Use of Social and Behavioral Sciences by Public Health Departments in Major Cities

Marybeth Shinn, Nancy VanDevanter, Amy Bleakley,
Kathryn Tannert Niang, Sarah Perl, and Neal L. Cohen

ABSTRACT *Individual behavior and social contexts are critical determinants of health. We surveyed commissioners or their designees in 22 departments of health serving US cities of at least 500,000 people to examine their use of scientific approaches to influence individual behavior and social contexts. Each department used behavioral or social science in its work, but only four departments were judged to have integrated these approaches throughout their operations, using both centralized and decentralized structures. Degree of integration was unrelated to collaboration with universities or communities but was related to use of explicit theories. Behavioral and social sciences were employed most frequently in the areas of HIV/AIDS and maternal and child health and in the service of changing individual behavior rather than larger contexts, although across departments many health problems and approaches were involved. Commissioners generally found the approaches valuable, but articulated barriers to more widespread adoption.*

KEYWORDS *Behavioral science, Social science, Public health departments.*

INTRODUCTION

About half of all deaths in the United States can be attributed to social and behavioral factors such as use of tobacco or alcohol and diet and activity patterns.¹ Yet the nation devotes only about 5% of health expenditures to reducing these risks.² Two reports from the Institute of Medicine emphasized the importance of social and behavioral factors to health. Recognizing that health is influenced by social contexts, they advocated interventions on multiple levels, including individual, interpersonal, family, institutional, community or society, and policy.^{2,3} Federal agencies such as the Centers for Disease Control have promoted social and behavioral sciences in multiple arenas of public health^{4,5} and health policy,⁶ and their use has been advocated for local departments of health.⁷ But little is known about current activities of health departments in this respect.

This report describes the extent to which 22 departments of health serving large US cities use scientific approaches to change individual behavior and social contexts to promote health. For brevity, we call these approaches behavioral science. It further shows the extent to which behavioral science is integrated in departmental

Dr. Shinn is with New York University, New York, New York; Dr. VanDevanter and Ms. Bleakley are with the Mailman School of Public Health, Columbia University, New York, New York; Ms. Niang and Ms. Perl are with the New York City Department of Health and Mental Hygiene; and Dr. Cohen is with the AMDeC Center on Biodefense.

Correspondence: Marybeth Shinn, New York University, 6 Washington Place, Room 275, New York, NY 10003. (E-mail: beth.shinn@nyu.edu)

operations, reflecting a paradigmatic shift from a pure biomedical model to one that recognizes the central roles of behavior and social contexts in health. The study was undertaken by the External Assessment Committee of the New York City Department of Health (NYCDOH)'s Behavioral and Social Science Integration Task Force (see Cohen and Perl, this issue). The effort was parallel to an internal assessment of NYCDOH (see VanDevanter et al., this issue).

Study Sample

The NYCDOH commissioner invited commissioners of city or county health departments that serve the 27 US cities other than New York with populations of at least 500,000 to participate in an interview concerning the integration of behavioral sciences in their departments. Commissioners or their designees in 22 departments (81%) agreed. Departments in the largest cities were a bit more likely to respond (9 of 9 in the top third) than the smaller ones (7 of 9 in the next third, 6 of 9 in the last), but there was no regional pattern. Respondents included 17 commissioners or equivalent, 2 assistant or associate commissioners, 2 program directors, and 1 executive assistant to a commissioner.

Interviews were conducted by phone and, with the permission of the respondent, tape recorded. Respondents could go off the record at any point, and several chose to when discussing sensitive political issues. Interviews were sometimes conducted over more than one session or included additional respondents. Most interviews lasted about half an hour (the range was 20–90 minutes). Institutional review board approval was obtained from NYCDOH and Columbia and New York Universities.

Interviewer Training

Six interviewers, both staff from NYCDOH and academic collaborators, conducted the interviews. As committee members had varying degrees of knowledge about behavioral science and skills in conducting qualitative interviews, all participated in a two-part, 6-hour training program on behavioral theories most frequently used in public health programs and interview strategies. There were also an orientation to the interview guide and opportunities for skill building through role-play and feedback.

Qualitative Interview Guide

We chose a qualitative investigation, both because knowledge of the practices of health departments is limited and in order to benefit from the rich experiences of health commissioners in different social and political contexts. The interview guide was parallel to the internal assessment undertaken in NYCDOH.

Interviewers asked whether the department had integrated behavioral and social science approaches across its programs. If so, they asked (among other questions) what it had done, what internal units and external organizations were involved, how the effort was organized, whether it was valuable, how it was viewed by the department, and what barriers were encountered. If the department had not taken an integrative approach, interviewers asked whether it used behavioral or social science approaches in specific programs or initiatives. They then asked the same follow-up questions for up to two initiatives. Finally, interviewers asked about any unsuccessful efforts to integrate these approaches.

Interview Transcription and Coding

The interviewer reviewed the tape recording and completed an electronic data entry form with summaries of responses and transcriptions of illustrative quotations. Data coding was done from these electronic reports, stripped of identifying information. Two investigators reviewed protocols independently to develop core codes, which were modified for consistency with the internal NYCDOH assessment. A detailed coding manual was then developed from a review of five interviews. Two investigators independently coded the remaining interviews. The median κ statistic⁸ (reflecting interrater reliability corrected for chance) was .82. All disagreements were resolved by consensus.

RESULTS

Use and Integration of Behavioral and Social Science Approaches

All 22 of the departments of health that participated in the survey used behavioral sciences in some aspect of their operations. However, such use was not always a central focus. As one respondent put it, “your questions suggest that a lot of this is much more deliberate than it is for us.” We classified 15 departments as at the lowest level of integration, namely using behavioral sciences in one or more programs. Respondents in these departments sometimes described their efforts as integration or had integrative mechanisms, but the efforts did not extend broadly. For example, one department formed an office of behavioral health to include mental health, substance abuse, and violence prevention. It worked with local government, police, a school of public health, and advocacy groups to assess and reduce violence in multiple contexts. However, efforts were limited to prevention of violence.

Three departments used behavioral sciences broadly across many programs, but did not integrate them into all departmental operations. As one respondent put it, “it’s more piecemeal than we would like because there’s real appreciation for the science behind health promotion, but we haven’t gotten everywhere.”

We classified four departments at the highest level of integration. Here behavioral sciences were used throughout the department and incorporated, in one respondent’s words, into the “personality of the agency.” These departments had specific integrative mechanisms, in two cases involving centralized and in two cases having decentralized structures. We provide examples of each.

A Centralized Model This department used its planning division to identify problems on which to focus. For each problem, the department convened a planning group, which was cochaired by the commissioner and a key stakeholder outside the health department. For example, for initiatives on violence prevention and teen pregnancy, the cochair was the chair of the board of supervisors. For the initiative on perinatal substance abuse, it was the director of drug and alcohol services. Key stakeholders were also involved as chairs of subcommittees in order to get them to own the problem, to participate in developing a solution, and to assist in funding. Community-based organizations also participated. Health department staff gauged whether partners had the expertise to engage in the planning process and, if necessary, provided a 4-day training program on such issues as facilitating meetings and identifying outcomes.

The planning groups followed four steps:

1. Assessment of the problem and relevant resources. This step involved a variety of strategies including surveys of risk behaviors in multiple languages, ethnographic research by an anthropologist to understand beliefs and practices among people with tuberculosis, and use of geographic information systems to target interventions.
2. Research on best practices in the scientific literature. Consultants were sometimes hired, but the department had no ongoing affiliation with a university.
3. Development and implementation of an action plan.
4. Evaluation.

Implementation and evaluation were assigned to an appropriate departmental unit to free the commissioner and planning division for the next initiative.

A Decentralized Model This department had about a dozen social and behavioral scientists spread across different units who met together monthly to coordinate efforts. Some of these scientists were in place when the present commissioner arrived; others were hired after a working group on behavioral aspects of health identified priorities. A monthly faculty meeting at the local school of public health, where the commissioner and many other social scientists in the department taught and where tenured faculty worked at the department under an affiliation agreement, was another less formal integrative mechanism. This department was broadly focused on community development and community influences on health, and found that social science provides “a powerful model that allows different individuals, across divisions and across programs, to work together.” Approaches such as community building, asset mapping, and developmental ways of thinking required social science expertise. There was also an emphasis on behavioral interventions to prevent chronic illnesses and disease.

Collaborations

Overall, 14 of the 22 departments collaborated with a school of public health (5), another university unit (8), or both (1), but departments that collaborated with academics were no more likely than others to be coded at one of the two higher levels of integration, $\chi^2(1) = 0.19$, n.s. In accordance with recommendations from the Institute of Medicine,² 12 of the 22 departments had formal collaborative mechanisms with the community, such as a community advisory board, and 3 more had informal collaborations. Such collaborations were also unrelated to level of integration, $\chi^2(1) = 0.05$, n.s.

Areas and Targets for Social and Behavioral Science Efforts

Table 1 shows the areas where behavioral sciences were used by at least 3 of the 22 departments, in order of frequency. The table doubtless underestimates use, because respondents gave examples of their activities, not an exhaustive list. Many departments had multiple programs within a single area. The two areas mentioned most frequently, and by a majority of departments, were HIV/AIDS programs (where the use of social science theories and careful evaluation was often mandated by funding agencies) and maternal and child health. The latter area included parenting programs (6 departments), home visiting (5), immunization efforts directed at both families and physicians (4), and others.

Half of the 22 departments used behavioral sciences in community health ef-

TABLE 1. Areas where behavioral and social sciences were used most frequently by 22 health departments serving large cities

Area	Departments	
	Number	Percentage
HIV/AIDS	12	55
Maternal and child health	12	55
Community health	11	50
Chronic disease prevention	10	45
Substance abuse	10	45
Mental health	8	36
Sexually transmitted diseases	6	27
Prison	4	18
Welfare	3	14
School	3	14
Elders	3	14

Areas mentioned by two or fewer departments are excluded.

forts, including violence prevention (4), risk assessment (3), injury prevention (2), and others. Ten departments used social and behavioral sciences in chronic disease prevention, with a frequent focus on tobacco (both behavioral interventions to stop smoking and antismoking ordinances) (8), weight control via nutrition and exercise programs (4), and tuberculosis (3). Programs targeting cardiovascular disease, diabetes, and asthma were more rare. Other common foci for behavioral interventions were substance abuse (10), mental health (8), and sexually transmitted diseases (6). Eight departments had programs employing behavioral approaches with special population groups such as prisoners (4), welfare recipients (3), schoolchildren (3), elders (3), immigrants (2), and adolescents (2).

Levels of Change

Table 2 shows the frequency with which departments worked at different levels of change. Most commonly, departments attempted to change the behavior of individ-

TABLE 2. Levels of change targeted by 22 health departments serving large cities

Level	Departments	
	Number	Percentage
Individual/family	17	77
Community norms	12	55
Organizational/institutional	14	64
Health systems/providers	7	32
Mental health, substance abuse agencies	8	36
Other government organizations	10	46
Other nongovernmental organizations	8	36
Policy	5	23

uals or families, for example, by teaching parenting skills or encouraging health behaviors such as exercise or using condoms. We coded community norms as a target when departments attempted to change not just individual behavior but “social and normative beliefs” or “community influences on health,” often via social marketing campaigns.

Organizational or institutional change involved attempts to influence or coordinate with four types of organizations. Health systems or providers included programs to change providers’ behavior or interactions with clients. For example, one program trained providers to recognize domestic violence. Another gave private pediatricians software to track when children were due for vaccination and trained the doctors’ staffs in communicating with parents. Work with mental health and substance abuse agencies typically involved coordinating care, screening, and prevention. Work with other government organizations included police (e.g., to prevent violence), highway safety (e.g., to identify spots where accidents were frequent and to reduce hazards), and schools, prisons, or social service agencies to provide prevention programs for special populations. Nongovernmental organizations such as churches, community-based organizations, or advocacy organizations were generally collaborators in rather than targets of change.

Policy, such as getting legislative approval for needle exchange programs, was the least common target of change, but often involved particularly creative use of social science far removed from individual behavior change. For example, to promote a clean air ordinance, one department got a local television station to conduct man-in-the-street interviews showing popular support, and neutralized opposition from the Restaurant Association by providing economic evidence that restaurants in other areas had not lost money when such an ordinance was passed.

Use of Theory

Respondents in half of the 22 departments said that they used one or more explicit theories to guide their approaches to change. The most common theories were stages of change⁹ (6 departments), the health belief model¹⁰ (3), and harm reduction¹¹ (3). Extraindividual theories of health (e.g., social capital,^{12,13} social stress,¹⁴ ecological theories¹⁵) and of change (e.g., diffusion of innovation,¹⁶ community empowerment¹⁷) were largely absent, although one respondent mentioned capacity building. The seven departments judged to have the highest levels of integration of behavioral and social sciences were substantially more likely than others to mention explicit theories [86% vs. 33%, $\chi^2(1) = 5.66$, $P < .05$].

Barriers and Successes

Table 3 shows the barriers respondents said that their departments encountered in using behavioral and social sciences, in order of frequency. Three fifths of the barriers cited could affect any form of change. These included resources (e.g., lack of staff, time, funding, cultural or language barriers, population growth that outpaced the department’s capacity), interorganizational concerns (e.g., resistance to accountability by subcontractors), bureaucracy (e.g., time required to hire new staff), attitudes unrelated to behavioral sciences (e.g., resistance to change, turf issues, staff egos), or community attitudes (e.g., mistrust of the department). As one respondent put it, “Change is difficult, and good change is as difficult to absorb as bad change. You have to take it slowly.”

The remaining barriers were more specific to behavioral and social sciences. Political barriers included a governing body not liking a health department to

TABLE 3. Barriers to use of behavioral and social sciences by 22 health departments serving large cities

Barrier	Departments	
	Number	Percentage
Resources	13	59
Politics external to department	12	55
Interorganizational	8	36
Bureaucracy	8	36
Departmental attitudes unrelated to behavioral and social science	8	36
Knowledge	5	36
Departmental attitudes toward behavioral and social science	4	18
Scientific/translational	3	14
Community attitudes toward department of health	2	9

change behavior, violence prevention being a “hard sell” to a police department, community consideration of mental health, substance abuse, or HIV as moral rather than health issues (“go see your pastor”) or the need for “faith sensitivity” rather than cultural sensitivity in collaborating with the faith community to reduce teen pregnancy. Political barriers were often severe, as when a state threatened to jail local officials over a needle exchange program, or required negotiation: “The county board reflects all aspects of the community, and they may well want to know why we are doing something, especially if we don’t present approaches as well as we should. We need to explain our efforts.”

Knowledge barriers included lack of staff with training in behavioral sciences. Departmental attitudes toward behavioral sciences included concerns that they would supplant other approaches (“suspicion that this was a zero-sum game”) or were simply invalid. Scientific or translational concerns involved “capacity for translating science into practice” or the sense that “academic research is inaccessible: hard to get and hard to read.”

Despite these barriers, 10 respondents described attitudes toward integration of behavioral science initiatives in their departments as totally positive, for example, “progressive and very worthwhile”; “Very positively. We’ve received some testimonials from individuals who have written that they are grateful for the life-changing interventions. It’s been well worth the investment”; “I am a total believer that this is the way to plan health programs, and I wish we had it for every single area . . . what’s happening is that it’s catching on.” A substantial minority (7) suggested that attitudes were mixed, but typically improving (“very positive, with some resistance”; “the learning curve was extensive”). Only one respondent was negative (“there are so many things that are crosscutting that I’m not sure that I would try to throw this into the mix as a particular initiative.”) This was one of the last questions in the interview, and we had only 18 responses that could be coded.

When asked about the value of behavioral science approaches, a majority of respondents (12 departments) said they were effective, for example, “there has been a 40% reduction in infant mortality and a 50% reduction in HIV infections since the inception of the programs”; “we’ve gotten over 1,000 clients into drug treatment.” Other responses were that they were cost effective (“we’ve expanded our services without increasing costs”) (4), built useful collaborations (4), helped with

funding (“we’ve gotten lots of grants”) (3), and enhanced the image of the department (“with public health out there and more visible, this has led to more positive visibility for the department as a whole and has helped to support the department in other areas”) (2). Five departments described unsuccessful efforts to integrate behavioral sciences in their operations. There was no particular pattern to these responses. Strategies described as unsuccessful at one agency had been successful at others (e.g., sharing staff with a school of public health, integrating health and mental health), or unsuccessful efforts were later replaced by parallel successful efforts at the same department.

Discussion

Commissioners of health departments serving the largest jurisdictions in the United States all reported using behavioral science to some extent, although we cannot know whether they all adopted our definition of scientific approaches to changing individual behavior and social contexts to improve health. However, most departments fell short of the recommendations of the Institute of Medicine. Only a fifth of them had made behavioral science central to the department’s approach to public health.

Departments used behavioral sciences in diverse areas. Although each department had the opportunity to showcase only a few programs, the array of approaches across the country was quite broad. The fact that efforts were most common where federal funding agencies have required them suggests that funding agencies could play an important role in fulfilling the Institute of Medicine’s mandate. Most departments went beyond efforts to change individual behavior, and attempted to change community norms, systems of care, governmental and nongovernmental organizations, or social policy, although typically departments worked at just two levels, and most respondents cited theory only at the individual level if at all.

Commissioners generally found behavioral approaches valuable and several cited specific public health outcomes, although we did not verify their claims. There were few unsuccessful efforts. Departments that achieved high levels of integration of behavioral and social sciences used diverse structures for doing so. Surprisingly, collaboration with universities was unrelated to degree of integration, although explicit use of behavioral theory mattered; the first case example illustrates a department that manages without academic help. Perhaps the only commonality was strong commitment from the head of the department to this approach.

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