office could potentially access data on the basis of the child's zip code and know if the child lives in an area with high lead levels, low fluoride, a high crime rate, housing concerns, poor air quality, and so forth. These data exist, he said, but they are not readily accessible in the exam room where the provider seeing the patient can use it to make public health–informed recommendations to the patients who are there for a traditional clinical care. An added challenge is that clinicians are not trained to do this. He noted that Ohio House Bill 198 includes an imperative for curriculum reform so that students in the health professions learn about the need to consider social and environmental determinants of health. Applegate concurred with the need to change the way clinicians and allied health personnel are trained. In Ohio, a majority of clinicians will not see many Medicaid patients once they complete their training, she noted.

Karen Armitage, pediatrician and Robert Wood Johnson Foundation Health Policy Fellow, raised the issue of measuring the costs of care linked to social determinants of health. For example, a young mother at a newborn check reveals her partner is incarcerated, she lost her job when she took time off to have the baby, and she is having trouble with breastfeeding. How will the episode of care payment report measure the cost of care in such cases?

A Web participant noted that schools are a link in health care that are not being fully utilized to help identify those at risk and disseminate health messages. Applegate concurred that

schools have a huge capacity to be able to impact health, but they are very tied to political systems, and there are legal concerns about the sharing of information.

Cross-State Collaboration

Isham raised the issue of fragmentation of both measurement and incentives across the states and the federal government. He asked about efforts by Ohio to align with neighboring states and whether there are regional issues that might be different from those elsewhere in the country.

As an example, Wymyslo said that Ohio has worked closely with partner states on issues of opioid prescribing. The prescription drug monitoring programs for the contiguous states now share information so that people near state borders, who may purchase medication in both states, do not escape identification and tracking.

Ohio and neighboring states in the Midwest also have high rates of infant mortality in common. Applegate commended the HRSA Collaborative Improvement and Innovation Network to Reduce Infant Mortality for working to bring the nation together and to learn from previous efforts. Wymyslo also commended the flexibility and fluidity of CMMI, which he said showed real innovation by allowing southwest Ohio to include northern Kentucky and part of Indiana as partners in the project. Health care is not restricted by state borders, and these are natural capture areas for patient care in that area.

Safety Net Services

George Flores of The California Endowment raised the issue of people who are continuing without insurance coverage, including undocumented immigrants. Applegate said that state programs can only be leveraged for those who are actually eligible for them. Safety net services from local health districts cannot be totally eliminated, but they could be focused and streamlined and could work with the other entities. Wymyslo said the state of Ohio has a strong network of free clinics, with thousands of volunteers who see people who are not eligible for the state programs. This may not be ideal, he acknowledged, but it is at least identifying people and bringing them into the system and, they hope, allowing them to connect to a more permanent health care solution. Flores noted that such safety net systems often do not capture data. Wymyslo said that the free clinic model does capture its own data but is not connected to a centralized database. He then noted that an even greater impact is delivered by Ohio's community health centers, which deliver care regardless of a patient's ability to pay. These centers currently provide care for 565,000 patients in 55 of Ohio's 88 counties and are a very important part of the total health care delivery system. The free clinics often refer patients needing ongoing care to the community health centers, where the patients can receive continuous primary care services.

Roundtable and IOM Activities

Isham highlighted the importance of Secretary Burwell's recent announcement, described by Linde in her introduction, and referred participants to a commentary in the *New England Journal of Medicine* (Burwell, 2015b). He also cited an article by Rajkumar and colleagues that lays out a framework for various payment reforms, and population-based payment is one of the categories of reforms described (Rajkumar et al., 2014, supplemental material). Isham added that the paper also discussed the notion of incentives for improved population health in general. He

suggested that the nature of the recent communication from HHS provides an opportunity for the roundtable to think about how to use these developments and create a common conversation.

Linde pointed out that recurring themes throughout this panel discussion on payment reform were similar to the elements of success identified by the IOM for integrating primary care and public health (IOM, 2012). These themes included shared goals, community engagement, aligned leadership, a focus on sustainability, and shared data and analysis.

3

Million Hearts: A National Public Health and Health Care Collaborative

The Million Hearts collaborative was discussed as a model of a successful, nationwide collaboration between health care and public health. Million Hearts was launched by HHS in 2011 with the goal of preventing 1 million heart attacks and strokes by 2017.[1] Moderator Paul Jarris of ASTHO opened the panel discussion with brief comments about the infrastructure necessary to support a national collaborative. Guthrie Birkhead, deputy commissioner for New York State Department of Health, described the New York State experience with the Million Hearts collaborative. Joseph Cunningham, vice president of health care delivery and the chief medical officer for Blue Cross and Blue Shield of Oklahoma, then shared his perspective on what would motivate payers to participate in an initiative such as Million Hearts. Box 3-1 provides an overview of session highlights.

BOX 3-1
Key Themes of Session on the Million Hearts Initiative

- The ASTHO Million Hearts Learning Collaborative used an assessment tool to ascertain partners on their understanding of the shared vision, their leadership in their sector, engagement in the partnership, communication, and reporting and evaluation (Jarris)
- Drivers of quality improvement include
  - committed leaders, multiple sources of data, standardization of protocols and tools (Birkhead, Cunningham, Jarris)
  - finding community and clinical resources and linkages, identifying financing opportunities (Birkhead)
- Crucial role of pharmacists in communication and education, data sharing (e.g., two-way electronic communication that informs provider when a prescription was filled), and promoting adherence to hypertension treatment (Birkhead, Cunningham)
- Because Million Hearts yielded rapid and measurable results, could serve as a model for future collaborative initiatives that appeal to insurers (Cunningham)

[1] See http://millionhearts.hhs.gov (accessed June 18, 2015).

ASTHO MILLION HEARTS STATE LEARNING COLLABORATIVE

The ASTHO Million Hearts State Learning Collaborative began with a conversation with the director of the Centers for Disease Control and Prevention (CDC) about forming a collaborative to focus specifically on rapidly improving hypertension, Jarris said. The goals of the ASTHO learning collaborative are to

- improve hypertension control and to achieve the national Million Hearts goal;
- identify and build networks and cross-sector partnerships to control hypertension;
- test models of collaboration between public health and health care;
- reintroduce a quality improvement (QI) process to affect practice and policy at all levels of the system; and
- focus on systems, sustainability, and spread.

The collaborative used National Quality Forum (NQF) Measure 18 as its measure for controlling hypertension. As described by NQF, this is a measure of the percentage of patients, 18 to 85 years of age, who had a diagnosis of hypertension and whose blood pressure was adequately controlled during the measurement year. An early challenge was that many clinical systems could not measure NQF 18, and many health departments were not familiar with NQF 18 or with the NQF measures system more broadly.

A multipartner assessment tool was used to ensure that the collaborative had the necessary partners from public health, clinical medicine, insurers and payers, hospital systems, and others, Jarris said. Starting with evidence-based best practices and strategies for identifying, improving, and controlling hypertension, partners were assessed on the extent to which they understood the vision; were providing leadership in their sector; were engaged as partners; were in communication with others; and were reporting back data and evaluation to support action.

Key Components of QI-Driven Impact

Traditionally, public health agencies are funded for finite, disease-specific programs, Jarris noted. The approach of the learning collaborative was different in that the goal was to bring the public health and health care systems together for the long term and to consider issues such as policy, spread, and sustainability. Jarris highlighted the importance of leadership and partnerships to the success of the learning collaborative and listed five key drivers of QI-driven impact:

1. Leadership commitment across the health system at local, state, and national levels;
2. Identifying community and clinical resources and linkages, such as team-based care delivery systems, faith-based outreach programs, healthy lifestyle promotions, and skills development for chronic disease self-management;
3. Using multiple data sources to inform action;
4. Using standardized protocols in areas such as hypertension management, community screening and referral, and equipment calibration; and
5. Identifying financing opportunities, including private and public payment and federal and state grants.

A significant barrier, Jarris said, was that broad notion that EHRs are sufficient for population health management. He added that very few EHR systems have a built-in registry, and those with a registry are not being actively managed (e.g., proactively calling patients in). Another challenge is that the clinical sector often thinks of public health as a regulator and does not understand public health's interests or why they would want to work together.

Outcomes

In 2013, 10 states were selected to participate in the ASTHO Million Hearts Learning Collaborative. Since then, other states have been added, with experienced states mentoring the new states to shorten the learning curve. During the first year, there were more than 250 "plan-do-study-act" or PDSA pilot testing cycles, four multistate meetings, and 69 peer group virtual convenings. Across the 10 states there were more than 150 partners and stakeholders involved, including payers, hospital systems, quality improvement organizations, Federally Qualified Health Centers (FQHCs), local public health departments, community partners, state public health departments, health informatics, paramedics, and nontraditional partners. During the first year, about 89,000 people were reached, and Jarris said it was expected that those 10 states would reach 1.5 million people over the next year.

Jarris highlighted several of the key outcomes thus far. In the first 9 months, several clinics demonstrated improvement in the percentage of patients with hypertension under control by as much as 12 percentage points. One New Hampshire clinic, for example, improved control rates in its hypertension registry from 64 to 73 percent in 7 months. In addition, all 10 states reported that this project affected their other CDC-funded chronic disease work and influenced their approach to chronic disease. Six of the states said that their work with Million Hearts informed their CMMI SIM applications.

Standardizing protocols resulted in new diagnoses and increased control. For example, Washington, DC, clinics diagnosed close to 4,000 new patients; New York reduced its undiagnosed patients from 7 percent to 4.7 percent among reporting FQHCs, and hypertension prevalence increased an average of 4.8 percent (range 1.7 percent to 14.2 percent). Data collection has also improved. Ohio enrolled more than 7,300 patients in its registry in 3 months. Participating clinics in Minnesota can now pull NQF 18 data from their EHR systems and report it to the Minnesota Department of Health, and all FQHCs in New Hampshire began reporting on NQF 18 to the New Hampshire Department of Health and Human Services

The project has also spurred innovative partnerships, Jarris said. In Vermont, for example, libraries lend out blood pressure cuffs. A clinic in New Hampshire is using some of its community benefit dollars to support registry managers in primary care practices.[2] Screening and referral protocols are being implemented in community settings such as faith-based organizations, barbershops, and fire departments. Alabama is working with its military bases for screening and referral, and Oklahoma is partnering with the Choctaw Nation health system.

Challenges

Jarris summarized some of the challenges in sustaining and spreading successful models of population health improvement, including implementing a QI approach; understanding and intervening along the full health system, rather than using a programmatic approach; using data

[2] The New Hampshire clinic (Keene) is using hospital (Dartmouth Hitchcock) community benefit dollars to support the registry management.

to drive action; building a public health workforce skilled in health system transformation; and identifying resources to sustain and spread models of success. Many good programs get started and then disappear at the end of the grant period, and Jarris expressed optimism that some of the CMMI SIM grants and CDC grants are being tapped to continue this work.

MILLION HEARTS COLLABORATIVE NEW YORK

The ASTHO Million Hearts State Learning Collaborative described by Jarris is a model for how to do collaborative work across the country, Birkhead said. Typically, CDC funds individual states, and those states with similar goals and objectives may occasionally meet at a national meeting and share their experiences. The ASTHO learning collaborative is unique in that it is a multistate collaborative, with ASTHO bringing states together and providing coordination and technical assistance.

Birkhead shared the New York State experience with the Million Hearts collaborative as a case example of the successful collaboration between public health and health care. The New York State Department of Health served as the lead organization and the convener of partners for the project. Other statewide partners included the Health Center Network of New York (a group of all FQHCs in New York using a single EHR package called eClinicalWorks); the state's Quality Improvement Organization (IPRO, which conducted some of the data analysis); the American Heart Association; and the New York State Health Plan Association. At the local level, three FQHCs and their corresponding county health departments participated (one rural, one urban, and one suburban). Other local partners included AmeriCorps workers and the Cornell Cooperative Extension (a group of agencies across New York that provide education and other services at the local level). One large regional health information organization, Hixny, was also engaged to analyze the health information exchange data for one of the participating counties (Albany) to do hypertension surveillance at a community level.

Programmatic and Data Innovations

The Million Hearts project aim in New York state, Birkhead explained, was to produce a 10 percent improvement in one year in hypertension control, using the NQF 18 measure. Several programmatic innovations contributed to achieving this goal. The FQHCs used the Institute for Healthcare Improvement model[3] to implement system changes via PDSA cycles to improve hypertension control. Each of the FQHCs established clinical treatment protocols. Birkhead noted that two of the clinics adopted the CDC-recommended clinical treatment protocols for hypertension, which meant that care was standardized across the two clinics. The FQHCs implemented system changes in how they process patients (e.g., changing the exam room layout to allow for blood pressure measurement without having the patient move or stretch). A home blood pressure monitoring program was also implemented. Patients received automated blood pressure monitors and educations materials developed by the AmeriCorps collaborators and the county health departments.

Data collection was a major component of the project, and Birkhead highlighted several innovations that came out of the Million Hearts project. As mentioned by Jarris, there are challenges with the functionality of EHRs for data collection, and Birkhead said that the software package the FQHCs were using could not easily function as a registry. Because the three FQHCs were using the same EHR software (eClinicalWorks), the Health Center Network of New York

[3] See http://www.ihi.org/resources/Pages/HowtoImprove/default.aspx (accessed June 18, 2015).

was able to provide data extracts that essentially functioned as a hypertension registry (albeit not in real time). The New York State Department of Health and the Health Center Network of New York developed and piloted a measure of undiagnosed hypertension. The measure captures patients who have elevated blood pressure on two different occasions within a year who do not have a previous diagnosis of hypertension.

Another area of focus was hypertension medication adherence. The Medicaid Datamart was used to identify medication adherence rates in the clinics with mixed success, Birkhead said. One approach was to look at the proportion of days covered by an antihypertensive prescription medication, which Birkhead said is technically feasible, but very resource intensive. A second measure was primary non-adherence (i.e., not promptly filling a prescription); however there was no real-time access to pharmacy prescription fill data.

The final example of a data innovation was hypertension surveillance at a population level. This was done in one county, using the regional health information organization (Hixny) health information exchange data. The surveillance pilot looked at overall hypertension prevalence, the measures of hypertension control, and undiagnosed hypertension in a community. The value of a health information organization, Birkhead said, is that it can pull data from different electronic health records, and they do not have to be using the same record system. On the other hand, the data arrives in different formats and may or may not be usable for a specific purpose.

Project Outcomes

Birkhead briefly shared some of the data from the project. Prevalence of hypertension across the three health centers ranged from 29 to 40 percent at baseline (center average of 33.5 percent). Although the variation could reflect differences in how the centers were measuring blood pressure and detecting hypertension, he suggested that this baseline likely reflects the actual underlying rates of hypertension in the populations served. Within one year, the prevalence had increased slightly (center average 35.3 percent). The goal was not to increase hypertension prevalence, he clarified, but to get a true measure of hypertension in these communities. Prevalence in two communities did not increase by much; however, in the third community, there was a net increase of 11 percent. Undiagnosed hypertension rates ranged from 6 to 8 percent at baseline, which Birkhead said was lower than expected. One year later, undiagnosed hypertension was reduced 5.5 percent overall, a net 19 percent reduction from baseline. At baseline, hypertension control (using the NQF 18 measure) ranged from 52 to 70 percent (center average 56.9 percent). One year later, hypertension control had increased by more 10 percent from baseline at each FQHC, with hypertension control ranging from 50 to 80 percent across all 3 communities.

Lessons Learned

Birkhead offered a list of lessons learned from the New York State experience with the Million Hearts collaborative:

- Collaboration across the sectors with various partners was key to success.
- Senior leadership involvement at all levels in all systems was essential.
- Clear, consistent communication generated a common understanding.
- Efficient use of patient registries for planned care accelerated improvement.
- A common EHR platform across the FQHCs was critical.

- It was helpful to develop new metrics. For example, the newly developed and tested undiagnosed hypertension metric was successful in identifying patients in need of further evaluation.
- The FQHCs highly regarded their collaboration with their local public health departments. Coming together around a common goal has had additional benefits since the project.
- The project demonstrated the ability to achieve improvement in hypertension control in a very short time frame.

Birkhead reiterated some of the specific roles of public health at the state and local levels. At the state level, senior and executive leaders from the Department of Health were engaged, which he said was significant in getting support and interest in participation across the ranks within each of the partnering systems. The state also has resources to support the initiative; directs and serves as convener; aligns with other state initiatives; has connections as the Medicaid and Managed Care operator in the state; can provide true population-level data; can promote the use of evidence-based strategies; and spreads innovation to other initiatives.

At the local level, a key factor was the engagement of the county health departments as members of the FQHC quality improvement teams. The local health departments were integral partners in implementing the home blood pressure monitoring strategy, providing education to patients around blood pressure monitoring techniques and following up to measure the increase in knowledge and skills around self-monitoring of blood pressure and uptake and satisfaction with the program.

Opportunities for Improvement

A number of opportunities for improvement were identified, and Birkhead shared several brief examples. The first suggestion is to enable prescribing of a 90-day supply of hypertension medication to increase medication adherence. Although not a Medicaid rule in New York, most of the managed care plans restrict prescriptions to a 30-day supply out of concerns about cost and waste (e.g., paying for a 90-day supply, only to have the patient switched to a different medication). Birkhead suggested that once a patient is on a stable regimen, he or she could be switched to a 90-day supply per prescription refill. Some data show that adherence is decreased with a 30-day supply because people do not or cannot keep up with refilling prescriptions.

Another area for improvement is two-way electronic communication when a patient fills or refills a prescription. The Medicaid pharmacy claim system allows Medicaid to know when a prescription is filled in real time; however that data does not get back to the provider. Birkhead noted that there is a major initiative in New York to develop a statewide health information network (SHIN-NY) and to create data-sharing agreements so that data can flow in both directions. There are other opportunities to build better two-way communication. In New York, for example, a managed care plan is notified when its patient goes to the emergency department, but the provider is generally not notified.

Next Steps

The next step for the Million Hearts initiative in New York State is expansion. Birkhead highlighted two CDC grant programs that the state is tapping to continue and to spread the initiative. The Health Systems Collaborative program grant (CDC 1305) will be used to expand to 9 FQHC/local health department collaborations, with 63 clinic sites by 2018. The focus will

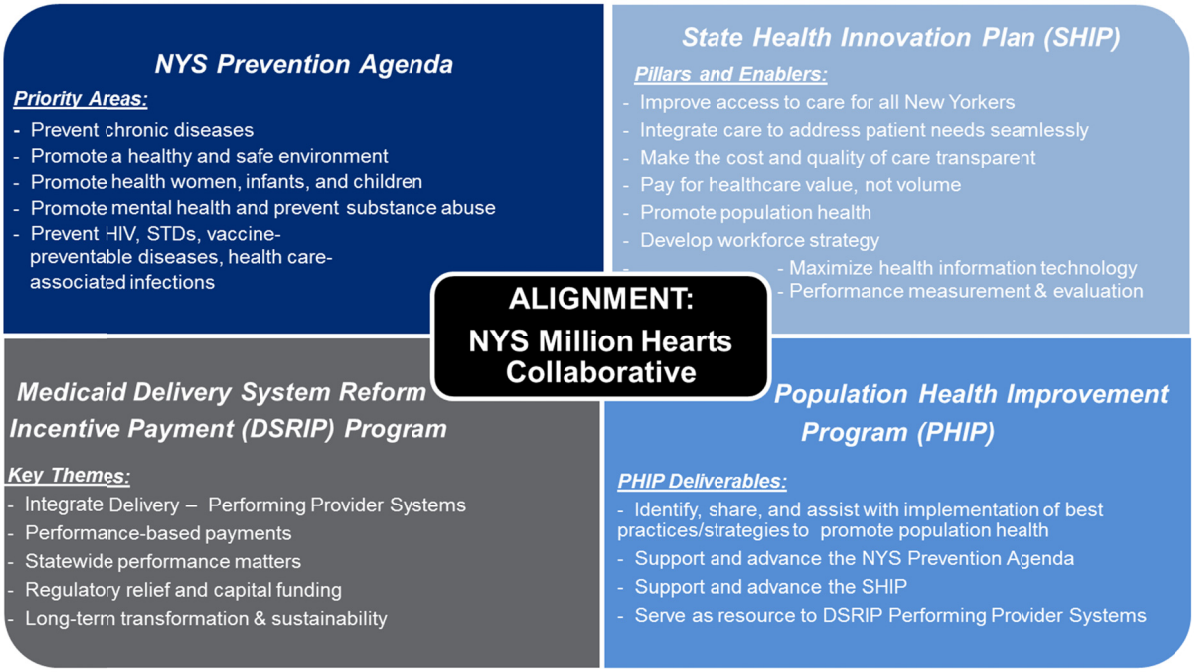

FIGURE 3-1 Alignment of the New York State Million Hearts Collaborative with ongoing New York State Health Department initiatives to improve health and transform health systems.
NOTES: HIV – Human immunodeficiency virus; NYS – New York State; STD – Sexually transmitted disease.
SOURCE: Birkhead presentation, February 5, 2015.

also expand to include diabetes control and prediabetes identification. The State and Local Chronic Disease program grant (CDC 1422) will be used to improve the data exchange between the regional health information organization and the FQHC data warehouse, working to overcome EHR differences and improve alerting and communication functions.

Million Hearts came at the right time, Birkhead concluded. The focus and strategies of the Million Hearts collaborative are well aligned with those of other current initiatives of the New York State Health Department to improve health and transform health systems (see Figure 3-1). These initiatives include, for example, the New York State Prevention Agenda–State Health Improvement Plan; the State Health Innovation Plan–SIM grant; the Medicaid Delivery System Reform Incentive Payment Waiver Program; and the Population Health Improvement Program.

PAYER AS PARTNER: BLUE CROSS AND BLUE SHIELD AND THE HEARTLAND OK MILLION HEARTS PROJECT

The Health Care Service Corporation operates five Blue Cross and Blue Shield (BCBS) plans in Illinois, Montana, New Mexico, Oklahoma, and Texas and is the largest customer-owned payer in the United States, and the fourth largest payer of any kind, said Cunningham. In his role as vice president of health care delivery and the chief medical officer for BCBS of Oklahoma (BCBSOK), Cunningham has the opportunity to engage in the other four states as well. With this broad perspective, he discussed why the largest payer in Oklahoma would want to participate in initiatives such as Million Hearts.

Heartland OK

The Million Hearts project in Oklahoma is called Heartland OK and is fundamentally a care coordination model focused on blood pressure control and medication adherence, he explained. The program is available in five contiguous rural counties in South Central Oklahoma. Patients are referred to the program from any primary care provider. Heartland OK partners with the health departments and utilizes their care coordinators and educators to provide routine blood pressure checks and give information about physical activity, stress management, diet and nutrition, and other topics that a primary care provider does not usually have the time to go over. The program also enlists the support of community pharmacists to assess medication adherence. Cunningham noted that on joining BCBS, he was struck by the number of people who do not fill the prescriptions from their doctor. Patients graduate from the program when blood pressure control is met (as outlined in NQF 18 or a goal set by the primary care provider).

Why BCBSOK Participates in Heartland OK

Million Hearts appeals to BCBSOK because it supports its mission to improve health for all Oklahomans, not just BCBSOK members, Cunningham said. As a partner, the plan is able to leverage its strong relationships with providers across the state to support quality improvement projects, especially in rural communities. BCBSOK wanted to provide incentives to people and providers to participate in health. As part of the Blue Cross Association, BCBSOK has access to large amounts of claims data. This data, he explained, can be used to provide insight into the incidence of hypertension in targeted counties and into medication adherence and incidence of cardiovascular events in adherent and nonadherent populations. BCBSOK was also interested in linking its claims data with clinical data through a state health information exchange. A health information exchange can provide a more robust picture of plan members/patients, assist with treatment planning, and potentially reduce redundancies in care. Finally, BCBSOK saw participation in Heartland OK as part of its responsibility to the community. The organization wants to develop strong public–private partnerships and work together with all entities that are paying for care (even competitors) to align programs.

Cunningham highlighted several opportunities that BCBSOK saw in participating. The majority of the plan's members are in rural communities, and participation in Million Hearts supports the development of quality incentive programs (e.g., referrals to and graduation from Heartland OK; improved blood pressure control and/or medication adherence). Participation also provides a unique opportunity for public–private collaboration in the development and expansion of value-based care models in rural Oklahoma. Finally, Heartland OK promotes participation in the state health information exchange, MyHealth Access Network. The exchange aggregates all of the datasets collected by anyone who touches a patient and creates actionable data that are accessible at the point of care for use in treatment planning and care management. Robust, aggregate data help to facilitate accurate diagnosis, decrease redundancies, reduce costs, improve outcomes, and increase patient satisfaction, Cunningham said.

DISCUSSION

Topics highlighted during the discussion with participants included the importance of being patient centered in establishing goals and conducting outreach; regional variations in programs; the diagnosis and prevalence of hypertension; the application of the Million Hearts model to other initiatives; and issues around data and data systems.

The Importance of Engaging Patients and Their Providers

A participant noted the importance of asking patients what they need and asked how patients and plan members were engaged in the work of Million Hearts. Birkhead concurred that engaging patients is key to any medical endeavor. Each of the three community health centers in New York engaged with patients in a different way. The home blood pressure measurement, for example, presented an opportunity for a community health worker to engage patients personally about their own needs. Cunningham stressed the importance of education because people with hypertension do not necessarily feel sick, especially early on, and often do not understand the importance of taking their medication. Panelists also highlighted the importance of asking patients what medications they are taking or why they are not taking their medications, reiterating that the data on whether a prescription is ever filled does not usually make it back to the prescriber.

A participant asked about lifestyle interventions associated with Million Hearts. Jarris said that a number of the states were using the Stanford model of self-management, an evidence-based program to foster an individual's self-efficacy around his or her condition.[4] Others conducted community outreach around lifestyle, such as cooking classes or shopping guidance. Some faith-based organizations, particularly churches, looked to changing the foods served at church functions.

Ron Bialek with the Public Health Foundation raised the issue of clinician perceptions and attitudes. For example, clinicians may think that patients are noncompliant in the strict sense when, in fact, they may be facing issues such as choosing between purchasing their medications or food, the inability to take time off from work for appointments, or other barriers to compliance. Cunningham said it can be a challenge to go into a practice and tell the staff to manage select patients a certain way. Bring clinicians to the table, share data that their patients with hypertension are not refilling prescriptions, and ask how best to help improve their patients' blood pressure control. New York worked with FQHCs, and Birkhead said the leadership in those centers was key to the success of the effort. It is not about providers or patients being good or bad, but about fixing the system, Jarris added. There will always be noncompliant patients, but the true percentage is low. The rest are being missed in the system with regard to detection or management. Cunningham recommended aligning focus on what is best for the patient. Patient-centered goals and expectations foster buy-in across the spectrum of care.

Regional Variations

Participants discussed the need for different programs in different regions. Jarris pointed out that Million Hearts did not prescribe what was done but provided guidelines. Birkhead noted the need to go through the same collaborative processes with each new site, such as gathering all of the stakeholders, getting buy-in, getting contributions, and identifying resources in the community. Some generalities about rural areas might be used to jumpstart the effort, but the collaborative start-up processes cannot be bypassed completely. Cunningham concurred, adding that any program, whether rural or urban, starts with getting all participants to the table. Historically, payers would go to providers and tell them what they needed, instead of asking them what problems they had and what they thought they needed. The better approach is to align incentives and strengthen relationships.

[4] See, for example, http://patienteducation.stanford.edu/programs/cdsmp.html (accessed May 7, 2015).

The Diagnosis of Hypertension

Kate Perkins of MCD Public Health in Maine asked whether improved accuracy in blood pressure measurement could have had any impact or implications for assessments of hypertension prevalence. Million Hearts found that many clinical settings do not calibrate their blood pressure cuffs or equipment, Jarris said, and there were initiatives to help support calibration. The protocols also specifically dealt with how blood pressure was measured. The biggest problem, whether in the clinic, the fire department, or the church, was people not sitting for the required period before their blood pressure was taken.

Marthe Gold from the City College of New York raised the potential issue of overdiagnosis and overtreatment, given the heterogeneous approach to diagnosing hypertension, from clinical office to home visits to borrowing blood pressure cuffs from the library. Jarris responded that optimally, a hypertension protocol would have a period of assessment that included dietary, activity, or other lifestyle modifications before any treatment. There may be people who are overdiagnosed, but the bigger problem is the 50 percent with a diagnosis whose condition is not controlled.

A participant asked about the use of registries for patients with comorbid diseases. Birkhead said that New York is working to add diabetes and prediabetes to the registry. An EHR system needs to have a registry function that can cross different diagnoses in the same patient. The registry is not a big database of everybody with hypertension, he said, but a distributed network that has all of the data in it.

The Application of the Million Hearts Model to Other Initiatives

Ted Wymyslo, who was a former director of health in Ohio, pointed out that public health is not used to initiatives, such as Million Hearts, that have new definitions of measurement and short timelines seeking rapid outcomes. Should we expect to see more of this type of rapid effort, he asked, or are the initiatives useful only in certain situations? Jarris responded that the particular topic (hypertension) was selected because there was a lot of interest to drive intervention and change in how it is managed. It happened to be hypertension this time, but it could have been something else, he said. The initiative was introduced to change thinking, for example, to get leadership to quickly implement programmatic and policy initiatives to drive rapid cycle change, to develop measurement systems to drive action, and to not wait for a perfect system or one that reports data that is years old. Birkhead said that the task now is to take what was learned from Million Hearts and apply it more generally in public health. The success of the approach needs to be publicized. A major change, Jarris added, is moving from collecting data for historical recording purposes to collecting good-enough data to drive action. Cunningham said that approach appeals to private payers because they do not like that it can take several years before an outcome can be observed. Payers like rapid return on investment.

George Isham of HealthPartners in Minnesota also asked about moving beyond a single-topic national priority toward a set of initiatives driven more scientifically by careful epidemiological analysis. Jarris reiterated that hypertension was the test case used to build the collaborative and test the model. If we can learn how to use this model and how to support it, he said, then states and communities can select the most appropriate measure for use in their situation.

Data

Sanne Magnan from the Institute for Clinical Systems Improvement in Minnesota noted that the Office of the National Coordinator on Health Information Technology has released a 10-year vision to build interoperable health information technology and asked what advice Million Hearts might offer them. Birkhead said that the vision does involve public health more so than in the past, and is building the population health view into EHR systems. A problem during the Million Hearts initiative was the reporting of transactional data that could not be entered as a measure of hypertension in a registry. The system has to change so that the data can be aggregated at the regional level or population-based level. EHR systems need to be able to produce documents that can be used for population health. Cunningham agreed and said there is a need to mandate interoperability of EHR systems. Birkhead reiterated the need for reverse flow of data (e.g., getting data on prescription fills back to the provider). It is not just about aggregating data at the population level but also feeding data back. A public health agency with access to data across systems can identify hot spots of disease, Jarris added.

One problem, Jarris suggested, is that there is not the business case for EHRs for population health. The current business case for EHRs is essentially capture of claims and improved billing, not for the registry function or their ability to improve population health. He expressed hope that SIM grants will create a demand for tools in EHR that will support population health or that it will be mandated in a certified EHR. Cunningham added that the value of data comes in sharing it, and we need to move beyond the concept of "my data."

A participant asked whether there was any comparative effectiveness analysis done across the entire Million Hearts initiative. Jarris explained that finding researchers willing and able to conduct analyses of the effects and outcomes of health policy interventions is a challenge common across many interventions, including ASTHO's Healthy Babies initiative and various prescription drug interventions implemented across various states.

4

Collaboration Between Hospitals and Public Health Agencies

In 2014, the Commonwealth Center for Governance Studies released the report *Improving Community Health Through Hospital-Public Health Collaboration: Insights and Lessons Learned from Successful Partnerships* (Prybil et al., 2014). An overview of the report was provided by Lawrence Prybil, principal investigator for the study and the Norton Professor in Healthcare Leadership and associate dean of the College of Public Health at the University of Kentucky. Nicole Carkner, executive director of the Quad City Health Initiative, then shared her perspective as 1 of the 12 partnerships featured in the report. Following the presentations, a discussion was moderated by Sunny Ramchandani, commander and medical director of the Healthcare Business Directorate at the Naval Medical Center San Diego. Box 4-1 provides an overview of session highlights.

IMPROVING COMMUNITY HEALTH THROUGH HOSPITAL–PUBLIC HEALTH COLLABORATION: REPORT OVERVIEW

Prybil began by explaining that this study of hospital–public health partnerships stemmed from a conversation at the Keeneland Conference on Public Health Services and Systems Research in 2012. Rich Umbdenstock, president of the American Hospital Association, Paul Jarris, executive director of ASTHO, and Robert Pestronk, executive director of the National Association of County and City Health Officials (NACCHO), wanted to identify, examine, and extract lessons learned from successful operational partnerships involving hospitals and public health departments focused on improving the health of their communities. They approached Prybil and Dr. Douglas Scutchfield of the University of Kentucky to conduct the study.

BOX 4-1
Key Themes of Session on Hospital–Public Health Collaboration

- The Prybil et al. (2014) study identified eight characteristics of successful hospital–public health partnerships.
- Having one or more anchor institutions, as in the case of the Quad City Health Initiative, is extremely important for sustaining collaboration (Carkner, Prybil).
- Why invest in collaboration? No one can improve the community's health alone. A broad collaborative infrastructure and capacity are required (Prybil).
- Community-based partnerships are "a way to . . . galvanize communities, citizens, businesses, schools, and other parties to pay more attention collectively to improving the health of the community" (Prybil).
- To convince other potential partners, the message is that the work of collaboratives such as Quad City Health Initiative is about community development and community involvement (Carkner).
- The contributions of the hospital and health system community are necessary, but not sufficient, and other partners are needed (Prybil).

The first step was to find examples of successful hospital–public health collaboratives, as no list of such partnerships existed, Prybil said. The researchers developed a set of eight core characteristics of successful partnerships and broadly disseminated an announcement inviting nominations of partnerships with those characteristics for participation in the study (summarized in Box 4-2 and discussed in full, including 27 indicators, in Prybil et al., 2014). He pointed out that the characteristics of successful partnerships developed for the study were similar to those discussed by Jarris and others during the workshop, such as the importance of culture and trust. "Partnership" referred to a situation where independent parties came together to jointly address a common purpose and therefore included organizations calling themselves alliances, consortia, and many other designations. More than 160 nominations were received from across 44 states. These were examined to identify a set for study that were "highly successful" relative to the predefined core criteria. Sixty-three nominees were contacted for additional information about metrics and impact, and out of 17 finalists, 12 partnerships were ultimately selected to be studied in depth. These 12 were from 11 states across the country, with very different missions, he said.

The study process included a 2-day site visit to each of the 12 partnerships. Prybil noted with gratitude the cooperation, candor, and interest the study team experienced at all of the sites. Site visits included one-on-one, confidential, in-depth interviews; small group discussions; and review of document and records. The final phase of the study involved processing, verifying, tabulating, and analyzing the data collected.

BOX 4-2
Core Characteristics of Successful Hospital–Public Health Partnerships Identified by Prybil and Colleagues (2014)

- **Vision, Mission, and Values**—The partnership's vision, mission, and values are clearly stated, reflect a strong focus on improving community health, and are firmly supported by the partners.
- **Partners**—The partners demonstrate a culture of collaboration with other parties,

understand the challenges in forming and operating partnerships, and enjoy mutual respect and trust.

- **Goals and Objectives**—The goals and objectives of the partnership are clearly stated, widely communicated, and fully supported by the partners and the partnership staff.
- **Organizational Structure**—A durable structure is in place to carry out the mission and goals of the collaborative arrangement. This can take the form of a legal entity, affiliation agreement, memorandum of understanding, or other less formal arrangements such as community coalitions.
- **Leadership**—The partners jointly have designated highly qualified and dedicated persons to manage the partnership and its programs.
- **Partnership Operations**—The partnership institutes programs and operates them effectively.
- **Program Success and Sustainability**—The collaborative partnership has been operational for at least 2 years, has demonstrated operational success, and is having positive impact on the health of the population served.
- **Performance Evaluation and Improvement**—The partnership monitors and measures its performance periodically against agreed upon goals, objectives, and metrics.

SOURCE: Prybil et al., 2014, p. 6.

The study also examined research on partnerships with a focus on the extent to which they survived and succeeded or did not. Studies suggest that about half of partnerships in general, across a variety of sectors, survive and succeed, Prybil said. A more in-depth analysis of these studies shows that partnerships that display many of the core characteristics outlined in Box 4-2 have a much higher potential for success, up to 80 percent (Prybil et al., 2014, see p. 101, footnote 22). This finding was reinforced by the current study, Prybil said.

After reviewing the findings from the interviews, small group discussions, site visits, and documents, the study team arrived at 11 evidence-based recommendations that reflect the lessons learned from the 12 partnerships studied (see Box 4-3). Prybil noted that none of the 12 partnerships met all of the characteristics and all of the indicators. No partnership does, he added. The question is how substantially they display those characteristics they do possess.

BOX 4-3
Recommendations from Prybil and Colleagues (2014)

1. To have enduring impact, partnerships focused on improving community health should include hospitals and public health departments as core partners but, over time, engage a broad range of other parties from the private and public sectors.
2. Whenever possible, partnerships should be built on a foundation of pre-existing, trust-based relationships among some, if not all, of the principal founding partners. Other partners can and should be added as the organization becomes operational, but building and maintaining trust among all members is essential.
3. In the context of their particular community's health needs, the capabilities of existing community organizations, and resource constraints, the parties who decide to establish a new partnership devoted to improving community health should adopt a statement of mission and goals that focuses on clearly defined, high priority needs and will inspire community-wide interest, engagement, and support.

4. For long-term success, partnerships need to have one or more "anchor institutions" with dedication to the partnership's mission and strong commitment to provide ongoing financial support for it.
5. Partnerships focused on improving community health should have a designated body with a clearly defined charter that is empowered by the principal partners to set policy and provide strategic leadership for the partnership.
6. Partnership leaders should strive to build a clear, mutual understanding of "population health" concepts, definitions, and principles among the partners, participants, and, in so far as possible, the community at-large.
7. To enable objective, evidence-based evaluation of a partnership's progress in achieving its mission and goals and fulfill its accountability to key stakeholders, the partnership's leadership must specify the community health measures they want to address, the particular objectives and targets they intend to achieve, and the metrics and tools they will use to track and monitor progress.
8. All partnerships focused on improving community health should place priority on developing and disseminating "impact statements" that present an evidence-based picture of the effects the partnership's efforts are having in relation to the direct and indirect costs it is incurring.
9. To enhance sustainability, all partnerships focused on community health improvement should develop a deliberate strategy for broadening and diversifying their sources of funding support.
10. If they have not already done so, the governing boards of nonprofit hospitals and health systems and the boards of local health departments should establish standing committees with oversight responsibility for their organization's engagement in examining community health needs, establishing priorities, and developing strategies for addressing them, including multi-sector collaboration focused on community health improvement.
11. If they have not already done so, local, state, and federal agencies with responsibilities related to population health improvement and hospital and public health associations should adopt policy positions that promote the development of collaborative partnerships involving hospitals, public health departments, and other stakeholders focused on assessing and improving the health of the communities they serve.

SOURCE: Prybil et al., 2014, pp.39–44.

THE QUAD CITY HEALTH INITIATIVE

The Quad City Health Initiative[1] was 1 of the 12 partnerships selected for participation in the study by Prybil and colleagues. Carkner explained that, despite the name, the Quad Cities include five cities on the border of Iowa and Illinois that are home to about 317,000 individuals (Davenport and Bettendorf, Iowa; Moline, East Moline, and Rock Island, Illinois). These five cities on the Mississippi River community have a long history of collaboration, she said.

The Quad City Health Initiative started in 1999, when leaders in the community were inspired by work happening in other communities around the country and the Healthy

[1] The Quad City Health Initiative oversees current projects on health promotion (especially in the context of workplace wellness), mental health (including enhancing public awareness and improving service integration), and tobacco (expanding smoke-free policies and access to smoking cessation services) (for more information, visit the initiative's website http://www.genesishealth.com/qchi, accessed June 18, 2015).

Communities Movement. As told by Carkner, one charismatic leader, an internal medicine physician who was passionate about improving the health of the community, approached his board colleagues at the two local nonprofit health systems, and together they created a community board they named the Quad City Health Initiative. For the first few years, the board operated as a voluntary association of organizations and individuals who were interested in improving the health and quality of life of the Quad City area. Later, the two nonprofit health systems became the founding sponsors of the Quad City Health Initiative, providing seed money to create an office to support the work of the initiative. Carkner joined the initiative in 2001 as its first staff person.

Characteristics

Carkner described several of the characteristics of the partnership that contribute to its success. The vision of the Quad City Health Initiative is to be the community's leader for collaborative action on health, she said, and the mission of the organization is to create a healthier community. There are three core values: commitment, collaboration, and creativity. The organization thought it was important to include creativity in order to "give ourselves permission" to try approaches that have not been tried before, she explained. Commitment is part of the original ethos for the Quad City Health Initiative and emphasizes that, together, the community can accomplish whatever it sets out to. She added that, 15 years later, the founding health system partners continue to provide most of the operating support for the initiative. The current governance structure is a 25-member community board. Carkner noted that the initiative is not a separately incorporated entity. The work of the initiative is housed at and conducted with in-kind and administrative support from the two local founding health systems.

The foundation for all of the collaborative program or issue-based work of the initiative has been joint community needs and community health assessment planning. This is a bi-state process, which has been going on since 2002. The initiative now has a staff of two, Carkner and a colleague. The power of the Quad City Health Initiative, Carkner said, is a strong multisector, cross-sector network of more than 130 volunteers representing more than 60 organizations around the community. Carkner noted that language from the collective impact literature (e.g., about being a backbone and an infrastructure for collaboration) has helped new partners understand what the Quad City Health Initiative is about and why it is so important to creating health in their community. Carkner said that for many people working at a local level, it is difficult to identify peers around the country with whom to share information and experiences. Being part of this study has been valuable for the Quad City Health Initiative because it has helped to establish such a peer group.

DISCUSSION

During the open discussion, participants expanded on the topics of securing initial and sustainable funding, engaging partners and stakeholders, setting clear goals for the collaborative, and measuring impact.

Funding

One of the lessons partnerships can take from the study by Prybil and colleagues is how to enhance their chances of success, perhaps using the study findings and recommendations as a checklist, Ramchandani suggested. He asked Prybil and Carkner to elaborate on some of the challenges facing hospital–public health collaborations, and funding was the first topic raised.

Support and sustainability start with having local leadership commit to the partnership with stable support over time, Carkner said. Central to the success of the Quad City Health Initiative has been the anchor leadership of the two nonprofit health systems and their sustained leadership and support over time. They provide the backbone of support that allows for the staff positions and the office to support the work of the board. There has also been support from other community organizations and from individuals, she noted, and the approach to fundraising is still evolving. During this past year, there was, for the first time, 100 percent participation by all of the community board members and/or their organizations in supporting the initiative. The Quad City Health Initiative has also been successful in obtaining grants at the regional and national levels and has just become part of the CDC Partnerships to Improve Community Health awardee cohort.

Prybil pointed out that the two health systems partnering with the Quad City Health Initiative are business competitors, but they have agreed to cooperate and support the initiative. The two chief executive officers and their boards believe that the Quad City Health Initiative is good for the whole region. Competitors can be collaborators toward a common goal. Reiterating the findings of the study, Prybil said that partnerships such as the Quad City Health Initiative are helped enormously by having one or more anchor institutions. The anchor institution does not have to be a hospital or health system; it could be a major employer or another party who can make a longer-term commitment of financial resources to underpin the foundation for the initiative. Both health plans and employers are direct beneficiaries of successful partnerships, Prybil said. Nevertheless, he noted, although many of the partnerships studied have health plan staff in volunteer roles or on the board, few health plans were engaged in helping to support the partnerships financially. Similarly, many employers have allowed their staff to contribute as volunteers, but few major employers have made substantial financial investments in the partnerships.

When approaching foundations, major employers, health plans, and other potential financial partners, it helps significantly to have an impact statement that documents what that partnership is achieving in relation to the investments that are made in it, Prybil said. He noted that among the arguably very successful partnerships studied, relatively few had developed a business case around their impact on the health of the community in relation to their costs. As initiatives try to broaden their base of funding, evidence-based impact statements can be very important in making the case for employers and for health plans to choose to make an investment in the partnerships. Similarly, there must be an ability to link metrics and measures to the elements the partnership is trying to influence. If the partnership cannot demonstrate to current funders that they are making a difference on their priority elements of health, they are going to lose support.

Ramchandani asked what would inspire a health system to invest in a collaboration rather than funding initiatives for their own local population. Carkner responded that in the Quad Cities, both nonprofit health systems interact with the same population base in the community. In addition, the Quad City Health Initiative benefits, and has benefitted from, other community collaborative efforts. Many of the senior leadership who serve on the health initiative board serve on many other community boards together as well, providing opportunities to work together to tackle difficult challenges across sectors. Partners are investing not only in creating health or in supporting the work of one organization but also in creating a broad collaborative infrastructure and capacity in the community. It often takes a charismatic leader to see beyond the borders of the institution. As an example, Prybil mentioned an initiative to make Cheshire County, New

Hampshire, the healthiest community in America by 2020. This was the vision of Art Nichols, chief executive officer of Cheshire Medical Center, who saw that even excellent care for individual patients in the hospital was never going to impact the overall health of the community. He rallied the community around this vision, and the challenge now is how to keep track of progress and measure success. Another incentive for joining a collaborative, Ramchandani added, is that no one entity (health care systems, nonprofit organizations, governing agencies) can do this alone. We are far more effective and efficient when we partner together.

Carkner noted the importance of alignment at a national level with regard to funding. She described the community's past experience in having received several grants through various organizations that were similar in purpose but were just distinct enough that some confusion occurred at the local level in terms of who was leading on an issue. She stressed that the Quad City Health Initiative welcomes support from organizations outside of the community, but it is most helpful when the partners can design how they work together as best fits the community.

Bob Griss of the Institute of Social Medicine and Community Health asked how governments at the federal and state levels could leverage their major investments in health care delivery to create incentives for these collaboratives. He recalled the health systems agencies of the 1970s that were focused on collaboration between systems. Prybil responded that recommendation number 11 of the study calls for governments at all levels to adopt policy positions that promote the development of collaborative partnerships focused on the health of the community. The report included examples from Maryland and New York of state-level policy encouraging collaboration between public health and hospitals. He suggested that other public agencies, such as CMS, could think about how they might encourage the development of such partnerships. Ramchandani pointed out that CMMI has pilot programs in this area.

Prybil added that nearly 70 percent of America's hospitals are now a part of health systems, and health systems should be encouraged to invest financially in successful partnerships. Community-based partnerships are not the ultimate solution to the country's health care problems, Prybil said. They are, however, a way to promote a stronger focus on community health and to galvanize communities, citizens, businesses, schools, and other parties to pay more attention collectively to improving the health of the community. Prybil noted that most of the partnerships studied are lightly funded, with little public or private insurer money (with the exceptions of the collaborations involving Kaiser and Maine Health as anchor institutions). Seventy percent of the funding of these partnerships comes from the hospital partners, with another 10 percent from private foundations. Hospitals and health systems are required to produce community benefit, and investing in collaboratives such as the Quad City Health Initiative certainly is a community benefit. Nevertheless, hospitals should not be expected to bear 70 percent of the cost of managing these partnerships, he said, especially when businesses and health plans will ultimately benefit. There needs to be a more balanced funding picture.

Partners

David Kindig, professor emeritus of population health sciences and emeritus vice chancellor for health sciences at the University of Wisconsin School of Medicine and Public Health, asked about the types of partners involved beyond hospitals and public health and what types of organizations are most common as anchor institutions. The Quad City Health Initiative board has ex officio positions for a number of organizations in the community that it determined should always be present at the table, Carkner responded. These include the hospital systems, public health departments, and other community health organizations, as well as permanent

positions for the chamber of commerce and representatives from the Rock Island Arsenal, the local metropolitan transit and planning associations, and organizations such as the local United Way and YMCAs. The balance of the 25-member board is structured to include rotating representatives from other sectors of the community, including the education sector, the private/business sector, and other community leaders. For more detail, Carkner referred participants to the discussion of the governance structure of the Quad City Health Initiative in the report (Prybil et al., 2014, pp. 69–71). The structure reflects a health-in-all-policies approach in including cross-sector community stakeholders, she said.

Prybil said that all of the 12 partnerships studied have a broad array of partners who participate at various scales and levels (e.g., anchor institutions that have made a major financial commitment, principal partners who provide support in other ways, other smaller partners, and volunteers). He added that initiative directors, such as Carkner, become very good at managing volunteers and engaging them effectively to contribute to the work of the partnership.

Prybil recommended that partnerships start out with a smaller group of organizations that are committed to the issue, have established trust, and have experience in collaboration. As the organization becomes established, it can then gradually absorb and orient new partners. A collaboration can also be "a revolving door," as leaders and partners come and go. Partnerships are flexible as a form of organization, he said, but somewhat less durable than corporate entities.

Mary Pittman of the Public Health Institute asked about the next generation of leadership for these partnerships, including youth engagement. Carkner said that local city representatives and local elected officials are now part of the Quad City Health Initiative partnership, which paves the way for engagement of other sectors (e.g., housing and transit) in the health agenda. Becoming institutionalized as an organization helps with recruitment. Carkner observed that the longevity of the partnership for the Quad City Health Initiative has made it easier for her to recruit people at all levels and across sectors to participate in the work initiative than when it was new. She noted that the numerous coalitions, teams, and work groups find opportunities to engage their emerging leaders in the work of the initiative. The hope is that as their career grows, their work with the initiative will grow as well. Youth have been engaged through community advocacy such as the tobacco control initiatives.

Ron Bialek of the Public Health Foundation raised the issue of recognizing and addressing "the elephants in the room." Carkner agreed and said it is very important to be sure that partners and stakeholders have said everything that they believe they need to say. For her initiative, strategic decisions are made by consensus to ensure that all partners believe that their opinions are heard and that their perspectives are represented. This has sometimes meant walking away from opportunities, because there has not been the consensus needed to pursue a specific idea, but the initiative does not want to sacrifice long-term partnerships for short-term objectives.

Marthe Gold asked what messages could help to bring along partners that are not yet convinced of the need for public health and health systems to collaborate. Carkner said that the Quad City Health Initiative has worked to engage the local private sector and to help partners outside of the health care sector understand their role in creating health and how improved health has an overall positive impact on the region's economic development and growth. The message they try to convey is that the Initiative's work is about more than just public health issues in the classic sense; it is about community development and community involvement. Prybil suggested that more people from the hospital and medical community now acknowledge that doing what has always been done is important, but is not sufficient. There is a need to focus on the populations they are serving and reach out to other parties (e.g., schools, public health) that share

a common interest in creating a healthier community and a culture of health. Most health care expenditures have been on acute and chronic care, which has not worked very well, he said. Policy-level support for health care–public health collaboration and more interest by health plans and big employers could help to accelerate population health improvement. We need to change our investment portfolios, he said.

The Setting of Goals

Mary Lou Goeke with United Way of Santa Cruz County, California, asked about commonalities across the 12 partnerships studied in how they set the goals, including engaging their community residents in goal setting. Goals and objectives for the Quad City Health Initiative have been largely based on community health assessments, Carkner said, which have relied very heavily on Behavioral Risk Factor Surveillance System–type indicators. Over time, team leaders and volunteers have developed process-type measures to assess whether the desired progress toward the goals was being achieved within the timeline set. Prybil added that all 12 of the partnerships studied based their goals on assessment of community needs. What the partnerships have chosen to focus on varies tremendously, he observed, from very specific health care issues to very broad missions. Regardless of their chosen focus, each must define its mission clearly and define measures to assess progress, he said. To help partnerships and other parties who are trying to improve the health of their communities, the report offers guidance, evidence-based recommendations, and concrete examples of metrics and approaches that have worked (see Prybil et al., 2014, Appendix C).

Measurement of Impact

Panelists expanded on the topic of measuring impact, including the challenges of sharing data. Carkner said that the Quad City Health Initiative conducted its first bi-state community health assessment in 2002 as its first joint project, with additional assessments in 2007 and 2012, and one is planned for 2015. Joint planning among partners has allowed everyone to work from common information about health status, and that planning process naturally leads to discussion about implementation and strategy selections once the assessment piece is complete, she said. She noted that indicators related to tobacco use have improved over time, but they continue to seek improvement on other indicators that are of common interest across communities, such as those related to physical activity, nutrition, and behavioral health. Still, the process of jointly measuring and assessing has built a foundation for working together.

Impacting outcomes in the right direction is a long-term effort that requires sustained support. Most of the partnerships face challenges in clearly discerning what health outcomes they want to achieve in their communities, Prybil noted. Partnerships that fail to achieve their goals do not clearly establish what they are trying to influence in terms of sustainability and generation of funding, he added. Those who select the most challenging outcomes to influence need to focus very clearly on some intermediate measures that they can achieve, measures for which the evidence shows that if they can "move" them, they will eventually achieve broader outcomes. As an example, he referred participants to the discussion of the Detroit Infant Mortality Reduction Taskforce in the report by Prybil et al. This initiative, sponsored by the four health care systems and many other parties in the Detroit metropolitan area, is focused on reducing infant mortality in inner-city Detroit by identifying intermediate measures to address (Prybil et al., 2014, pp. 81–84).

Paul Mattessich, executive director of Wilder Research, asked about assessing impact in very large collaborative settings, such as Million Hearts, a federally funded program of states working with local community programs, or the IOM roundtable and the Primary Care and Public Health Collaborative, which are national organizations with thousands of members collaborating on population health. Prybil said that his study of successful partnerships was focused on the community level; however, many of those characteristics of success could apply to a much broader range of partnerships, perhaps with some adjustments. He reiterated that, at any level, unless there is clarity of the mission and measures (i.e., the specific change to be achieved), it is difficult to ever measure success or impact.

Kindig alerted participants that the roundtable will discuss the issue population health metrics at a workshop being planned for July.[2]

[2] Information on roundtable activities and reports can be found at http://www.iom.edu/pophealthrt (accessed June 18, 2015).

5

A Collaborative Community Approach to Asthma Care

The work around asthma control is an excellent case example of the collective impact on health that can be achieved through the collaborative strengths of health care and public health, said session moderator Terry Allan, health commissioner of the Cuyahoga County Board of Health in Ohio and a past president of NACCHO. Allan noted that work on asthma control has its roots in the successful experience with lead hazard control, where medicine and public health have a long-standing relationship around case identification and referral processes leading to interventions that reduce exposures.

More than 10 million U.S. children have been diagnosed with asthma.[1] Those who bear the greatest burden from asthma are often low-income and minority children. Because children with asthma are more likely to miss school, asthma can compound the disadvantages of poverty. Missed work days by parents needing to stay home to care for their children with asthma also widens the opportunity/financial gap.

As clinicians work to optimize care and manage exacerbations, public health and partner agencies can be the eyes and ears of the clinicians in the home environment. Partners can provide data, educational reinforcement, environmental assessments for trigger identification, and remediation of these triggers in the home environment. Known triggers in the home include, for example, mold, dust mites, cockroaches, rodents, tobacco smoke, and household chemicals. Wet basements, leaky roofs, and old carpets are common in substandard housing and pose risks to those living with asthma. Asthma trigger reduction in the home works, Allan said. Demonstration projects across the country are providing the evidence and designing the process to take this work to scale. A recent pilot involving doctors and public health workers in Cleveland, for example, led to a 58 percent reduction in hospitalizations among low-income children with asthma. These efforts are opening the door to sustainable fee-for-service opportunities with public and private payers, Allan said. These successful collaborations also build respect and trust, which open the door for broader initiatives and powerful population health alliances.

In this session, Shari Nethersole, executive director for community health at Boston Children's Hospital and assistant professor of pediatrics at Harvard Medical School, and

[1] See 2012 National Health Interview Survey (NHIS) data, http://www.cdc.gov/asthma/nhis/2012/data.htm (accessed June 18, 2015).

BOX 5-1
Key Themes of Session on Asthma Care

- Asthma control is rooted in previous public health–health care collaboration to mitigate lead hazards to children's health (Allan).
- The greatest burden from asthma is borne by low-income and minority children—asthma is the leading cause of hospital admissions at Boston Children's and school absenteeism in Boston Public Schools (Nethersole).
- Regional partners are helping to spread and scale the Community Asthma Initiative model, including with support from a CMS Innovation Center grant (Nethersole).
- The initiative currently receives grant and hospital community benefit support, but leaders are working to secure insurance coverage of initiative services (Nethersole).
- The Boston Asthma Home Visit Collaborative emerged as the solution to a fragmented patchwork of services and receives support from the Massachusetts Department of Health (Reid).
- Communication is key, and sustaining a partnership requires crediting all partners in publications and in attracting media coverage and giving all partners opportunities to represent the collaborative and to present on its progress (Reid).

Margaret Reid, director of the Division of Healthy Homes and Community Supports at the Boston Public Health Commission, discussed a collaborative approach to asthma care in Boston as a case example of a successful health care–public health collaboration. Box 5-1 provides an overview of session highlights.

COMMUNITY ASTHMA INITIATIVE, BOSTON CHILDREN'S HOSPITAL[2]

From 2003 to 2005, when the planning process for the Community Asthma Initiative was taking place, asthma was found to be the leading cause of hospital admissions at Boston Children's Hospital, Nethersole said. Asthma is also the leading cause of absenteeism from Boston Public Schools. Seventy percent of the children who were hospitalized came from five low-income, predominantly African American and Latino neighborhoods in Boston. The asthma hospitalization rates for African American and Latino children were four to five times higher than the rate for white children; however the prevalence is about two times higher, suggesting the issue is around asthma control. This disparity was the stimulus for the program, she said.

Individual and Family Intervention

The Community Asthma Initiative is an individual and family intervention program focused on providing better asthma education and case management. Care coordination is provided by bilingual and bicultural community health workers and nurses during home visits.

[2] Prior to the presentation, a brief video about the Community Asthma Initiative at Boston Children's Hospital was shown. The video can be viewed at http://www.iom.edu/Activities/PublicHealth/PopulationHealthImprovementRT/2015-FEB-05/Videos/Case%20Study%204/20-Nethersole-Video.aspx (accessed June 18, 2015).

These caregivers work with the family to establish goals for asthma control and identify barriers to good asthma control. Barriers could include, for example, a lack of understanding of asthma and medications, a lack of medication adherence, environmental triggers at home or at school, and a lack of or inadequate insurance coverage or high co-pays for patients with private insurance. Community health workers and nurses also assess the environment and provide supplies for remediation, such as High-Efficiency Particulate Arrestance vacuums, bedding encasings for protection from dust mites and other allergens, and integrated pest management solutions. Nethersole pointed out that a vacuum is a one-time cost of $80 to $90, which is less expensive than a 1-month supply of Flovent® for the control of asthma.[3] The initiative works closely with the Boston Public Health Commission's Breathe Easy at Home program (discussed by Reid below), and referrals for other specific community services are provided as needed, including child care, job resources, and legal resources.

Data collected at baseline and at 6 and 12 months after enrollment in the program showed statistically significant improvements in health outcomes. At 12 months, there was a 57 percent decrease in emergency room visits and an 80 percent decrease in any hospital admissions due to asthma (Woods et al., 2012). Nethersole noted that more than 1,200 patients have been enrolled over 8 years, and the results are consistent. Similarly, missed school days due to asthma decreased by 43 percent, and missed work days for parents caring for a child with asthma decreased 51 percent. With regard to return on investment, Nethersole said that the total cost per child for asthma care services in 2006 was about $3,000 prior to enrollment in the Community Asthma Initiative. Twelve months after enrollment, the cost per child was reduced to about $1,300, and after 2 years, the cost per child was $750. (For comparison, a similar population that did not get the Community Asthma Initiative had an asthma care cost per child of about $2,000 the same year, which was about $1,300 at 12 and 24 months later.[4])

In addition to the patient-directed work of the Community Asthma Initiative, there is also a large community education component, including workshops in the community and in schools. The Community Asthma Initiative has a Family Advisory Board and a Community Advisory Board that meet three times each year. Parents advise the initiative on what is working and what is not.

Replication and Dissemination

Nethersole summarized some of the ongoing efforts to replicate and disseminate the Community Asthma Initiative model. The initiative is working with Health Resources in Action and the New England Asthma Regional Council on a more regionalized approach to asthma. Health Resources in Action has a CMMI grant to study the outcomes and cost-effectiveness of home visits and case management across several states and in several locations within Massachusetts. The Community Asthma Initiative has also developed a program replication manual to guide others in starting an asthma home visiting and case management program, including advice on partnerships and monitoring and evaluation.[5]

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[3] Flovent® is the registered trade name for fluticasone propionate aerosol inhaler.

[4] "There was a significant reduction in hospital costs compared with the comparison community ($P < .0001$), and a return on investment of 1.46" (Woods et al., 2012, p. 465).

[5] See http://www.childrenshospital.org/~/media/Centers%20and%20Services/Programs/A_E/Community%20Asthma%20Initiative/ReplicationManual2CFinal2C92413.ashx (accessed June 18, 2015).

The initiative is looking at how to move the model upstream, from identifying children through emergency room visits and hospitalizations as the index point to identifying them in the primary care setting. The goal is to provide better asthma education, management, and control in the medical home to prevent hospitalization or emergency room visits. Boston is fairly unique in that there are 23 community health centers within the city limits, Nethersole said, and 50 to 60 percent of the children in Boston receive their care in these centers. Boston Children's Hospital also has a very large primary care practice onsite and an adolescent clinic, which together provide primary care for about 15 percent of the children in Boston. There is an opportunity to engage with community health workers in these practices to change the management of asthma.

At the start of the Community Asthma Initiative there was also discussion about payment models. The initiative is currently supported through Community Benefit dollars from the hospital and several grants. The initiative is now working with insurers to secure coverage of these services. She noted that legislative efforts to mandate insurance coverage for these asthma services were not successful; however, the state legislature did include a mandate in the 2011 state budget for Medicaid to conduct a pilot of bundled payment for pediatric asthma care. The pediatric high-risk asthma bundled payment pilot is now under way at three sites in the state. There is a per-member, per-month payment to the primary care practice to cover the cost of high-risk asthma patients who have been jointly identified, Nethersole explained. The payment will not cover the cost of the service the Community Asthma Initiative is providing, she noted, but it is the beginning of developing a new payment model.

BOSTON ASTHMA HOME VISIT COLLABORATIVE

The Boston Public Health Commission has conducted asthma home visits for a long time, Reid said. In 2008, with evidence of persistent disparities in asthma outcomes, the Public Health Commission decided to revamp its asthma home visit program to better incorporate individualized disease management. As part of the process a needs assessment was conducted, including interviews with clinicians who made referrals for asthma home visits, organizations conducting home visits, and home visit clients. The assessment found that programs came and went based on grant funding, making it difficult for clinicians to make a referral because they often did not know what programs existed. In addition, clinicians were confused by the different services and providers. There were variations in content and quality of programs. Some programs served only specific geographic, institutional, or racial/ethnic/lingual populations, leaving some communities underserved. As a result, the Boston Public Health Commission contacted various stakeholders to discuss developing a collaborative home visiting system for asthma in Boston.

The vision of the Boston Asthma Home Visit Collaborative is that any person in Boston who could benefit from home visits for asthma receives them; that the visits are consistent and of high quality; that they result in improved asthma control; and that they are funded primarily by those sources that pay for traditional medical care and are perceived as cost-effective. The collaborative sought to build capacity to offer home visits in as many languages as needed and to establish a centralized referral system that identifies the most culturally and linguistically appropriate agency to provide the visit to a given family.

Reid noted that the collaborative has had fairly stable participation since 2009. The Public Health Commission convenes the group. Boston Children's Hospital has provided some funding and significant human resources in terms of expertise, she said. The Boston Medical Center has a home-visiting program and has been very involved. The Environmental Protection

Agency has provided funding, and its regional asthma manager participates. Other collaborative members include the Neighborhood Health Plan, a New England–based plan with a large Medicaid population; Partners Asthma Center, a large health system in Boston; and Tufts Medical Center.

The collaborative meets monthly. Funding from the EPA helps to cover the cost of a facilitator who is an asthma policy expert. Having a facilitator allows the collaborative to be intentional about being sure that every voice is heard, Reid said. This is critical because the collaborative involves many stakeholders, including clinicians, public health administrators, program directors, community health workers, payers, and others. The home visit structure is modeled after existing evidence-based home visiting programs, such as one in Seattle/King County, Washington. Among its activities, the collaborative has developed, tested, and modified data collection forms and educational materials and provided training and support for community health workers performing home visits. A pilot evaluation of clinician and client satisfaction and asthma control test improvements was completed after year 1, with a second evaluation completed in 2013.

Community health workers tend to have very stressful jobs and often work in isolation, Reid said, and support and integration have been shown to impact retention. There are monthly meetings of community health workers who perform asthma home visits. A nurse, nurse practitioner, or physician is at every meeting to provide clinical oversight, and there is a facilitator from the Public Health Commission. The community health workers engage in problem solving, peer-to-peer learning and support, resource and information sharing, and reinforcement of training and education. The goals are standardizing across service providers, retaining community health workers, and increasing skills and knowledge. Boston is the third most expensive rental housing environment in the country, Reid said, and its public housing is among the oldest in the country. Housing stability, energy/heat stability, and food security are immediate concerns for many people. Community health workers need to know all of the resources available and be able to make referrals. Many find that until they can help families with their immediate, urgent needs, asthma is not going to be their priority.

Reimbursement for Community Health Worker Asthma Home Visits

The Massachusetts Department of Public Health has also prioritized universal access to quality community health worker–led asthma home visits across Massachusetts, Reid said. Priority areas for action are achieving insurance reimbursement for community health worker asthma home visits and driving demand for home visits among payers and providers. The state's Department of Public Health selected the Boston Public Health Commission to develop and implement asthma home visitor training and support for the state. Training includes both asthma content and community health worker skills. Because many organizations are not familiar with integrating community health workers into their system, there is also supervisor training available.

A consultant was hired to conduct a needs assessment and make recommendations to the Massachusetts Department of Public Health Asthma Prevention and Control Program. The assessment found some openness among insurers to pay for asthma intervention visits by community health workers, Reid said. Some insurers were already convinced that this approach works, while others wanted to see more cost–benefit analysis and evidence of efficacy. To expand reimbursement, insurers wanted standardized training of community health workers, standardized skills assessment and evaluation, and an easy referral system. As noted above, the

Boston Public Health Commission has been selected to oversee the training of community health workers for the state, including a mentorship or practicum phase, and is looking to partner with other asthma home visiting programs to provide mentorship. City and state public health agencies are also working together to develop a performance-oriented assessment that will include home visit observation, and the state is piloting an electronic referral from clinical sites to community health sites, with feedback of information.

Boston Breathe Easy at Home

Reid also described the Boston Breathe Easy at Home program, which helps providers to address housing and environmental triggers for their patients with asthma. Clinicians can make online referrals for housing code enforcement inspections from the Boston Inspectional Services Department (Reid et al., 2014). They then receive notifications by e-mail when the inspection been scheduled, any violations that were found, and when violations are resolved. Most violations are resolved by the landlords, without the need for intervention from the court system. Reid noted that the Boston Housing Authority has signed a memorandum of commitment with the code enforcement agency that they will respond within 24 hours to these complaints.

DISCUSSION

Much of the open discussion in this session focused on challenges faced by the collaborative initiative in addressing asthma in the community. Participants also discussed costs and care coordination, making use of geographic information to identify areas of need, addressing asthma upstream, patient privacy, and training.

Housing Challenges

The panel discussed further the challenges of dealing with housing code violations to improve the living environment for patients with asthma. Allan raised the issues of retaliation from landlords when referrals for inspections are made and the costs of remediation to address water, electrical, or other problems. Reid said fear of retaliation is very prevalent (including when the landlord is a family member of the tenant). When the code inspector arrives for a Breathe Easy at Home inspection, he or she stresses to the landlord that the tenant did not register a complaint. The inspector explains that the tenant has asthma and that the doctor is concerned about the tenant's health and has asked for the inspection. Another challenge is scheduling the inspection. Failure mode and effects analysis showed that one of the immediate failure modes is people being lost to follow-up after a referral is made despite many attempts by the Inspectional Services Department to reach them. The analysis also showed areas for improvement and ways to adapt better to the individual in the home (e.g., the hours that calls or inspections are done, the use of phone calls to reach people when many people now text message). Cost is also a challenge, Reid agreed. Boston, like many communities, has small homeowner grants and loans that can help small property owners to maintain decent housing and offers technical assistance on such issues as integrated pest management. The City of Boston is now conducting proactive inspections for code violations (i.e., without referrals), and this work illustrates the diverse mix of partners in public health collaboration, Reid said. In this case, the Office of Fair Housing is a key resource for asthma control.

Other Challenges

Nethersole listed several other challenges, including turnover of staff at partner organizations, differences in outcome expectations (e.g., long-term policy change versus addressing immediate needs), and disputes over ownership (i.e., who takes credit for what). Reid added that the capacity to be the lead agency may be dependent on one dynamic program director. If that person leaves, everyone suffers during the gap period until another leader is established.

Reid noted that although improving public awareness and communication are part of the core mission and function of public health, they are less so for other agencies that might be partners. When doing intergovernmental work, such as working with the city's housing agencies, it is important for public health to not always be out in front, she said. Be sure, for example, that manuscripts include all members of the steering committee from the different agencies, that media coverage acknowledges other partners, and that other agencies have a chance to give presentations.

Mary Pitman from the Public Health Institute asked whether there have been challenges from other provider groups over potential conflicts in scope of practice. Reid said that in the Boston Public Health Commission, the community health workers are in union positions, and the State of Massachusetts is working on a credentialing system.

Robert Kaplan of the Agency for Healthcare Research and Quality noted that another challenge is the ability to recognize value as services become broader. There is a need for both health outcome indicators and process indicators, he said. Another concern is that the process becomes so complicated for providers that it collapses under its own weight. For example, recent discussions with a provider group suggest that they are spending an estimated $50,000 per physician per year to provide all of the indicators of performance to the health plans. Nethersole agreed that there is the potential for overmeasuring and having too many indicators to follow. For the asthma initiative, it is difficult to tease out what part of the intervention makes the difference. Is it the home visit, the supplies provided, the education? Can these pieces of the program be separated? The bundled payment pilot program is looking at a limited number of indicators, such as asthma control test, asthma action plans, number of visits, pharmacy visits, and so forth. She noted that a staff position has been added for the pilot because the tracking of indicators adds another level of administrative burden for which there is no system currently in place.

Isham reflected on the concept of reaching out and doing things that are not usually paid for by health care but that can have significant impact on health care costs. He recalled Linde's comments in the first case study discussion about the HHS secretary's intent to reform payment models. He asked about the challenges of transitioning to a system of shared financial performance around achieving improved health outcomes regardless of whether improvement is the result of medical care, good housing, or other interventions. One of the challenges, Nethersole said, is that even though pediatric asthma is a major driver in terms of hospital admissions overall, it is not the biggest driver of pediatric costs. The major drivers of cost in pediatrics are special health care needs and complex medical problems. Efforts to address costs focus on chronic illness. However, even though asthma is a chronic illness, it is not comparable in costs to caring for children who are machine dependent or ventilator dependent. Many organizations are still trying to determine the best way to structure new payment systems, but we are moving in the right direction, she said.

Costs and Coordination of Care

Lloyd Michener from Duke University said that North Carolina pays for community health workers through Medicaid. The state continually makes adjustments to ensure that the trade-off between avoidable hospital admissions and the cost of the community health worker is balanced and that the use of community health workers remains cost-effective. Michener added that at Duke there are 17 different care manager lines, and a challenge is coordinating who does what, and when, to ensure appropriate care and cost-effectiveness. Nethersole said that they are working to understand what the care coordinators, patient navigators, and case managers are doing in primary care and how that connects with the asthma home visitors and asthma community health workers.

Nethersole said that cost trade-offs (or gains) are theoretical at this stage of the asthma program; the hospital is not yet recouping on its investment, but insurers are beginning to realize savings. The hospital and its pediatric physicians' organization have begun to develop a Medicaid ACO, and there will be data systems that can track this information. Simulations of expenses, quality measures, and value equations will be done, which will become real as the hospital negotiates with managed care resources. The resources are being committed with the goal that, over time, the costs will be mitigated. Aside from the Community Asthma Initiative, the community benefits program supports other partnership programs. A needs assessment identified asthma, obesity, behavioral health, and child development as focus areas, and Boston Children's Hospital has a strong relationship with 11 of the community health centers in the city on these issues. The hospital has moved away from small, disconnected programming at the health centers to focused initiatives with data collection and quality improvement at the health centers.

The participant agreed that it helps to approach these issues as networks, not as individual practices. It also helps to focus on multiple diseases, as concerns such as diabetes and hypertension are often prevalent in same community. This multipractice, multidisease approach also helps to secure sustainable funding. Another participant concurred and added that it is a mistake to have one PCMH try to develop all of these capabilities. It is important to build a web of capability around them.

In response to a question about the inclusion of school nurses in the coordination of care, Reid said that the e-referral pilot project includes communication between community health centers and school nurses so that the nurse has the asthma action plan for the child. In Boston, four nurse leaders each work with a cluster of schools to receive and route the communication to 1 of the city's 135 schools.

Allan asked why Boston Children's Hospital has sustained this collaboration over the years. Nethersole said that the primary reason is the results—the improvement in asthma management and, ultimately, in outcomes for children in Boston regardless of primary care provider. The case manager makes sure the patient has an appointment scheduled with the primary care provider within two weeks of an emergency room visit or hospitalization, follows up after the appointment, and serves as a facilitator of bidirectional communication with the primary care provider—actions that support effective management of childhood asthma.

Mining Geographic Information

A participant asked about mining geocoding data to identify needs. He cited a case in Cincinnati where pediatricians recognized a large volume of illness coming from a certain housing complex. They contacted legal aid, housing, and public health and found out that the

landlord had gone bankrupt. Through legal aid, they were able to facilitate new roofs and remediation of rodents and mold. It was suggested that having the community proactively identify these concerns would be more effective than waiting for an astute clinician to notice or for a patient to complain about the housing. Nethersole responded that getting this type of data from Medicaid has been challenging. They have done geographic information system mapping of their own patients, but not to the building level. The Boston Public Health Commission has identified specific housing developments where a number of patients come from, but conversations with the management of those housing developments have had varied results in terms of producing change. Some of the issues are general upkeep concerns that do not trigger legally mandated change. Reid said the focus is on upstream interventions. For example, the goal at a large housing development proximal to one health center is not to fix specific apartments of people with asthma but to promote a plan to eliminate cockroaches, rodents, and mold from the whole development so everyone gets healthier.

Pamela Russo of the Robert Wood Johnson Foundation mentioned a project in Louisville, Kentucky, that uses inhalers from Propeller Health that include a geographic information system. The device tracks the time and place each time the inhaler is used. Health care providers, the health department, and the city government in Louisville came together on this project because the high prevalence of asthma and respiratory disease was preventing the city from attracting new employers.

Looking Upstream

Pitman said that the asthma program in California is starting to look upstream. One program, Ditching Dirty Diesel, is focused on trucks not idling in low-income communities with higher asthma rates. Reid said that an environmental justice organization in Boston called Alternatives for Communities and Environment has mapped the public transportation bus routes and parking lots and found that the bus lots are all located in the lowest-income neighborhoods. This means that empty buses drive through those neighborhoods to get to the lots and often idle in the lots.

Patient Privacy

Allan asked about data sharing with the housing inspectors and others within the context of the Health Insurance Portability and Accountability Act. Reid said that when a patient accepts the clinician's recommendation for a home inspection referral they sign a Health Insurance Portability and Accountability Act release form. On the referral form there are boxes to check for what the patient reports is in the home so the inspector knows what to look for (e.g., mice, mold, lack of heat). When the inspector goes to the home, he or she gets written permission again from the individual. Nethersole said that there was a lot of discussion about what information should be shared on a referral form for the Asthma Home Visiting Collaborative. There needs to be enough information to inform the process for the visiting health worker.

Training

José Montero of the New Hampshire Department of Health and Human Services asked about incorporating the lessons learned into the training of the next generation of pediatricians, nurses, and other providers. Nethersole responded that the Board of Pediatrics requires that advocacy be included as part of pediatric residency so that they understand the community

agencies and resources that are available. Reid said that some of the residency programs send their medical residents to conduct home visits and inspections with the public health staff.

A webcast participant asked whether community health workers are trained to look for lead hazards or are required to report lead hazards that they find in the course of an asthma home assessment. Reid responded they are trained to look for a number of environmental problems and make referrals for code inspections.

6

Enhancing a Culture of Collaboration to Build a Culture of Health

Lloyd Michener, professor and chair of the Department of Community and Family Medicine at the Duke School of Medicine and a family doctor for 30 years, shared his perspectives on how to enhance the culture of health care and public health collaboration to build a culture of health. The format of the discussion was a facilitated conversation with attendees over lunch, moderated by Paul Mattessich. Culture involves norms, values, attitudes, standards of behavior, assumptions, language, and vocabulary, Mattessich said. Formal structures and institutions are also part of culture. There is not one common culture, and within cultures there are subcultures. Cultures can also be distinct, having minimal interaction with other cultures. For further background, Mattessich referred participants to a literature review of the research on collaboration, first published by Wilder Research in 1992, with a second edition in 2001 and a third edition forthcoming (Mattessich et al., 2001). The reports seeks to identify factors that influence the success of collaboration, which he noted was difficult because most of the research on collaboration is case studies and is not amenable to meta-analysis. The conversation that followed highlighted informal elements of culture that can either facilitate or inhibit collaboration to improve population health.

ACHIEVING MORE TOGETHER THAN APART

Michener was prompted by Mattessich to share a very successful example of collaboration between health care and public health and why he thought it was so successful. Michener cited the collaboration between the Medicaid agencies, primary care practices, and public health in North Carolina as an example of success. This collaboration has led to a statewide 65 percent reduction in admissions for children with asthma over the past 5 years. He noted that the Boston, taking very similar approaches, has seen an 80 percent reduction. Michener stressed that bringing primary care and public health together magnifies the effect that each has separately. Working together can achieve outcomes that make a difference in people's lives.

Finding the Right Partners

Mattessich asked Michener for his observations on Applegate's diagram of micro-, meso-, and macrosystems in practice (see Figure 2-1). Most of the early work is at the micro level, Michener said, inside a system or community of practice. Linking this work at the local

level correlates to the mesosystem level, and linking programs within counties and states is the macrosystem level. A key question is how to get organizations and structures aligned to support each other's interests and connect the networks. He stressed the importance of identifying who should be included and reaching out to those who may not have been asked.

Research shows that having an appropriate cross section of members is an important factor influencing the success of a collaboration, Mattessich added, and that it is important at all levels in the structure (e.g., local, state) as well as within organizations. Problems can occur if part, but not all, of an organization is involved in the collaboration. (e.g., if practitioners start to move ahead too quickly without bringing their management on board; if chief executive officers make promises without considering the practical and operational issues).

Michener highlighted several foundations that are pulling together public health, primary care, and community organizations to align around shared issues (e.g., the de Beaumont Foundation, The Kresge Foundation, the Robert Wood Johnson Foundation, the Colorado Health Foundation, and the Advisory Board Company). Pamela Russo from the Robert Wood Johnson Foundation said the foundation has fostered communities of practice and is also very interested in collective impact. She noted that multisector collaboration is very challenging and asked Mattessich to comment on the return on investment for collaboration. He concurred that multisector collaboration across disciplines that start further apart than public health and primary care is much more difficult (e.g., bringing together finance and public health). There are promising case examples of where collaboration has been cost-effective or cost-beneficial. Different sectors have come together in multiservice centers around affordable housing, nutrition, exercise, access to primary care, and so forth.

Sanne Magnan said that the Institute of Clinical Systems Improvement in Minnesota has competitors sitting around the table, including medical groups, hospitals, and health plans. She observed that healthy competition can be an element of collaboration. Transparency allows partners to see each other’s progress and strive to do better.

Speaking the Language of Collaboration

Michener concurred with the importance of connecting within one’s own organization and highlighted the role of language in inviting others in. In many cases, for example, primary care and public health use the same words but with different meanings. A hospital chief financial officer speaks in terms unfamiliar to many in health care. Language differences are both disciplinary and cultural, Mattessich said, and have evolved over long periods of time. Some language is deeply ingrained within a system, he observed. For example, a social worker, a health care professional, and a schoolteacher will refer to the same person as their client, patient, and student, respectively.

Several participants offered examples of situations where language has been a barrier or a facilitator to collaboration. “Population health,” for example, means different things to different people. Some hear “integration” and interpret it to mean others want their money or are invading their “turf.” It was observed that “alignment” is often a more palatable term than “integration.” Mattessich added that collaboration has to be perceived as being in the self-interest of the participants. All parties need to understand that what can happen in the aggregate, as a result of their joint efforts, can be of benefit to them. The cost needs to be worth the risk. It was pointed out that workers’ organizations are population health organizations concerned about improving the health and safety of vulnerable people, but most are not familiar with the language of

population health. As we change our language, Michener said, others find they can join in and work toward common goals.

Strong Leadership for the Journey

Mattessich reiterated the point made during the case study discussions about the importance of leadership in successful collaborations. Sometimes initiatives are built around a charismatic leader, and attempts to replicate and take them to scale does not always work. Michener noted that examples such as Million Hearts and others show what can be achieved in communities and states through collaboration if the necessary elements are in place. Michener said fear of failure often gets in the way of success, and leaders should be "given permission" to try new approaches without fear and learn from those that turn out less than ideal. Progress is a journey, he said.

ADVANTAGES AND DISADVANTAGES OF COLLABORATION

Michener was asked to comment on the advantages of collaboration and the perceived disadvantages or barriers. A major benefit of collaboration is that it brings people together and brings them "back to their roots," he responded. Most people who enter the fields of medicine, public health, or social work do so because of a desire to help others and to be a part of something larger than themselves. Bringing people together, with the goal of working more effectively together than separately, taps into deeply held values that people have not lost, but perhaps have lost sight of over time. Those deeply held values help to overcome the initial barriers between different community members. A second, related advantage of collaboration, he said, is the sense of being more effective and making a difference more broadly in the things that really matter (beyond one's own patients and clients, for example). A third, also related, reason to pursue collaboration is that it works, and it can be fun, he said. So much focus is placed on perseverance and on measuring success by how much effort is expended. Collaboration means that others are there to help take the load off. If we can be willing to let go, there is a sense of relief and a sense of joy and motivation in being part of something larger than oneself.

A challenge to collaboration is what Michener described as a sense of marginalization in primary care and public health, a feeling of always being at the bottom, which makes some suspicious about collaboration. The term "integration" raises fears that a group's already limited funding will now be going to a different group. Within medicine the culture is very focused on one's own practice, he said, while collaboration offers the possibility of being successful on a larger stage. Other barriers to collaboration are the inability to work with data and inexperience with teamwork. Primary care groups are often not trained in these areas. Internal office teams may function well, but there is limited experience in working with external teams. As mentioned earlier, language issues and fear of failure are also barriers.

Collaboration is a tool in a tool set, suggested Isham, and is not the answer to everything. He suggested pros and cons to collaboration be considered with respect to what the partners are trying to achieve together. In collaborating, an organization or individual gives up maximizing one's own outcome as an individual player; however, the organization or individual gains the power of working with others and acquires access to other skill sets to achieve a goal that could not be achieved alone. Population health demands that multiple sectors work together, he said. Mattessich concurred that collaboration is a tool, not an end in and of itself. He noted that some foundations have required collaboration as a prerequisite for obtaining a grant, which has led to various problems. Although this requirement has sometimes brought agencies together, they did

not really know what to do once they were together. The culture and technology were not developed such that they could collaborate. The literature suggests that a collaboration should have a unique purpose that none of the members has as his or her sole purpose. Otherwise, he continued, the initiative can be seen as threatening to that individual member. All members should be able to see how participating in the collaboration meets their self-interest, meets the community interest, and yet is not subsuming their own purpose.

Collaboration also requires relationships and trust, Michener said. Mattessich said that from the collaboration research over the past 30 years, the two elements that stand out as being extremely important, transcending all forms of collaboration, are mutual understanding and trust among the participants and communication. For any collaboration to be effective, there must be communication and trust. If trust is not there initially, the work must be paced in a manner that allows for trust to be built.

Phyllis Meadows of the Kresge Foundation offered her opinion as a public health practitioner and as a philanthropist, saying that she could not imagine any problem that has been addressed effectively without some level of collaboration. She agreed, however, that there is a level of readiness and a certain amount of skill and competency that must be in place to be effective in a collaboration. There are also some contextual realities that need to be in place, along with political will, the opportunity, and the space and resources to do collaboration, she said. The research strongly validates the point that a history of collaboration in the community will greatly influence the success of any new collaborative initiative, Mattessich said. If the social, political, and other cultural elements are there, people are more ready to collaborate. If those elements are not there, a new culture needs to be created, starting slowly to foster collaboration over short-term goals so that a history develops.

MOVING FORWARD

It is time to shift from trying to get things started to looking at who is missing from the table and inviting other people in, Michener concluded. Continually look for who is missing because circumstances continue to change. Collaboration is built on the fundamental elements of trust and person-to-person communication, Mattessich said. Sometimes it is the informal relationship building (e.g., coffee shop conversations) that fosters progress and a culture of collaboration.

7

Reflections on the Day

In the final discussion, roundtable members and attendees reflected broadly on opportunities at the interface of health care and public health. Paul Mattessich opened the discussion with his summary of what he heard as common themes throughout the presentations and discussions. Participants then discussed important takeaway messages from the workshop and considered future actions.

OVERVIEW OF COMMON THEMES

Mattessich highlighted 12 themes that he said emerged from the workshop discussions.

- **Collaboration is essential.** The issues we are facing are complex, Mattessich said. Health is influenced not only by health care but also by environmental, social, political, economic, and other factors. A health-in-all-policies approach inherently requires collaboration, he continued. Health care and public health need to collaborate with each other and with other systems and departments (e.g., transportation, natural resources). Working in communities requires the involvement of different organizations that can help to bridge linguistic and cultural barriers. Collaborative action of organizations is also needed to ensure adequate and sustainable resources and funding.
- **There is success to build on.** The workshops highlighted a variety of case examples of successful health care and public health collaborations. Mattessich observed that progress is being made not only with service integration but also with payment approaches. Ongoing research is contributing to this progress and developing an evidence base.
- **Successful collaboration is being endorsed at the highest levels.** HHS and others at the federal level, health care leaders, foundations, and academic leaders are endorsing collaboration between health care and public health, even if action and funding are lagging in some spheres, Mattessich said.
- **Leadership is a key element of successful collaborations.** Across all of the examples, strong leadership was an essential element of success in collaboration. There is also empirical evidence of the critical role of leadership across partnerships (see Chapter 4).
- **Data and metrics are needed to assess impact.** An often-raised challenge was the lack of data for strategic and operational planning for collaboration and for monitoring the success of collaborations. Existing data are often difficult to access or are not available at the appropriate level for analysis (e.g., data from EHR systems, claims data). Some of the case examples demonstrated how the process of joint measurement has led to the building

of relationships among collaborators. Community needs assessments can target the places where the need for services is the greatest, and then outcomes are monitored to determine whether the collaborative initiative is having an effect (e.g., reduced emergency department visits, hospital admissions, costs).

- **It is important to understand why collaborations fail.** A challenge to moving forward is that failures are rarely reported, Mattessich said. Looking back at case studies over the past 30 years, it is very difficult to find failures in the literature, he said. To advance the field, it is important to study unsuccessful collaborations and discover why they fail.
- **Setting clear goals is essential.** Many speakers stressed the importance of developing commonly accepted and understood goals to provide focus and orientation for the collaboration.
- **Don't just plan, implement.** If we have a propensity to act, and not just to talk and plan, we will be more effective, Mattessich said. Nothing will ever be perfect; we have to move ahead when things are good enough. Focus on a smaller number of issues, build, and create momentum, and change will occur.
- **Understand the multiple layers.** The examples discussed demonstrate that, to be effective, it is important to understand and involve various levels of management and operations within organizations and across systems. Mattessich cited the Boston Asthma Home Visit Collaboration as an example in which city-, agency-, and community-level organizations were engaged in order for success to occur (Chapter 5).
- **Innovation occurs naturally in unexpected and sometimes serendipitous ways.** Once collaborations are under way, good ideas that would not have been thought of at the beginning often emerge, because people are creative and entrepreneurial, Mattessich observed. As examples, he recalled the availability of blood pressure cuffs for loan from libraries and protocols for screening and referral by barbershops as part of Million Hearts (Chapter 3).
- **It is important to both build, and build on, relationships.** Collaboration takes a lot of effort up front to engage and motivate extremely busy people and to explain how participating is in their interest. Developing the necessary relationships involves overcoming language and cultural issues across communities and disciplines. It was discussed that decisions and actions should be based on what patients and communities want, not what the collaborative thinks that they want. This effort requires interaction with the communities, professionals across disciplines, and other stakeholders. This could be more formal, such as community needs assessments or the result of ongoing informal conversations.
- **It is necessary to reach out to other systems.** In order to create a culture of health, health care and public health need to collaborate not only with each other but also with other systems, such as schools, housing, employers, and others.

PARTICIPANT PERSPECTIVES

Moderator Mattessich asked roundtable members and participants to briefly suggest something they learned at the workshop that they would bring back to their organizations, communities, professional group, and so forth. The following topics were highlighted by individuals as takeaway messages.

Reid of the Boston Public Health Commission said that the payment issue is very complicated and observed that communities are at different places in their conversations about

payment reform, with some more advanced than others. An IOM staff member noted the synergy between the work of the Roundtable on Population Health Improvement and her work with a roundtable considering obesity solutions. Baase of Dow Chemical Company made an observation about the rapid pace of change and the need to recognize that as we are moving forward, so are others. We need to keep reaching back out to people and expecting that things have changed, she said. A participant from ASTHO noted the need to revisit its list of partners and determine who is not part of the collaborative and how it might work with them. Another participant from ASTHO highlighted the value of the study by Prybil and colleagues in helping to measure the success of current collaboratives and identify potential failures and where quality can be improved. Several participants highlighted the importance of engaging people from other sectors in a meaningful way. They expressed hope that the successful examples discussed would lend credence to the collaborative approach, and some wanted to see more examples of successful collaborations that engaged other sectors. Isham mentioned that dentistry and oral health are among the sectors that are often omitted. Allan of the Cuyahoga County Board of Health said some of the examples showed real change in the relationships and the level of engagement around the population health concept, which he felt was very motivating. A participant from the California Endowment stressed that it is important, but not sufficient, to talk to or survey communities; they must also be involved in decision making. A participant suggested that the "certificate of need" process should be expanded in ways that bridge medical care and public health, and agencies (e.g., HRSA) could provide information about how they identify health care resource shortage areas.

CLOSING REMARKS

Getting healthy requires broad, multisectoral collaboration, said David Kindig. He offered several thoughts for further consideration. What is the "glue" or resources that are needed to make collaboration happen? Does investment in this type of multisectoral collaboration provide a higher return than investment in other approaches to health and health care? Is there a need for more research, such as that described by Prybil, about who participates in the partnerships, how they are funded, which sector takes the lead, which is the anchor organization, and other questions?

A key question is where the money will come from for these collaboratives. While there are examples of impressive and successful voluntary efforts, Kindig suggested that they are rare. This is too important to depend on informality and happenstance, he added. It is not clear where the responsibility for funding rests, and a variety of funding sources were mentioned during the workshop (e.g., community benefit dollars, Medicaid, foundations). Every community needs to identify some modest, sustainable resources to bring people to the table from across sectors, he concluded.

Appendix A

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Appendix B

Workshop Agenda

Opportunities at the Interface of Health Care and Public Health: A Workshop

February 5, 2015

National Academy of Sciences, Lecture Room
2101 Constitution Avenue NW
Washington, DC

WORKSHOP OBJECTIVES

1. Discuss and describe the elements of successful collaboration between health care and public health organizations and professionals
2. Reflect on the five principles of primary care–public health integration (which can be applied more broadly to the health care public health relationship): shared goals, community engagement, aligned leadership , sustainability, and data and analysis
3. Explore the "elephants in the room" when public health and health care interact: what are the key challenges and obstacles and what are some potential solutions, including strengths both sides bring to the table

8:30 a.m.	**Welcome** George Isham, senior advisor, HealthPartners, senior fellow, HealthPartners Institute for Education and Research; co-chair, Roundtable on Population Health Improvement Paul Jarris, executive director, Association of State and Territorial Health Officials
8:40 a.m.	**Context and Overview of the Day** Julie K. Wood, vice president for Health of the Public and Interprofessional Activities, American Academy of Family Physicians; member, ASTHO Integration of Primary Care and Public Health Collaborative; co-chair of the workshop planning committee José Montero, director, New Hampshire Division of Public Health Services; member, ASTHO Integration of Primary Care and Public Health Collaborative; member, IOM Roundtable on Population Health Improvement; co-chair of the workshop planning committee

9:00 a.m.	**Case Study 1: Payment Reform** Moderator: Rear Admiral Sarah Linde, chief public health officer, Health Resources and Services Administration Mary Applegate, Medicaid director, state of Ohio Theodore Wymyslo, former state health officer, Ohio; chief medical officer, Ohio Association of Community Health Centers
10:30 a.m.	**Break**
10:45 a.m.	**Case Study 2: Million Hearts** Moderator: Paul Jarris, executive director, Association of State and Territorial Health Officials Guthrie Birkhead, deputy commissioner, New York State Department of Health Joseph R. Cunningham, vice president of health care delivery and chief medical officer, Blue Cross and Blue Shield of Oklahoma
12:15 p.m.	**Lunch and Conversation: Enhancing a Culture of Collaboration to Build a Culture of Health** Facilitator: Paul Mattessich, executive director, Wilder Research, Amherst H. Wilder Foundation Lloyd Michener, professor and chair, Department of Community and Family Medicine, Duke School of Medicine All speakers and audience members
1:45 p.m.	**Case Study 3: Collaboration between Hospitals and Public Health Agencies** Moderator: Sunny Ramchandani, medical director, Healthcare Business Directorate, Naval Medical Center San Diego Lawrence Prybil, Norton Professor in Healthcare Leadership and associate dean, College of Public Health, University of Kentucky Nicole A. Carkner, executive director, Quad City Health Initiative (Illinois and Iowa)
3:15 p.m.	**Break**
3:30 p.m.	**Case Study 4: Asthma** Moderator: Terry Allan, health commissioner, Cuyahoga County Board of Health, Ohio Margaret Reid, director, Division of Healthy Homes and Community Supports, Boston Public Health Commission; and the Boston Asthma Home Visit Collaborative Shari Nethersole, executive director for community health, Boston Children's Hospital; assistant professor of pediatrics, Harvard Medical School
5:00 pm	**Reflections on and Reactions to the Day** Paul Mattessich, executive director, Wilder Research, Amherst H. Wilder Foundation
5:30 p.m.	**Adjourn** David Kindig, professor emeritus of population health sciences, emeritus vice chancellor for health sciences, University of Wisconsin, School of Medicine and Public Health; co-chair, IOM Roundtable on Population Health Improvement

Appendix C

Speaker and Moderator Biographical Sketches

Terry Allan, M.P.H., is immediate past president of the National Association of County and City Health Officials (NACCHO). Since 2004, he has been the health commissioner at the Cuyahoga County Board of Health, which serves as the local public health authority for 885,000 citizens in 57 Greater Cleveland communities. He holds a bachelor of science degree in biology from Bowling Green State University and a master of public health degree from the University of Hawaii. Mr. Allan is an adjunct faculty member at Case Western Reserve University's School of Medicine and was a Year 13 Scholar of the National Public Health Leadership Institute. He is a past president of Ohio's State Association of County and City Health Officials and the Association of Ohio Health Commissioners and has served as an at-large member of the NACCHO Board of Directors since 2007. Mr. Allan has worked in public health for 22 years in Greater Cleveland, working to reduce childhood lead poisoning rates by half since 2004 and reducing smoking rates by 11 percent since 2003. He has dedicated his career to cultivating a wide range of partnerships with industry, academia, medicine, nonprofits, and other governmental agencies at the state, local, and national levels to address the public health needs of the community. He served as a representative of NACCHO on the Standards Development Workgroup for the National Public Health Accreditation Board (PHAB) and chaired a local health department site visit team during the Beta Test of the PHAB standards. In May 2009, Mr. Allan had the honor of testifying before the U.S. House of Representatives Government Oversight and Reform Committee concerning public health pandemic influenza preparedness and resource needs. In addition, he participated in a White House meeting on the national response to Novel H1N1 Influenza in September 2009. In June 2010, Mr. Allan participated on behalf of NACCHO in a congressional briefing on local public health job losses.

Mary Applegate, M.D., is double-boarded in pediatrics and internal medicine. After more than 20 years of experience in rural private practice, Dr. Applegate now serves as the medical director of Ohio Medicaid. She is responsible for infusing high-quality clinical medicine into the program, driving improvements in health outcomes for Medicaid beneficiaries. Dr. Applegate leads several quality improvement initiatives across multiple agencies and disciplines—particularly in the fields of perinatal health, physical and mental health integration, and the appropriate utilization of high-risk drugs such as atypical antipsychotics and opioids. She spearheads the perinatal workgroup for the Medicaid Medical Directors Network and co-chairs

the Centers for Medicare & Medicaid Services expert panel to improve maternal and infant outcomes. Her other interests include home and hospice care, patient empowerment, and health system transformation. Dr. Applegate is an honors graduate of The Ohio State University College of Medicine.

Guthrie Birkhead, M.D., M.P.H., is deputy commissioner in charge of all public health programs at the New York State Department of Health. He is the chief public health physician in the department and directs the Office of Public Health, which encompasses public health programs in the Center for Community Health (communicable disease control, maternal child health, chronic disease, nutrition), the Center for Environmental Health, the AIDS Institute (HIV, sexually transmitted diseases, hepatitis), the Wadsworth Laboratory, the Office of Health Emergency Preparedness, the Office of Public Health Informatics and Project Management, and the Office of Public Health Practice (Article 6 and performance management programs). Dr. Birkhead is board certified in internal medicine and preventive medicine. He is also professor of epidemiology and biostatistics at the School of Public Health, University at Albany.

Nicole Carkner, M.B.A., has been the executive director of the Quad City Health Initiative since 2001. As executive director, Ms. Carkner develops and facilitates cross-sector collaborative partnerships to create a healthier community in eastern Iowa and western Illinois. Formerly, Ms. Carkner was a health care management consultant working across the country with hospital systems, pharmaceutical companies, health care insurers, and health-related government agencies. Her expertise includes strategic planning, community health assessments, population health management, and project leadership. Ms. Carkner serves on the national Advisory Council of the Association for Community Health Improvement. She holds an M.B.A. in health care management from the Wharton School of the University of Pennsylvania and an A.B. degree with majors in biology and government from Dartmouth College.

Joseph Cunningham, M.D., is board certified in obstetrics and gynecology. Dr. Cunningham spent 21 years in private practice serving as a staff physician at St. John Medical Center in Tulsa. He then joined Blue Cross and Blue Shield of Oklahoma in 2007 as the medical director of medical services over the Utilization Management and Case Management Departments. Two years later, he was named the company's vice president of health care management and chief medical officer. In December 2014 he was named the vice president of health care delivery and chief medical officer overseeing both medical and network/provider areas. A native of Siloam Springs, Arkansas, Dr. Cunningham earned an undergraduate degree in chemistry and attended medical school at the University of Arkansas. He also conducted postgraduate studies at the University of Oklahoma–Tulsa. Dr. Cunningham is a Fellow of the American College of Obstetricians and Gynecologists, and he is a member of both the Oklahoma State Medical Association and the Tulsa County Medical Society.

Paul Jarris, M.D., M.B.A., has served as the executive director of the Association of State and Territorial Health Officials (ASTHO) since June 2006. Prior to his appointment at ASTHO, Jarris served as commissioner of health at the Vermont Department of Health from 2003 to 2006. His achievements included conceiving and implementing the Vermont Blueprint for Health, a statewide public–private partnership to improve health while reforming the state's health care system. Dr. Jarris also led the establishment of Vermont's first inpatient substance abuse

treatment program for adolescents and women. Leaving Vermont to lead ASTHO, Dr. Jarris continued to combine his passion for family medicine and public health. Under his leadership, ASTHO became a founding organization for the Public Health Accreditation Board and the Alliance to Make U.S. Healthiest. During the 2009 H1N1 crisis, Dr. Jarris positioned ASTHO as a vital link facilitating effective pandemic coordination efforts between state health agencies, the White House, Congress, Centers for Disease Control and Prevention, and national retail pharmacies. Among other accomplishments at ASTHO, he fostered partnerships between state health agencies, the March of Dimes, and the Health Services Resource Administration that have dramatically improved preterm birth outcomes. Dr. Jarris also oversaw the creation of the ASTHO-supported Primary Care and Public Health Collaborative, a network of 63 leading health care and public health organizations with the mission of implementing integrated efforts to improve population health and lower health cost.

Sarah Linde, M.D., RADM, is a medical officer in the Commissioned Corps of the U.S. Public Health Service. She currently serves as the chief public health officer for the Health Resources and Services Administration (HRSA), which works to improve health and achieve health equity through access to quality services, a skilled health workforce, and innovative programs. Prior to HRSA, Dr. Linde was the deputy director of the Office of Disease Prevention and Health Promotion in the Office of Public Health and Science in the Office of the Secretary of Health and Human Services. There, she helped oversee national disease prevention and health promotion activities, including Healthy People, the *Dietary Guidelines for Americans*, and the Physical Activity Guidelines. Her previous assignments include the Food and Drug Administration (FDA) Office of Orphan Products Development, which helps in the development of drugs, biologics, and devices for rare diseases, and the National Health Service Corps in HRSA, where she served as the director of the Shenandoah Valley Family Health Center, a community health center in Inwood, West Virginia. Dr. Linde is board certified in family practice and is a graduate of the Uniformed Services University of the Health Sciences Medical School in Bethesda, Maryland.

Paul W. Mattessich, Ph.D., has served as executive director of Wilder Research since 1982, building a research team of about 80 people from multiple disciplines who devote themselves to increasing the effectiveness of services, programs, organizations, and policies intended to improve the lives of individuals, families, and communities. Dr. Mattessich lectures frequently throughout the United States and the United Kingdom, especially on topics of organization and service effectiveness, collaboration/partnerships, and major social trends. He has written or cowritten more than 300 publications. Since 2000, he has spent several weeks each year in Belfast, Northern Ireland, working with youth development and civic engagement organizations that promote democratic skills to bring communities together and to resolve conflict. He has served on a variety of government and nonprofit boards of directors and special task forces. He currently sits on the boards of the Hamm Memorial Psychiatric Clinic and of Minnesota Community Measurement. He has an appointment as adjunct faculty in the Department of Youth Studies, School of Social Work, at the University of Minnesota. He received his doctorate in sociology from the University of Minnesota.

Lloyd Michener, M.D., is professor and chairman of the Duke Department of Community and Family Medicine, director of the Duke Center for Community Research, and clinical professor in the Duke School of Nursing. He co-chairs the Community Engagement Steering Committee for

the Clinical Translation Science Awards of the National Institutes of Health and is a member of the board of the Association of American Medical Colleges. Dr. Michener is past president of the Association for Prevention Teaching and Research (APTR) and received the APTR Duncan Clark Award in 2013. He is also a past member of the Institute of Medicine committee whose work led to the publication of *Primary Care and Public Health: Exploring Integration to Improve Population Health*. At Duke, Dr. Michener founded the training programs in nutrition and prevention; helps coordinate the institutional chronic disease programs; and oversees the Master's Program in Clinical Leadership, a joint program of the Schools of Medicine, Nursing, Business, Law, and the Institute of Public Policy. As chair of the department, he leads the family medicine, preventive/occupational medicine, community health, informatics, and physician assistant and physical therapy programs. Dr. Michener's primary interest is in redesigning health care to improve community health outcomes and in rapidly transforming health care delivery systems with a focus on finding ways of making health care work better through teams, community engagement, and practice redesign. He graduated from Oberlin College in 1974 and from Harvard Medical School in 1978. He was a resident in family medicine at Duke from 1978 to 1981 and a Kellogg Fellow in Family Medicine from 1981 to 1982, after which he joined the Duke faculty. In 1994, he was named professor and chairman of the department.

Shari Nethersole, M.D., is the medical director for community health at Boston Children's Hospital. For more than 25 years, Dr. Nethersole has been a pediatrician caring for children in Boston and still sees patients in the Children's Hospital Primary Care Center. In her role as medical director, she oversees the hospital's community health mission, which addresses the most pressing health issues affecting children in our cities—currently asthma, mental health, obesity, and child development. She works with community organizations, community health centers, schools, and city and state agencies to address health disparities and improve the health of children and families in the community through programming, partnerships, and advocacy. She established the Community Asthma Initiative in 2005 as well as the Fitness in the City Program to address childhood obesity. She is also an active advocate at the city and state level for child health priorities. In addition to external collaborations, Dr. Nethersole facilitates the internal hospital connections and collaborations needed to support the community health mission, trying to align the clinical mission and services of the hospital with community health needs.

Lawrence Prybil, Ph.D., is the Norton Professor in Healthcare Leadership and associate dean at the University of Kentucky's College of Public Health. He is a professor emeritus at the University of Iowa, where he served as associate dean and senior advisor to the dean in the University of Iowa's College of Public Health. Before returning to Iowa to participate in building its new College of Public Health, Dr. Prybil held senior executive positions in two of our country's largest nonprofit health systems for nearly 20 years, including 10 years as chief executive officer for a 6-state division of the Daughters of Charity National Health System. Dr. Prybil received his master's and doctoral degrees from the University of Iowa's College of Medicine and is a Life Fellow in the American College of Healthcare Executives. He has served on the governing boards of hospitals, health systems, state hospital associations, the American Hospital Association, and other nonprofit and investor-owned organizations. He presently serves on the national board of the American Hospital Association's Center for Healthcare Governance. Dr. Prybil has written or co-written 101 publications. He is recognized for expertise in

governance and executive leadership, has directed a series of national studies regarding governance practices in nonprofit hospitals and health systems, and recently completed a study of successful partnerships involving hospitals, public health departments, and other stakeholders focused on improving the health of communities they jointly serve.

Sunny Ramchandani, M.D., M.P.H., FACP, is commander and medical director in the Healthcare Business Directorate, Naval Medical Center San Diego, and is a lieutenant commander and physician in the U.S. Navy. He was previously the integrated chief of general internal medicine at the Walter Reed National Military Medical Center, where he cofounded an innovative primary care delivery model that has enhanced quality, reduced overall costs, and been adopted by the entire U.S. military health system. In 2009, he deployed to Afghanistan as the senior medical mentor for the Afghan National Security Forces, guided the execution of a new health care reconstruction strategy, and received the Bronze Star. Dr. Ramchandani earned his M.P.H. from the Harvard School of Public Health and his M.D. from the Yale School of Medicine, where he received the Norman Herzig Award for his dedication to humanitarian service in India. He earned his B.S. from the U.S. Naval Academy, where he was a Truman Scholar and graduated first in his class academically.

Margaret Reid, R.N., is director of the Division of Healthy Homes and Community Supports at the Boston Public Health Commission (BPHC). With Ms. Reid's background in community health nursing, she has spearheaded multiple efforts at the BPHC to connect clinical care with public health systems and policy efforts, most recently working with Boston health centers to introduce into pediatric electronic health records tobacco use screening and referral to counseling for parents and to introduce asthma assessment and referral for home visits. Ms. Reid oversees Breathe Easy at Home and the Boston Asthma Home Visit Collaborative, both recipients of national recognition. Ms. Reid has received the Revere Award for Excellence in Public Health, the highest award given to a BPHC employee.

Julie K. Wood, M.D., FAAFP, became the vice president for health of the public and interprofessional activities of the American Academy of Family Physicians (AAFP) in 2013 after a lengthy period of member service with the AAFP, including serving on its board of directors. She has oversight responsibilities for the public health, scientific, and research activities of the AAFP, as well as the AAFP's relationships with other medical organizations in the United States and abroad. Through these relationships, Dr. Wood facilitates the continued development of family medicine and coordinates the AAFP's international activities. Dr. Wood oversees AAFP efforts to involve family physicians in targeted public health activities, including tobacco, obesity, exercise, and immunization. Science staff develops clinical policies and supports, conducts, and disseminates practice-based primary care research with the aim of improving health and health care for patients, their families, and communities. Under Dr. Wood's direction, the AAFP helps lead family physicians in health promotion, disease prevention, and chronic disease management as outlined in the AAFP's mission and strategic plan. She leads the AAFP in its efforts to explore collaborative opportunities in additional areas related to the health of the public, such as health disparities, patient education, social determinants of health, and medical genomics. As vice president, Dr. Wood also helps direct organization-wide strategy and policy-development activities in addition to participating actively in the work of the AAFP Board of Directors. She is based at the AAFP's headquarters office in Leawood, Kansas. Dr. Wood has

been a practicing family physician for nearly 20 years, starting out as a solo rural family physician in her hometown of Macon, Missouri. She has a breadth of experience in family medicine, serving a diverse range of patient populations. Before joining the AAFP staff, Dr. Wood served as associate director of Research Family Medicine Residency Program in Kansas City, Missouri. She also served as the medical director of Goppert-Trinity Family Care, a 55-provider outpatient clinic. Dr. Wood served as the physician lead for the clinic's involvement in a multicenter, patient-centered medical home pilot project, which led to the clinic being among the first in Kansas City to achieve recognition by the National Committee of Quality Assurance as a Level 3 patient-centered medical home. A member of the AAFP since 1988, Wood has served on numerous committees and commissions, including the Commission on Public Health and Science, the Commission on Health Care Services, the Commission on Membership and Member Services, and the Committee for Special Constituencies. She most recently served as chair of the Commission on Public Health and Science. Wood earned her undergraduate degree and her medical degree from the University of Missouri–Kansas City. She then completed her residency at Via Christi–St. Francis Family Medicine Residency Program in Wichita, Kansas. She is board certified by the American Board of Family Medicine and has the AAFP Degree of Fellow, an earned degree awarded to family physicians for distinguished service and continuing medical education.

Theodore Wymyslo, M.D., is a family physician with more than 30 years of experience as a clinician. He has held leadership roles in family practice residency training, medical student teaching, local and state professional associations, free clinic and homeless shelter health care delivery, public health, and patient-centered medical home (PCMH) advocacy across the state of Ohio. He is the immediate past director of the Ohio Department of Health (2011–2014), appointed by Ohio governor John Kasich. Prior to that appointment, Dr. Wymyslo served as the director of Family Medicine Dayton, a PCMH initiative. As director of the Ohio Department of Health, Dr. Wymyslo established the Ohio Patient-Centered Primary Care Collaborative, convening stakeholders from across Ohio to effect health care delivery reform. Today Dr. Wymyslo serves as the chief medical officer of the Ohio Association of Community Health Centers, with 44 Federally Qualified Health Center members serving 563,000 patients in 220 sites across the state, 85 of which are PCMH-recognized. He is also senior advisor to Better Health Greater Cleveland, an alliance for improved health care in Northeast Ohio, with 70 primary care practices across seven counties engaged in a regional learning collaborative. Dr. Wymyslo sits on the boards of the Ohio Academy of Family Physicians and Better Health Greater Cleveland and serves as a volunteer family physician at the Physicians Free Clinic at Columbus Public Health. He graduated from The Ohio State University College of Medicine, is board certified in family medicine, and is a Fellow in the American Academy of Family Physicians. He served as the program director of the Miami Valley Hospital Family Medicine Residency Program for more than 20 years, with a teaching appointment in the Department of Family Medicine at the Wright State University Boonshoft School of Medicine. For his involvement in teaching and community service, Dr. Wymyslo has received a number of recognition awards, including the American Academy of Family Physician Foundation's Philanthropist of the Year Award in 2003, the American Medical Association Foundation's Pride in the Profession Award in 2006, the Ohio Academy of Family Physician's Torchlight Leadership Achievement Award in 2009, the Ohio State Medical Association's Physician Advocate of the Year Award in 2014, and most recently the Patient-Centered Primary Care

Collaborative's first Primary Care Community Leadership Award in November 2014. With many years of experience in both primary care and public health, he continues his efforts to identify opportunities for collaboration between these disciplines in an effort to improve population health.