Primary Care and Public Health Activities in Select US Health Centers: Documenting Successes, Barriers, and Lessons Learned

Lydie A. Lebrun, PhD, MPH, Leiyu Shi, DrPH, MBA, MPA, Joya Chowdhury, MPH, Alek Sripipatana, PhD, MPH, Jinsheng Zhu, MEc, Ravi Sharma, PhD, A. Seiji Hayashi, MD, MPH, Charles A. Daly, MHA, Naomi Tomoyasu, PhD, Suma Nair, MS, RD, and Quyen Ngo-Metzger, MD, MPH

Objectives. We examined primary care and public health activities among federally funded health centers, to better understand their successes, the barriers encountered, and the lessons learned.

Methods. We used qualitative and quantitative methods to collect data from 9 health centers, stratified by administrative division, urban–rural location, and race/ethnicity of patients served. Descriptive data on patient and institutional characteristics came from the Uniform Data System, which collects data from all health centers annually. We administered questionnaires and conducted phone interviews with key informants.

Results. Health centers performed well on primary care coordination and community orientation scales and reported conducting many essential public health activities. We identified specific needs for integrating primary care and public health: (1) more funding for collaborations and for addressing the social determinants of health, (2) strong leadership to champion collaborations, (3) trust building among partners, with shared missions and clear expectations of responsibilities, and (4) alignment and standardization of data collection, analysis, and exchange.

Conclusions. Lessons learned from health centers should inform strategies to better integrate public health with primary care. (*Am J Public Health.* 2012; 102:S383–S391. doi:10.2105/AJPH.2012.300679)

The Health Center Program, administered by the Bureau of Primary Health Care in the Health Resources and Services Administration of the US Department of Health and Human Services, provides funding for primary and preventive health care services for almost 20 million patients each year.[1] Health centers (HCs) provide a safety net for the nation's medically underserved populations, such as the uninsured, the poor, racial/ethnic minorities, homeless persons, migrant and seasonal farmworkers, and public housing residents.[2] Previous research has documented that HC quality of care is comparable to or better than that of other primary care providers and that HCs help reduce health care disparities.[3–5]

HCs also have a recognized history of community involvement and empowerment that facilitate integration of their primary medical care services with public health activities to affect the social determinants of health and well-being.[6–12] Despite this history, few systematic descriptions and assessments of such efforts exist. More efforts are needed to illuminate how the safety net system can be organized to address the public health needs of the nation's most vulnerable populations.[13,14] We therefore conducted a cross-sectional study to highlight the successes of several exemplary HCs in integrating primary care and public health, identify barriers to success, and offer lessons learned that might enlighten other HCs considering similar integrated programs.

METHODS

We used quantitative and qualitative methods to obtain information from several HCs regarding their primary care and public health activities. Data sources for these case studies were the Bureau of Primary Health Care–administered Uniform Data System (UDS),[15] to which all HCs submit information annually; questionnaires about primary care and public health activities; semistructured phone interviews; and document reviews.

We selected 9 HCs after consulting staff from the Bureau of Primary Health Care and the National Association of Community Health Centers who were familiar with HCs engaged in public health–related activities. The selection process also considered geographic (urban–rural) and population (race/ethnicity) diversity. We contacted HC key informants (e.g., chief executive officers, chief medical officers) to ask for their participation. All 9 HCs agreed to participate, and all 9 completed the requested questionnaires and participated in the interviews.

Quantitative Data

Uniform Data System. The Bureau of Primary Health Care requires all HCs to report their clinical and administrative data annually to a program-monitoring database, the UDS. The UDS collects and stores a variety of data aggregated to the HC organization level. The UDS collects data on patient characteristics (e.g., sociodemographics, select clinical information), care delivery and quality (e.g., types and quantity of services provided, staffing, clinical performance indicators), and institutional characteristics (e.g., systems and infrastructure characteristics, costs, revenues). We obtained descriptive data on patient and institutional characteristics from the 2010 UDS (most recent year available) for the selected HCs.

The selected patient characteristics reflected some key demographic factors of interest to the Health Center Program, such as racial/ethnic

minority composition, poverty and insurance status, and major chronic conditions (diabetes, hypertension).[16–18] Other vulnerable groups examined were infants, children, adolescents, pregnant women, and elderly persons (aged ≥ 65 years). Specific communicable diseases examined were HIV, tuberculosis, syphilis and other sexually transmitted infections, hepatitis B, and hepatitis C. The selected institutional characteristics described the provider and financial attributes of these safety net settings: the primary care team (primary care physicians, nonphysician providers, enabling service providers [e.g., case managers, outreach workers, interpretation staff]), funding sources (grants, reimbursement), revenue (total, net), and costs (medical, total).

Primary Care Assessment Tool. In June 2011, participating HCs received a questionnaire that assessed primary care services through scales taken from the Primary Care Assessment Tool (PCAT).[19] The PCAT contains 7 domains reflecting the main components of primary care; however, to minimize HC burden and retain questions most relevant to HCs, we modified it to focus on 3 domains: access to services (9 items), coordination of care (8 items), and community orientation (21 items). These domains align with Health Center Program goals and requirements, such as improving access to primary care for medically underserved communities and vulnerable populations and maintaining community partnerships and collaborations to meet the needs of patients. The questionnaire did not include the remaining domains because the information could be obtained from other data sources or because HC administrators would not be reliable sources. We kept the selected domains intact to preserve high internal consistency and reliability of each scale.[19] Appendix A (available as a supplement to the online version of this article at http://www.ajph.org) shows the specific items included in our study.

Items from the modified PCAT consisted of Likert-type response variables. Respondents indicated the likelihood that their HC performed certain activities (1 = definitely not, 2 = probably not, 3 = probably, 4 = definitely); we recoded "not sure/don't know" responses as 2. We tallied scores for a total domain score as well as an average item score. Overall scores provided summaries across all 3 domains. Average PCAT scores from previous studies are typically around 2.5; scores above 3 are considered to demonstrate good primary care achievement.

Public health involvement questionnaire. The National Public Health Performance Standards Program at the Centers for Disease Control and Prevention developed a framework describing 10 essential services to promote excellence in public health practice (Table 1).[20] HCs received a set of questions assessing the extent of their involvement in each of these 10 services. Respondents indicated how often their HC engaged in each of the activities (1 = rarely, 2 = sometimes, 3 = often); we recoded "not sure/don't know" responses as 2. In cases where HCs responded "often" or "sometimes" they also provided examples of those activities. Respondents were also asked to reflect on a current public health initiative in their HC and answer in-depth questions about it.

Qualitative Data

We conducted follow-up phone interviews with each of the key informants in July 2011.[21] Interviewers trained in qualitative methods used a standardized interview guide containing open-ended questions. Interviews were recorded and lasted approximately 30 to 60 minutes. Participation was voluntary, and all respondents provided verbal consent to be recorded before proceeding with the interview.

Interviewers asked participants to provide information about a current initiative integrating primary care with public health, probing for details about the initiative's inception, partnerships, funding, goals, specific activities, evaluations, outcomes, and plans for long-term sustainability. Respondents were asked to describe barriers hindering their efforts, responses undertaken to address those barriers, necessary resources, and lessons learned.

Interviewers made comprehensive notes and compiled case study summaries with a standardized format. Six researchers independently reviewed the notes for each case study and identified recurring concepts, illustrative examples, and meaningful quotations. We collected and reviewed additional documents to supplement the information obtained during interviews. Documents pertaining to HCs' public health activities included newsletters, executive summaries, media coverage, and other written material.

RESULTS

Table 2 lists the participating HCs, along with a summary of key patient and institutional characteristics from the 2010 UDS. The HCs' patient populations ranged from 10 816 to 117 058. Each center served a large proportion of racial/ethnic minority groups, varying by center among Hispanics/Latinos, Blacks/African Americans, Asians, and Native Hawaiians/Pacific Islanders. The percentage of children younger than 18 years ranged from 9.8% to 52.5%. A large proportion of patients had incomes lower than or at the federal poverty level (61.7%–93%)[22] and had no health insurance (12.8%–69.3%) or were enrolled in Medicaid (16.4%–63.2%). The prevalence of diabetes ranged from 3.7% to 12.6%, and the prevalence of hypertension ranged from 3.4% to 21.1%.

Selected HCs operated 1 to 23 clinic sites in 2010. Staff full-time equivalents per 10 000 medical patients had the following ranges: 3.1 to 10.5 for physicians, 0.8 to 6.6 for nonphysician providers, and 2.6 to 23.5 for enabling service providers. HCs varied in their proportion of total revenue derived from various sources of grant funding (13.5%–43.4%), with the remainder of revenue coming from insurance, self-payment, and other sources. Total revenues ranged from $7.8 million to $222.5 million, and net revenues ranged from $0.6 million to $130 million. In 2010, the average medical patient cost was $290.36 to $912.78, and the average total patient cost was $367.06 to $1355.55 (not adjusted for regional variations).

Primary Care Delivery

Table 3 presents some of the HC characteristics related to patient care, obtained from the modified PCAT, and confirms that these HCs provide needed services to vulnerable populations. Most of the HCs reported that a large proportion of their patients had chronic conditions. Most HCs also indicated that their patients had been with their practice for 5 or more years, they provided a usual source of care for the majority of their patients, and their

TABLE 1—Examples of 10 Essential Public Health Services Carried Out by Federally Funded Health Centers

Public Health Services[20]	Examples of Health Center Activities
1. Monitor health status to identify community health problems.	Work with state department of health to coordinate an interface that will send immunization data from health center's electronic health record system to state immunization registry, to increase the electronic exchange of records and aid providers in tracking immunization rates.
	Conduct annual community needs assessments in partnership with local health department and a state health task force.
	Utilize community- and citywide data provided by local and state public health departments to determine areas of focus for health and social needs.
2. Diagnose and investigate health problems and health hazards in the community.	Collaborate with state, city, and private agencies to identify and address health problems resulting from infectious diseases among homeless populations.
	Test for blood lead levels among patients and refer families to deleading programs or new housing.
3. Inform, educate, and empower people about health issues.	Employ bilingual (English–Spanish) CHWs to coordinate care for high-cost Medicaid patients with chronic conditions, providing patient education about disease management, treatment plan development, appointment scheduling, assistance in navigating the health care system, family-centered support, and addressing social determinants of health.
	Address disparities in diabetes affecting racial/ethnic minorities through a diabetes clinic, group medical visits, case management, and health education; provide services for multiple language groups; provide health screenings and outreach in public housing developments for diabetes prevention and control, healthy eating, and exercise.
	Participate in county health fairs and provide blood glucose screening, blood pressure screening, and health education outreach.
	Provide education and health promotion in homeless shelters and at community events, on a variety of public health concerns, such as nutrition, exercise, smoking cessation, health insurance, advanced directives, early prenatal care, child passenger safety seats, and domestic violence.
4. Mobilize community partnerships to identify and solve health problems.	Organize the clean-up and redevelopment of local rivers, to increase water quality and safety, encourage healthy behaviors such as physical activity, and promote the economy through job creation; partners may be environmental organizations, government agencies, researchers, business owners, and other community organizations.
	Form a state collaborative to address health, safety, and environmental justice among nail salon and cosmetology workers; partner with local community organizations, educational and research institutions, and health advocacy groups to engage in policy advocacy, research, and community outreach and education.
	Partner with local restaurants and grocery stores to identify healthy food items on menus and store displays.
	Collaborate with local farmers and growers to organize a farmers' market to make fresh produce accessible to consumers and to promote healthy eating.
5. Develop policies and plans that support individual and community health efforts.	Coordinate care with the local health department to ensure that there is no duplication of services or competition for revenue streams; lease space in the health department's facilities and provide family practice, oral health, and behavioral health services on-site. Formal agreements and policies clarify which services will be provided by each entity to maximize services to residents.
	Create a policy subcommittee to develop and advocate for policies and legislation for healthier/green nail salon programs and safer workplace standards.
	Assist state health task force to develop policies for walkable communities and local health objectives (which parallel the *Healthy People 2020* national objectives).
6. Educate on laws and regulations that protect health; advocate for, review, and evaluate legislation; facilitate compliance.	Provide testimony, advocacy, and education on legislation related to mandatory booster seats for children and oral care for pregnant women.

Continued

TABLE 1—*Continued*

7. Link people to needed personal health services and ensure the provision of health care when otherwise unavailable.	Work with local and state health departments to promote and provide vaccinations in nonclinical settings (e.g., WIC clinics, day care centers, fire stations, elementary and middle schools). Initiative targets low-income populations to increase immunization rates among children and adolescents. Partner with other health care providers to create a coordinated safety net system providing comprehensive health care to low-income, uninsured county residents. Primary care, specialty care, medication assistance, laboratory and diagnostic services, inpatient and outpatient hospital services, case management, and health coaching are provided at no or low cost to members. Provide services in 8 Asian languages for a predominantly Asian and Pacific Islander patient population. Establish a Case Management Department to coordinate care for pediatric, adult, and perinatal patient populations; enabling services to ensure access to care include transportation and translation services.
8. Ensure a competent public health and personal health care workforce.	Establish a charter school to provide college preparation as well as a health care–related vocational degree, starting in middle school. Graduates will be trained as emergency medical technicians, contributing to the future workforce pipeline. Work with state leaders to develop a certification program for CHWs and to facilitate a billing mechanism for CHW services; organize health workforce summits, manage student and resident rotations, and implement health workforce recruitment activities in local schools.
9. Evaluate effectiveness, accessibility, and quality of personal and population-based health services.	Conduct annual patient satisfaction surveys to evaluate health care services and identify areas of improvement. Establish a Process Improvement Department tasked with improving access, quality, and effectiveness of care, modeled on Toyota's lean production system. Institute a Plan, Do, Study, Act model of quality improvement, with monthly committee meetings to identify areas of improvement, development and testing of improvement plans, and program evaluation. Hire in-house, full-time data analyst to monitor patient diagnoses, test results, and outcomes through electronic health records, to inform resource allocation and evaluate service effectiveness. Report monthly outcomes related to clinical quality indicators and standards of care for primary care, eye care, oral health, behavioral health, and chronic disease management.
10. Research for new insights and innovative solutions to health problems.	Foster strong relationship with local university to perform research and program evaluation. Research initiatives take a community-based participatory research approach. Establish in-house Research Department and institutional review board to review research proposals from internal staff and external researchers.

Note. CHW = community health worker; WIC = Special Supplemental Nutrition Program for Women, Infants, and Children.

patients used their facility for all of their outpatient medical needs.

Responses to the modified PCAT are also summarized in Table 3, assessing HCs' primary care delivery. A total of 152 points was possible for the modified PCAT, and total scores over the 3 included domains (accessibility, care coordination, community orientation) ranged from 121 to 140; average overall scores were all above 3, indicating good primary care achievement (range = 3.2–3.7). Accessibility scores ranged from 21 to 33 points (total possible = 36), coordination scores ranged from 25 to 32 points (total possible = 32), and community orientation scores ranged from 63 to 83 points (total possible = 84).

HCs' performance was highest for the coordination and community orientation domains. Average item scores for the coordination domain ranged from 3.1 to 4.0 (total possible = 4.0), and average item scores for the community orientation domain ranged from 3.0 to 4.0. This was expected because of HCs' strength in providing enabling services that encourage care coordination and that seek to address cultural and linguistic barriers. Average item scores on the accessibility domain were slightly lower, ranging from 2.3 to 3.7; specific item responses revealed room for improvement in the availability of after-hours care during evenings and weekends (results not shown).

Public Health Activities

Table 3 also shows findings from the public health involvement questionnaire, regarding the extent to which the HCs reported engaging in each of the 10 essential public health activities. Table 1 provides examples of those activities, as reported by the HCs. Although not exhaustive, these examples support HC selection for participation and serve to provide context for the score profiles presented in Table 3.

HCs reported performing most of the activities often or at least sometimes; only the diagnosing and investigating health problems item was reported to be performed rarely by several respondents (Table 3). Out of

a possible total score of 30 on the public health items, HC scores ranged from 22 to 30. All HCs reported that they often linked people to needed personal health services (essential public health activity 7). They also all reported that they often informed, educated, and empowered people about health issues (activity 3) and ensured a competent workforce (activity 8). The majority reported that they often mobilized community partnerships (activity 4), evaluated their health services (activity 9), and engaged in research for solutions to health problems (activity 10). Six of the 9 HCs reported that they often monitored their community's health status (activity 1), with the rest reporting that they did this sometimes. More than half of the centers often developed policies and plans to support health efforts (activity 5) and were often involved in health-related laws and regulations (activity 6).

Two HCs (HC 4 and HC 9) performed particularly well on both the primary care and public health assessments, with both having average PCAT scores of 3.7 (total possible = 4.0) and the highest scores (3.0) for all 10 public health items. The box on page S390 summarizes the key facilitating and inhibiting factors to integration of primary care and public health, obtained from qualitative analysis of interview notes.

DISCUSSION

Our study contributed to the literature by investigating the processes and factors underlying the integration of public health with primary care among federally funded HCs. Our quantitative and qualitative analyses drew from multiple data sources, strengthening our findings. Our research provided a snapshot of activities and challenges involved in the integration of primary care and public health at selected federally funded HCs. Multiple case studies in various settings revealed several recurring themes pertaining to leadership and staff, collaborations, funding and sustainability, data and evaluations, and the larger situational context. HCs provided numerous examples of their public health activities, revealing how they capitalized on these factors to make meaningful program contributions to their communities.

Key Factors

Leadership strength and stability. HCs need visionary and committed leadership to motivate staff and the local community to achieve their mutual goals. Leaders—often members of regional, state, or national health councils and boards—frequently engage in informing policy and legislative initiatives. HC leaders, as one participant explained, establish this community partnership through sustained and responsive engagement with the community:

> While [we] have been part of the community for over 75 years, we recognize the need to maintain a presence outside the clinic . . . outreach workers are members of the community and they have the trust of their peers, allowing for greater impact. [We] have a department dedicated to conducting this outreach.

In addition, the presence of a community health champion within external organizations increases the likelihood of effective coordination and alignment of goals and activities. Changes in leadership, therefore, may hinder progress if the new leader does not have a history with the community or commitment to addressing its needs.

Staff retention and buy-in. HCs garner staff buy-in by clearly communicating a project's purpose and goals and actively soliciting input. Periodic face-to-face meetings maintain motivation by reporting on project progress and acknowledging and rewarding staff contributions. Higher staff retention leads to greater institutional knowledge and commitment. Conversely, frequent staff turnover, in both HCs and external partners, can impede progress on action plans.

Some HCs, particularly in rural areas, cited recruiting health care personnel as a challenge. Centers that demonstrate resourcefulness and achievement, however, may be more successful at recruiting and retaining staff, even in locations considered less preferable by jobseekers. One rural HC reported low turnover rates and an ample pool of candidates because it had a reputation for being innovative and providing a supportive work environment. A recent employee satisfaction survey showed that staff members "liked their work environment, having tools to do the job, and felt good about the work place. We provide good benefits package, we had revenue excess, so we got better health insurance . . . and we do quarterly incentives for all staff, not just providers."

HCs partnered with external organizations, especially universities, to help meet recruitment and training needs. One HC worked closely with its state university, which provided specialized training to its community health workers to prepare them for a care coordination project. Several HCs also served as training sites for residency programs, contributing to their own future workforce.

Collaborations and partnerships. Diverse coalitions of public, private, and nonprofit entities often share resources and expertise to address complex public health problems. HCs partner with key stakeholders with aligned values and missions, including other health care providers, community-based organizations, government agencies, universities and research institutes, and private foundations.

Alliances succeed when a cultivation period enables the partners to establish trust, encourage cooperation, and promote coordination:

> First and most critical is the development of a trust relationship between the parties . . . both parties need to truly believe that working together will create a higher quality of care delivery than working alone. Both parties must realize that resources are scarce and that egos have no place at the table. . . . Both parties have done an excellent job at developing a trust-based relationship. This is the essential component for everything else we do together.

To further facilitate trust and cooperation, coalition members should understand their responsibilities and expected contributions. One HC reported collaborating with a state health department to facilitate the electronic exchange of immunization records, but unclear timelines and inadequate resources for project management made progress slow and inconsistent.

Maintaining clear timelines becomes especially difficult when coordinating with many partners. For instance, scheduling meetings at mutually convenient times or places can be challenging. Bureaucratic processes limit collaborations with complex regulations and communication channels. Addressing these challenges requires patience, especially during leadership changes. Although an initiative may generate a lot of initial energy, the momentum may wane over time, especially when resources become scarce.

Funding and sustainability. HCs struggle with insufficient funding to engage in both clinical and nonclinical activities. Some HCs

TABLE 2—Patient and Institutional Characteristics Among Federally Funded Health Centers: US Bureau of Primary Health Care Uniform Data System, 2010

Characteristics	HC 1 (n = 28 502)	HC 2 (n = 21 877)	HC 3 (n = 117 058)	HC 4 (n = 33 722)	HC 5 (n = 15 814)	HC 6 (n = 10 816)	HC 7 (n = 42 804)	HC 8 (n = 28 912)	HC 9 (n = 12 137)
Patient characteristics									
Largest racial/ethnic minority, %	Hispanic, 62.8	Asian, 94.1	Hispanic, 58.3	Black, 23.7	Hispanic, 51.0	Black, 32.3	Hispanic, 80.4	Hawaiian/Pacific Islander, 62.3	Hispanic, 42.8
Age, y, %									
0–17	52.5	23.9	43.9	24.6	29.3	9.8	37.1	37.5	24.0
≤ 1	11.1	3.0	8.3	0.8	3.9	1.1	5.5	7.1	3.2
≤ 5	25.0	7.8	19.5	7.4	9.6	3.2	14.7	16.6	8.7
10–19	18.7	14.7	18.2	11.5	17.2	7.4	17.2	18.7	15.0
≥ 65	2.5	20.4	5.1	5.8	16.7	5.8	6.1	5.9	6.3
Socioeconomic indicators, %									
Income ≤ 100% federal poverty level[a]	77.7	70.3	80.1	93.0	61.7	83.9	90.5	68.9	61.0
Uninsured	26.4	37.4	32.3	45.9	17.1	69.3	21.1	12.8	39.2
Medicaid recipient	58.6	34.1	47.1	27.6	28.0	16.4	63.2	55.2	27.3
Pregnancy, %	5.6	2.1	4.2	0.0	0.8	1.2	1.7	4.1	1.9
Diabetes, %	5.5	9.3	4.9	12.6	6.4	7.7	8.2	7.0	3.7
Hypertension, %	3.4	21.1	5.4	12.8	8.3	20.1	11.1	8.2	6.0
Major communicable diseases, %	1.3	4.0	1.0	1.4	0.9	0.5	1.3	0.7	0.6
Symptomatic/asymptomatic HIV	0.8	0.04	0.4	0.7	0.1	0.1	0.4	0.02	0.3
Tuberculosis	0.1	1.8	0.01	0.00	0.00	0.01	0.01	0.01	0.1
Syphilis/other STIs	0.2	0.1	0.1	0.1	0.2	0.1	0.5	0.5	0.1
Hepatitis B	0.02	1.6	0.1	0.01	0.02	0.01	0.1	0.1	0.02
Hepatitis C	0.1	0.4	0.5	0.5	0.6	0.3	0.4	0.2	0.1
Institutional characteristics									
Sites, No.	2	4	23	10	11	8	15	8	1
Staff/10 000 medical patients, FTEs									
Physicians	7.5	10.5	6.6	3.1	5.5	5.2	7.8	10.0	5.8
Nonphysician providers	4.5	0.8	4.7	3.6	6.6	1.3	4.9	5.5	6.1
Enabling service providers[b]	16.0	15.4	5.2	2.6	13.5	8.0	7.2	11.7	23.5
BPHC funding streams	CHC	CHC, CIP	CHC	CHC	CHC	CHC	CHC	CHC	CHC, PHPC
Revenue									
Grants,[c] %	24.6	42.7	13.5	28.6	37.0	43.4	15.2	16.7	27.5
Total, $ in millions	37.3	30.2	222.5	22.4	13.9	7.8	67.2	52.0	29.6
Net, $ in millions	12.1	8.2	130.2	8.8	0.6	3.8	25.4	12.8	16.3
Average patient cost, $									
Medical	568.44	694.13	597.14	290.36	466.75	324.53	683.66	912.78	586.19
Total	884.16	1004.18	788.00	403.39	839.57	367.06	974.72	1355.55	1099.89

Note. BPHC = Bureau of Primary Health Care; CHC = community health center; CIP = capital improvement program grants (excluding American Recovery and Reinvestment Act and Patient Protection and Affordable Care Act); FTEs = full-time equivalents; HC = health center; PHPC = public housing primary care; STIs = sexually transmitted infections.
Source. 2010 Uniform Data System.[15]
[a]Federal poverty level according to the US Department of Health and Human Services.
[b]For example, case managers, outreach workers, interpretation staff.
[c]BPHC grants, other federal grants, nonfederal grants and contracts, and other revenue not from services.

have launched public health initiatives by seeking funding from diverse sources, such as federal, state, and local agencies; private foundations; health plans; and universities. Some HCs hire grant writers to respond to funding opportunities. Several of our informants said that disease-specific funding opportunities limit a holistic approach to addressing social determinants of health.

Competition for the same funds creates partnership challenges as well. Participants indicated that funding opportunities do not encourage integration and that new policies should be developed to explicitly foster

TABLE 3—Primary Care and Public Health Achievements Among Federally Funded Health Centers: Primary Care Assessment Tool and Public Health Involvement Questionnaire, United States, 2011

Health Center Characteristics	HC 1	HC 2	HC 3	HC 4	HC 5	HC 6	HC 7	HC 8	HC 9
Patients with chronic conditions, %	21–40	61–80	21–40	61–80	41–60	61–80	. . .	21–40	61–80
Average patient tenure, y	≥ 5	≥ 5	≥ 5	Variable	Variable	≥ 5	Variable	≥ 5	≥ 5
Patients using HC as usual care provider, %	81–100	81–100	81–100	81–100	81–100	0–20	81–100	81–100	81–100
Patients using HC for all medical needs, %	61–80	81–100	61–80	61–80	61–80	61–80	61–80	61–80	81–100
Primary care achievements,[a] total score (average item score)									
Total (maximum = 152)	125 (3.3)	129 (3.4)	132 (3.5)	139 (3.7)	127 (3.3)	132 (3.5)	136 (3.6)	121 (3.2)	140 (3.7)
Accessibility (maximum = 36)	26 (2.9)	23 (2.6)	30 (3.3)	24 (2.7)	21 (2.3)	25 (2.8)	26 (2.9)	33 (3.7)	28 (3.1)
Coordination (maximum = 32)	29 (3.6)	30 (3.8)	27 (3.4)	32 (4.0)	29 (3.6)	30 (3.8)	29 (3.6)	25 (3.1)	31 (3.9)
Community orientation (maximum = 84)	70 (3.3)	76 (3.6)	75 (3.6)	83 (4.0)	77 (3.7)	77 (3.7)	81 (3.9)	63 (3.0)	81 (3.9)
Public health involvement,[b] total score (average item score)									
Total (maximum = 30)	29 (2.9)	27 (2.7)	27 (2.7)	30 (3.0)	26 (2.6)	25 (2.5)	22 (2.2)	26 (2.6)	30 (3.0)
Monitor health status	3	2	3	3	3	2	2	3	3
Diagnose/investigate health problems	3	2	3	3	1	1	1	1	3
Inform, educate, empower	3	3	3	3	3	3	3	3	3
Mobilize community partnership	3	3	3	3	2	3	3	2	3
Develop policies and plans	3	3	2	3	3	2	1	3	3
Laws and regulations	3	3	1	3	2	3	1	2	3
Link to needed personal health services	3	3	3	3	3	3	3	3	3
Ensure competent workforce	3	3	3	3	3	3	3	3	3
Evaluate health services	2	3	3	3	3	2	3	3	3
Research solutions to health problems	3	2	3	3	3	3	2	3	3

Note. HC = health center. Ellipses indicate data not known.
[a]Modified Primary Care Assessment Tool, scored on a Likert-type scale: 1 = definitely not, 2 = probably not, 3 = probably, 4 = definitely.
[b]Questionnaire assessing public health 10 essential services, scored on a Likert-type scale: 1 = rarely, 2 = sometimes, 3 = often.

collaborations between HCs and other partners, including health departments:

> The ability for [the health center] and local health department to work together is limited by their ability to have a common vision to share and not compete. Many areas have fear of each competing [for] patients. I think there needs to be an understanding between [health centers] and public health department roles.

Another HC staffer reported a history of tension with the local health department, which felt threatened by the possibility of losing its funding to the HC. Through multiple conversations the 2 organizations agreed on which services each would provide, to ensure no overlap or competition. They also developed an internal referral system for specific services exclusively provided by each party. The HC now has a long-term lease in the health department's facility, and together they provide a comprehensive and seamless system of primary care and public health services in a central location. By fostering trust and focusing on areas of mutual benefit, they were able to maximize revenue streams, develop economies of scale, avoid duplication of services and waste, and broaden their scope of activities.

Beyond the initial funding period, the long-term sustainability of these initiatives hinges on the ability of HCs incorporate them into their routine services. HCs are well advised to work on sustainability plans during the initial funding phase:

> [Our health center] utilizes primarily private funding . . . to establish public health–focused programs and then incorporates the program into service delivery, and during the funding period we work on sustainability plans to ensure the continuation and expansion of programs.

HCs have difficulty sustaining public health activities because these are not reimbursable services. One HC reported obtaining vaccine donations to increase immunization rates among low-income children through a school-based model. Sustaining the program was difficult, however, because reimbursement was denied when nurses administered the vaccines in schools; reimbursement was available only for immunizations provided in clinics. However, some HCs reported success in incorporating their activities into billable service delivery. One HC received billable service funding from a managed care organization to hire community health workers to provide care coordination for the plan's most costly chronic care patients,

Key Facilitating and Inhibiting Factors for the Integration of Primary Care and Public Health in Federally Funded Health Centers

Facilitators
Strong, stable leadership in health center and partner organizations
High staff retention, buy-in, and institutional knowledge
Diverse coalitions built on trust among public, private, nonprofit sector entities, each with clear roles and responsibilities
Diverse funding sources to initiate projects
Incorporation of activities into service delivery to ensure sustainability
Ongoing data collection and analysis, community needs assessments, use of surveillance data, and program evaluation
Position in a larger context that is conducive to public health initiatives
Inhibitors
Lack of a champion or leadership changes in partner organizations
Staff turnover in health center and partner organizations
Bureaucratic delays and funding opportunities that impede collaborations and progress
Competition between partner organizations for limited funding streams
Inability to sustain project beyond grant period because of lack of reimbursement for public health activities
Limited integration and interoperability of data sources, within health centers as well as between health centers and partner organizations
Social and political factors at the local, state, or national levels

such as education, assisting patients and families to navigate the health care system, and addressing social determinants of health.

Data and evaluation. Integration of public health with primary care requires accessible, current, aligned, and exchangeable data for identifying health needs of the patient population, targeting public health programs, and tracking outcomes. Many participants had well-established electronic health records as well as disease-specific registries to facilitate data collection and analysis. Some HCs tracked UDS-reported clinical measures and other metrics monthly or quarterly to continually update goals for quality improvement. In addition to electronic records, HCs used annual community needs assessments, patient satisfaction surveys, focus groups, and existing data from local or state surveillance systems. For example, one HC used geographic information system mapping techniques to identify neighborhoods with high rates of poverty and low rates of immunization for its school-based vaccination program.

Many HCs struggle to build internal capacity to analyze and use collected data effectively. Several HCs had separate departments (or hired full-time analysts) that focused on data-related support. In the absence of such staff, HCs may consider partnering with university researchers with resources and expertise to perform activities beyond the scope of HCs' capacities.

Separate reporting systems required by different funding streams make information exchange difficult. Several HCs could not electronically exchange data because of incompatible systems, nonintegrated systems, or nonstandardized data. In other cases, the partner health department had no electronic system: "Sharing information between [the partner program] and primary care sites is very difficult due to different funding streams. We do the same things in the [health center] and the [program] but we can't easily integrate even though we are in the same building."

Sociopolitical context. The sociopolitical environment in which HCs exist influences the success of integrative programs. HCs aware of their broader operational and policy environment and capable of adjusting to change can move forward despite challenges. One HC simultaneously engaged in many projects, so that when a project was slowed by external factors, work continued on other initiatives:

> We have the resources and the vision and the ideas to move forward, unfortunately sometimes we are held back by [bureaucracy]—and that's a bureaucracy, that goes on all the time. We're not that disillusioned by it because we have so many other irons in the pot, so to speak, and we're doing so many projects all at the same time, that we are not sitting with our hands under our laps . . . we're just moving on and doing other things as well.

A participant stated that having support "up the ladder" to the district level and even state level might help to ensure success for an HC initiative. Another HC reported that its community health workers had reduced uninsurance rates by helping patients enroll in Medicaid, but they were also aided by a favorable policy environment in which state coverage was under expansion.

Limitations

We collected self-reports from HC respondents, who may have been influenced by recall or social desirability bias. Respondents, however, reported on current rather than past activities, which may have helped to reduce these biases. A convenience sample of 9 exemplary HCs does not represent the experiences of all HCs; however, our goal was to examine the practices of exemplary HCs to identify useful lessons.

We used a modified version of the PCAT; therefore, our results cannot be compared with findings from studies that used the full instrument. With our small sample of HCs, we could not conduct such comparisons because reliable statistical inferences would not be possible even if we had used the full PCAT. Semistructured interviews may be sensitive to individual interpretation; we attempted to ameliorate this problem by having multiple researchers independently

review the interview notes and identify major themes.

Conclusions

HCs are eager for more integrative funding opportunities. Funding sources should discourage competition between HCs and health departments and should explicitly call for collaborations to integrate and complement the scope of services provided, to efficiently allocate resources and maximize impact.[23] HCs require sustainable funding to integrate public health activities into their health care services and to address the social determinants of health rather than focusing on disease-specific interventions.

Strong leadership is also needed. An organizational leader who champions integration increases the chances of program continuation during challenging times. Collaborations should have diverse partners with shared missions, clear delineation of responsibilities and expected contributions, and significant investment in building trust-based relationships. Realistic timelines with milestones should be developed. Resources should be allocated for project staff with skills needed to achieve goals, including project management.

Finally, HCs and health departments need compatible and aligned data collection and evaluation strategies to clearly document their activities, demonstrate performance on processes and outcomes, and provide insights on replicability, sustainability, and net value to the community. Lessons learned from these HCs provide an opportunity to expand and improve strategies for integrating public health with primary care. ■

About the Authors

Lydie A. Lebrun, Joya Chowdhury, Alek Sripipatana, Ravi Sharma, A. Seiji Hayashi, Charles A. Daly, Naomi Tomoyasu, Suma Nair, and Quyen Ngo-Metzger are with the Bureau of Primary Health Care, Health Resources and Services Administration, US Department of Health and Human Services, Rockville, MD. Leiyu Shi and Jinsheng Zhu are with the Department of Health Policy and Management, Bloomberg School of Public Health, Johns Hopkins University, Baltimore, MD.

Correspondence should be sent to Lydie A. Lebrun, PhD, MPH, Office of Quality and Data, Bureau of Primary Health Care, Health Resources and Services Administration, US Department of Health and Human Services, 5600 Fishers Lane 6A-55, Rockville, MD 20857 (e-mail: llebrun@hrsa.gov). Reprints can be ordered at http://www.ajph.org by clicking the "Reprints" link.

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Contributors

L. A. Lebrun, L. Shi, A.S. Hayashi, S. Nair, and Q. Ngo-Metzger originated and supervised the study. L. A. Lebrun, L. Shi, J. Chowdhury, A. Sripipatana, J. Zhu, R. Sharma, N. Tomoyasu, and Q. Ngo-Metzger completed the analyses. L. A. Lebrun led the writing of the article, and L. Shi, J. Chowdhury, A. Sripipatana, R. Sharma, A. S. Hayashi, C. A. Daly, N. Tomoyasu, S. Nair, and Q. Ngo-Metzger contributed data interpretation and revisions.

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Human Participant Protection

Ethical approval was not required because no human participants were involved, and only health center staff participated in the study. All health center executive officers agreed to participate and provided verbal consent prior to phone interviews. Data were deidentified to preserve health centers' anonymity.

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