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Provision of Personal Healthcare Services by Local Health

Departments:

2008–2013

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Abstract

Introduction—The scope of local health department (LHD) involvement in providing personal healthcare services versus population-based services has been debated for decades. A 2012 IOM report suggests that LHDs should gradually withdraw from providing personal healthcare services. The purpose of this study is to assess the level of LHD involvement in provision of personal healthcare services during 2008–2013 and examine the association between provision of personal healthcare services and per capita public health expenditures.

Methods—Data are from the 2013 survey of LHDs and Area Health Resource Files. The number, ratio, and share of revenue from personal healthcare services were estimated. Both linear and panel fixed effects models were used to examine the association between provision of personal healthcare services and per capita public health expenditures. Data were analyzed in 2014.

Results—The mean number of personal healthcare services provided by LHDs did not change significantly in 2008–2013. Overall, personal services constituted 28% of total service items. The share of revenue from personal services increased from 16.8% in 2008 to 20.3% in 2013. Results from the fixed effect panel models show a positive association between personal healthcare services' share of revenue and per capita expenditures ($b=0.57$, $p<0.001$).

Conclusions—A lower share of revenue from personal healthcare services is associated with lower per capita expenditures. LHDs, especially those serving <25,000 people, are highly dependent on personal healthcare revenue to sustain per capita expenditures. LHDs may need to consider strategies to replace lost revenue from discontinuing provision of personal healthcare services.

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Introduction

Local health departments (LHDs) have long played an important role in delivering personal health-care services to people who lack access to these services. Yet, the importance of LHDs as medical providers of last resort has been debated vigorously because of the potential to divert LHD attention and resources from the core public health mission—population-based prevention interventions and programs.^{1,2} Some LHD directors and practitioners believe that offering clinical services is critical to their mission and public image to serve disadvantaged populations,^{3,4} whereas others contend that offering clinical services is inconsistent with the LHD mission and sustainability.^{1,5,6}

Research has shown that LHDs scaled back delivery of personal healthcare services in the 1990s by contracting these services out.^{3,4,7,8} For instance, in a survey of a nationally representative sample of 380 LHD directors in 2001, Kean et al.³ found that 73% of LHDs privatized at least some public health services. Recently, using data from the National Longitudinal Survey of Public Health Systems, Hsuan and Rodriguez⁹ found that the nation's 198 large LHDs (those serving a population of 100,000) discontinued an average of 5.6 clinical services per LHD from 1997 to 2008.

The Patient Protection and Affordable Care Act (ACA) of 2010 reinvigorated discussion on the role of LHDs in creating a more effective and efficient healthcare delivery system, with a focus on disease prevention and health promotion.¹⁰ The ACA increases health insurance coverage, which will create new opportunities for LHDs to address their core functions, for example, by facilitating health insurance enrollment and pursuing a greater role in case management of complex clinical patients.¹¹ However, because ACA implementation may help formerly uninsured LHD clients find alternative medical care, LHDs may also need to re-evaluate their future role in the provision of clinical services.² Although a 2012 IOM report² recommended a gradual withdrawal by LHDs from provision of clinical services, the function of ensuring access to health care will remain important to the public health mission.¹²

Another major environmental change that stimulated current discussion about the role of LHDs in clinical care is the recent economic recession, during which LHDs experienced substantial budget cuts, program reductions, and staff layoffs.^{13,14} In 2012, 48% of LHDs reduced or eliminated services in at least one program area.¹⁵ Thus, LHDs are operating in a new environment and a reassessment of the level of LHD provision of personal healthcare services is warranted.

Building on prior research,^{3–7,9,16} this study intends to provide a comprehensive assessment of changes in LHD provision of personal healthcare services during 2008–2013 by assessing (1) the number of personal healthcare services provided by LHDs; (2) the ratio of personal healthcare services to total services; (3) the share of revenue from personal healthcare in LHDs' total revenue; and (4) the association between the share of revenue from personal healthcare services and per capita public health expenditures. This study provides important time series data to inform the ongoing debate about the optimal level of involvement of LHDs in personal care services.²

Methods

Study Sample

This study used data from the National Profile of Local Health Departments (Profile study) from 2008, 2010, and 2013, conducted by the National Association of County and City Health Officials (NACCHO), in collaboration with the Robert Wood Johnson Foundation and CDC. The Profile study questionnaire is distributed to every LHD in the U.S.; an LHD is defined as “an administrative or service unit of local or state government concerned with health and carrying some responsibility for the health of a jurisdiction smaller than the state.”¹⁷ A total of 2,332, 2,107, and 2,000 LHDs participated in 2008, 2010, and 2013, with an overall response rate of 83%, 82%, and 79%, respectively.^{18–20} The core questionnaire of these three Profile studies covered ten main program areas, including immunization; disease screening; epidemiology and surveillance; environmental health; and regulation, inspection, and licensing. A list of 87 public health services was surveyed consistently.^{18–20} Detailed methodology for the Profile survey is available elsewhere.¹⁷ The data on community characteristics and non-public health service providers were obtained from the 2012 edition of the Area Health Resource Files.

Measures

According to Mays and Smith,²¹ of the 87 services surveyed in the Profile studies, 22 services are personal healthcare services (Table 1). The involvement of LHDs in provision of personal healthcare services was measured by a simple count of the number of personal healthcare services that an LHD provides. The relative importance of personal healthcare services in the LHD’s service portfolio was measured by the ratio of personal healthcare services, calculated as the number of personal healthcare services divided by the total number of services that an LHD provides.

The Profile surveys in 2008, 2010, and 2013 asked about LHD revenue sources, including the percentage of revenue from state, local, and federal governments; Medicaid/Medicare; private health insurance; and patient personal fees. In this study, the share of revenue from personal healthcare services was calculated as the sum of revenues from three sources: Medicaid/Medicare, private health insurance, and patient personal fees, divided by the total revenue. We assumed that all payments that LHDs received from these three sources were for personal healthcare services.

Per capita public health expenditure was calculated as the total LHD expenditures divided by the jurisdiction population. The logarithmic values of the per capita public health expenditure and share of personal healthcare revenue variables were used in regression model analyses.

The following variables were included as covariates to control for cross-jurisdictional differences in public health organization and administration:

- jurisdiction population size (five categories: <25,000, 25,000–49,999, 50,000–99,999, 100,000–499,999, 500,000);
- jurisdiction type (county, city/multicity, city-county/ multicounty);

- decentralized governance structure (yes/no);
- having a local board of health (yes/no);
- environmental health (EH) services ratio. This ratio was calculated as the total number of EH services divided by the total number of services that an LHD provides. In the Profile Study, of the 87 service items surveyed, about 39 service items focused on environmental health activities^{18–20}; and
- community variables: presence of a federally qualified health center (FQHC) (yes/no); number of primary care physicians per 10,000 people; number of hospital beds per 10,000 people; proportion of people aged <65 years without health insurance (“uninsured rate” for short). These four community variables were obtained from the AHRF. This study selected the values from the AHRF for the year corresponding to or the year closest to 2008, 2010, or 2013 in the Profile survey. For LHDs whose jurisdictions cover several counties, the population-weighted average was calculated. For LHDs with city/multicity jurisdictions, which hence did not match a specific county’s federal information processing standards (FIPS) code, data from the AHRF were merged with the Profile Study data by ZIP code. The FQHC variable was coded 1 if there was at least one FQHC in the county, and coded as 0 otherwise.

Statistical Analysis

We first calculated the total number and ratio of personal healthcare services and the share of personal healthcare services in 2008, 2010, and 2013, respectively. Then, we used separate, year-specific regression models to assess the short-term relationships between share of personal healthcare services revenue and per capita public health expenditures. Next, a panel of 1,651 LHDs that participated in all three surveys was created. The panel was used to estimate the long-term relationship between the share of personal healthcare services revenue and per capita public health expenditures (adjusted by Consumer Price Index, in 2008 dollars). Data analysis was conducted using Stata, version 11, SVY procedures to account for the complex survey design of the Profile study. Sample weights provided by NACCHO were used to obtain nationally representative results. Analysis was conducted in 2014.

Results

As shown in Table 2, the number and ratio of personal healthcare services did not change significantly from 2008 to 2013. On average, LHDs provided 8.2–12.2 personal healthcare services of the 22 services classified as such. About 28%–29% of LHD services were personal healthcare services in 2008–2013 (Table 2).

Figure 1 displays the average share of revenue from personal healthcare services by LHD jurisdiction population size. Overall, the importance of personal healthcare services as generators of LHD revenues steadily increased over the study period: 16.8%, 19.4%, and 20.3% of LHD revenues were from personal health-care services in 2008, 2010, and 2013, respectively. A comparison between 2008 and 2013 showed a significant increase in the

share of revenue from personal healthcare services, with a difference of 3.5 percentage points ($p<0.001$). The largest increase (5.7 percentage points, $p<0.001$) was for LHDs serving <25,000 people, followed by LHDs serving 100,000–499,999 people, which showed an increase of 2.7 percentage points ($p<0.05$). Overall, small LHDs (serving <25,000 people) were more dependent on personal healthcare services as sources of revenue than were large LHDs.

As shown in Table 3, a significant short-term relationship existed between the share of revenue from personal healthcare services and per capita expenditures (in 2008, b [coefficient]=2.06, $p<0.001$; in 2010, $b=2.24$, $p<0.001$; in 2013, $b=2.11$, $p<0.001$). Other significant variables included FQHC, EH service ratio, and the uninsured rate.

Both fixed and random effects models were run with variables similar to year-specific models on a panel of 1,651 LHDs. Because the Hausman test was significant (chi-squared=347, $p<0.001$), this study used a fixed effect model. As shown in Table 4, a significant long-term association existed between the ratio of revenue from personal healthcare services and per capita expenditures after accounting for all fixed effects. A 10.0% decrease in the share of revenue attributed to personal healthcare services was associated with a 5.7% decrease in per capita expenditures.

Discussion

Results indicated that the average number of personal healthcare services provided by LHDs during the 2008–2013 study period declined, but not significantly. Overall, these findings were consistent with earlier studies^{3,4,7,8} and a recent 2014 study⁹ that reported that 78% of the nation's larger health departments eliminated one or more services from 1997 to 2008.

The study results showed that the smaller the jurisdiction population size, the higher the ratio of personal healthcare services that LHDs provided. These findings might suggest the critical role of LHDs as safety-net providers in small jurisdictions. This role is even more pronounced for LHDs serving the smallest populations (<25,000 people), where more than 28% of services were related to personal health care. Furthermore, results showed that the smaller the LHD jurisdiction population size, the higher the share (proportion) of revenue from personal healthcare services. These findings also suggest that smaller LHDs may have less access to other funding sources, such as grants, than larger LHDs. Consequently, cuts in personal health services may have a negative effect on expenditures for small LHDs. According to the 2013 Profile Study,²⁰ 41% of LHDs served a jurisdiction population of less than 25,000.

Descriptive results show that the share of revenue from personal healthcare services increased significantly over the study period. This may reflect a reduction in the provision of other services during the 2008–2010 economic recession, when 53% of LHDs experienced budget cuts.¹⁴ A recent survey found that during the recession significant revenue losses came from cuts in environmental health services,²² partly due to a substantial reduction in new housing construction.²³ Alternatively, LHDs may have experienced increased demand

for personal healthcare services, as more people became eligible for Medicaid during the recession.

Results from both the linear regression models and the fixed effects panel model indicate that the share of revenue from personal healthcare services was positively associated with per capita expenditures. These findings suggest that provision of personal healthcare services contributed to higher per capita spending and further suggest that revenue from these services might be used to support other LHD services.³

Overall, the community variables examined in this study did not show significant results. Of note, however, the linear regression results showed a significant positive association between the uninsured rate and per capita expenditure, suggesting that LHDs were responding to community needs by allocating more funds to communities with a higher proportion of uninsured.

The provision of personal healthcare services by LHDs may depend on numerous factors, including state mandates, other providers, and community needs (e.g., high proportions of uninsured). The previously mentioned study of Hsuan and Rodriguez⁹ found that although most agencies reduced the delivery of clinical services during 1997–2008, 22% of them maintained or increased these services. Those that discontinued services tended to do so in communities that experienced growth in the availability of other providers of services to underserved populations. In another national survey conducted between November 2000 and September 2001, Kean and colleagues⁴ found that 87% of LHD directors believed that LHDs must provide personal health services, and only 13% of them thought that LHDs should focus exclusively on the core public health functions and entirely move out of directly providing personal health services.

A landmark IOM report in 1988¹ indicated that an important responsibility of LHDs is to “assure” that those who need care receive it, either by directly providing services or by brokering with other providers in the community to meet the population’s needs. One of the ten essential public health services is to “link people to needed personal health services and assure the provision of health care when otherwise unavailable.”¹² That is, even if LHDs do not directly provide personal health services, as governmental organizations they are directly responsible for ensuring that needed services are provided to uninsured and other vulnerable populations.

The implementation of the ACA, expansion of Medicaid, and increases in private insurance coverage will increase the demand for health services, creating additional challenges for healthcare providers, including LHDs.²⁴ Data from Massachusetts showed that the number of patients receiving care at community health centers increased by 31% from 2005 to 2009 after health reform was implemented in that state. Most of these new patients preferred the types of care that are offered at community health centers. Thus, as one of the safety-net providers in the community, just like community health centers, LHDs may need to continue providing primary care services to their former customers. Moreover, implementation of the ACA will require LHDs to reexamine the type of services they provide, in the context of community needs and resources and changes in the total healthcare system.²⁵

The study findings have several implications for public health policy and practice. The study documented that LHDs are still actively involved in providing personal healthcare services. A discontinuation of these services could create a gap in primary care services for disadvantaged groups in some communities as most of them often receive personal healthcare services from LHDs.^{4,9}

In addition, discontinuation of personal healthcare services may create unintended, indirect, adverse consequences.²⁶ First, it could affect synergies in the delivery of personal health care and public health services. For example, opportunities to provide public health interventions, such as tobacco prevention counseling or nutrition education during clinical care service visits to LHDs, might be lost.²⁷ Second, it could create obstacles to the integration of public health and clinical services, such as management of patients with complex chronic diseases in the community.²⁸ Third, it could limit the ability of LHDs to subsidize other public health programs from personal care revenue streams.³

Limitations

Limitations of this study should be noted. First, this study used aggregated service count data and could not ascertain the intensity of personal healthcare services provided by LHDs. Estimation of the ratio of personal healthcare services likely addressed potential bias due to lack of data on intensity of service provision, but not completely. Second, measurement of share of revenue from personal healthcare services could be subject to bias, as about half of LHD services are environmental health services, which suffered revenue loss during the study period.²²

Future Research

Additional studies are needed to assess which LHD-provided personal healthcare services are self-financing and cost effective because some services (e.g., HIV treatment, dental, home health) could generate more revenue. Given the variability of the use of the term “personal healthcare services,” there would be value in developing a standardized definition. For example, the provision of certain personal healthcare services, such as those for tuberculosis and sexually transmitted diseases, is directly tied to surveillance. For such services, it is difficult to separate direct service provision from the core function of surveillance.³ Future research might also explore models of cooperation with other providers, such as federally qualified health centers and hospitals, to determine the most effective ways to ensure that needed services are provided. Finally, it would be valuable for future research to explore the extent to which public health and clinical care supplement each other across the country to inform more efficient allocation of limited health resources.

Conclusions

Profile study data indicate that the number and ratio of personal healthcare services did not change significantly during 2008–2013. By contrast, the share of LHD revenue from personal healthcare services increased steadily over this period. A higher share of revenue from personal healthcare services is associated with higher LHD per capita expenditures. The study results indicate that LHDs, especially small LHDs serving <25,000 people, are highly dependent on personal healthcare revenue to sustain per capita expenditures. LHDs

may need to consider the impact of discontinuing provision of personal healthcare services on LHD revenues, resources, and functions, and this consideration should occur in the context of the availability of such services in the local public health system.

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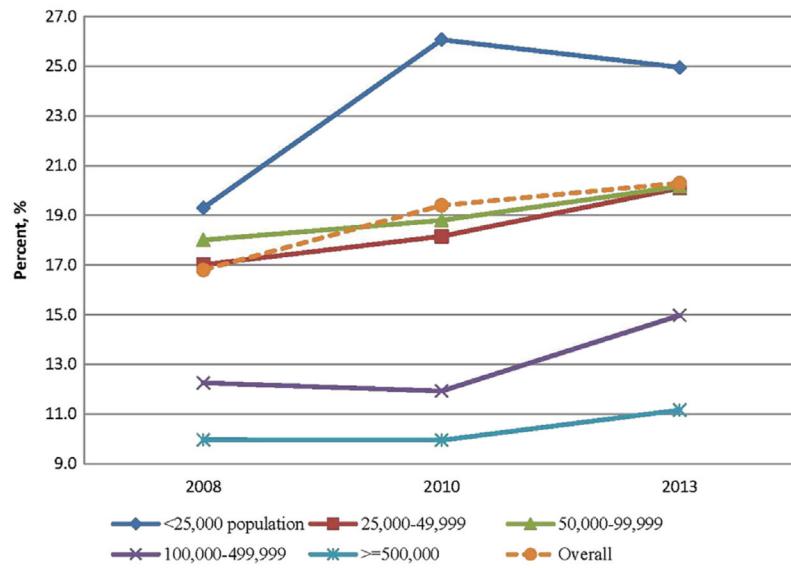


Figure 1.
Share of revenue from personal healthcare services: 2008–2013 Profile Study.

Table 1

Personal Healthcare Services Provided by LHDs

Personal healthcare services categories	Services included
Clinical preventive services (11)	Adult immunizations, childhood immunizations, HIV screening, STD screening, tuberculosis screening, cancer screening, cardiovascular disease screening, diabetes screening, blood pressure screening, family planning, EPSDT services
Medical treatment services (8)	HIV treatment, STD treatment, tuberculosis treatment, prenatal care, obstetrical services, primary care services, home health care, school-based clinics
Specialty care services (3)	Dental services, mental health services, substance abuse treatment

Note: Adapted from Mays and Smith.²¹

EPSDT, Early and Periodic Screening, Diagnostic and Treatment; LHD, local health department; STD, sexually transmitted disease.

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Personal Health Services by LHD Jurisdiction Population Sizes: 2008–2013 Profile Study

Table 2

Jurisdiction population size	Number of personal health services, mean			Ratio of personal health services in total number of services mean (%)				
	2008	2010	2013	Difference, 2013–2008	2008	2010	2013	Difference, 2013–2008
<25,000	8.24	8.77	8.21	-0.03	28.54	30.54	29.72	1.18
25,000–49,999	9.32	9.58	8.91	-0.41	27.62	27.91	27.15	-0.47
50,000–99,999	10.31	10.13	9.75	-0.56	27.92	27.74	27.04	-0.88
100,000–499,999	11.06	10.90	10.38	-0.68	27.75	28.32	27.75	-0.01
500,000	12.19	11.91	11.48	-0.72	27.78	28.43	28.22	0.44
Overall	9.43	9.67	9.15	-0.27	28.10	29.10	28.30	0.20

Note: Boldface indicates statistical significance ($p < 0.05$). In 2008, the sample sizes for the five population sizes are 912, 501, 376, 417, and 126 LHDs; in 2010, they are 748, 455, 324, 417, and 127 LHDs; and in 2013, they are 745, 405, 330, 392, and 128 LHDs.

LHD, local health department.

Table 3
The Association Between Ratio of Revenue of Personal Health Services and Per Capita Expenditure (Log)

Variables	2008		2010		2013	
	b	p-value	b	p-value	b	p-value
Ratio of revenue from personal health services	2.06	< 0.001	2.24	< 0.001	2.11	< 0.001
Local board of health	-0.15	0.060	0.01	0.825	0.02	0.627
Jurisdiction population size (versus <25,000)						
25,000-49,000	-0.14	0.007	-0.08	0.135	-0.09	0.127
50,000-99,000	-0.12	0.025	-0.13	0.021	-0.08	0.156
100,000-499,000	-0.04	0.510	-0.07	0.204	-0.09	0.125
500,000	0.01	0.935	-0.02	0.869	-0.01	0.926
Jurisdiction type (versus county)						
City/multi-city	-0.09	0.383	-0.29	0.001	-0.27	0.005
City-county/multi-county	-0.08	0.064	-0.05	0.403	0.03	0.565
Decentralized governance	0.20	0.001	0.26	< 0.001	0.42	< 0.001
Environmental health service ratio	-0.55	0.001	-0.33	0.022	-0.76	< 0.001
Presence of FQHC	0.10	0.025	0.05	0.275	0.11	0.016
Number of hospital beds per 10,000 people	-0.02	0.200	-0.01	0.385	-0.02	0.174
Number of primary care doctors per 10,000 people	0.05	0.159	0.06	0.149	-0.03	0.531
Proportion of people <65 years without health insurance	0.03	< 0.001	0.03	< 0.001	0.01	0.003

Note: Boldface indicates statistical significance ($p < 0.05$).

b, coefficient; FQHC, federally qualified health center.

Table 4

Panel Fixed Effects Model Results of Association Between Ratio of Revenue of Personal Health Services and Per Capita Expenditure (Log)

Variables	b (95% CI)	p-value
Ratio of revenue from personal health services	0.57 (0.45, 0.69)	< 0.001
Year (versus 2008)		
2010	0.03 (0.01, 0.05)	0.004
2013	-0.09 (-0.11, -0.06)	< 0.001
Local board of health	-0.03 (-0.07, 0.02)	0.275
Jurisdiction population size (versus <25,000)		
25,000–49,000	-0.20 (-0.32, -0.07)	0.002
50,000–99,000	-0.49 (-0.66, -0.33)	< 0.001
100,000–499,000	-0.68 (-0.88, -0.48)	< 0.001
500,000	-0.62 (-0.97, -0.28)	< 0.001
Jurisdiction type (versus county)		
City/multi-city	-0.07 (-0.18, 0.03)	0.180
City-county/multi-county	-0.04 (-0.08, 0.01)	0.137
Decentralized governance	-0.09 (-0.16, -0.01)	0.019
Environmental health service ratio	0.03 (-0.11, 0.17)	0.678
Presence of FQHC	-0.01 (-0.09, 0.07)	0.847
Number of hospital beds per 10,000 people	-0.01 (-0.05, 0.03)	0.677
Number of primary care doctors per 10,000 people	0.02 (-0.02, 0.01)	0.603
Proportion of people <65 years without health insurance	-0.01 (-0.02, 0.01)	0.322

Note: Boldface indicates statistical significance ($p < 0.05$).

b, coefficient; FQHC, federally qualified health center.