
Evidence-Based Interventions to Promote Physical Activity

What Contributes to Dissemination by State Health Departments

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Background: Evidence-based guidelines for promoting physical activity have been produced, yet sparse information exists on the dissemination of effective interventions. The purpose of this study was to better understand the dissemination of physical activity interventions across the United States, focusing particularly on evidence-based guidelines.

Design: A cross-sectional study was conducted in the U.S. that was organized around a modified version of the diffusion of innovations theory.

Setting/Participants: Respondents ($n=49$) were the physical activity contact person (e.g., program administrator, health educator) in each state or territorial health department.

Main Outcome Measures: Seven specific programs and policies relating to physical activity intervention were examined as dependent variables. Five additional domains—organizational climate, awareness, adoption, implementation, and maintenance—framed a set of independent variables.

Results: The most important factor related to decision making was the availability of adequate resources. Most respondents (89.8%) were aware of evidence-based guidelines to promote physical activity. However, less than half of the respondents (41%) had the authority to implement evidence-based programs and policies. A minority of respondents reported having support from their state governor (35.4%) or from most of their state legislators (21.3%). Several key factors were associated with the adoption of evidence-based interventions, including the presence of state funding for physical activity, whether the respondent participated in moderate physical activity, presence of adequate staffing, and presence of a supportive state legislature.

Conclusions: Awareness of the importance of promoting physical activity is relatively high in state and territorial health departments; however, the levels of internal support within the health department appear to outweigh any outside support from elected officials.

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Introduction

The important influence of physical activity in reducing the burden of chronic diseases and enhancing quality of life is well established.¹ For example, estimates indicate that in the United States as many as 250,000 deaths (or 12% of the total mortality rate per year) are attributed to physical inactivity.^{2–4} To address the burden of physical inactivity, effective in-

terventions now can be implemented in community settings to promote active living.⁵ These interventions include a range of informational, behavioral, and social support strategies, as well as approaches that address physical and policy environments.

A systematic, evidence-based summary of effective interventions to enhance levels of physical activity is available from the Task Force on Community Preventive Services.⁶ The Task Force has produced a chapter on physical activity for the *Guide to Community Preventive Services* (the *Community Guide*), noting that numerous interventions are effective in increasing levels of physical activity. No systematic, empirical data presently exist, however, showing awareness, use, or usefulness of the *Community Guide*. Early audience analysis for the *Community Guide* has indicated that key stakeholders want access to the evidence underlying recommendations, seek state-spe-

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cific health profiles, and need tools for dissemination of evidence-based interventions.

Potentially effective interventions can be adopted in community settings through the efforts of numerous agencies, organizations, and individuals. State and territorial health departments are important conveners for promoting physical activity interventions. Their role is crucial because of their ability to assess public health problems, develop appropriate programs or policies, and ensure that the programs and policies are effectively delivered and implemented.⁷ Thus, state health departments are in the unique position to help control chronic diseases.^{8,9} Programs now exist to help control tobacco use and cancer in all state health departments¹⁰; however, programs to promote physical activity are more likely to be lacking or inadequate. This lesser attention on physical activity is also supported in the literature. For example, in a study of 1210 journal articles on health promotion, only 2% of the articles focused on promoting physical activity, whereas 17% examined tobacco control.¹¹

Conceptual Framework

An extensive gap still exists between the development of public health knowledge through research and its application in community settings.¹²⁻¹⁴ Too often, the products of research are not disseminated or translated into community settings where the information is likely to have positive effects.¹⁵ In the context of adopting effective interventions, evidence-based physical activity guidelines may be viewed as an innovation—defined as an idea, practice, or object that is perceived as new.¹⁶ According to Rogers,¹⁶ the decision to adopt, accept, and utilize an innovation is not an instantaneous act, but a process. Some authors differentiate between dissemination and diffusion,¹⁷ whereas others use the terms synonymously.¹⁶ In this article, the term *dissemination* is used; it is defined as “the communication or spread of new or existing knowledge through a planned or systematic process.”¹⁷

The dissemination of effective programs and policies is likely to occur in stages. For example, the **awareness** stage defines the actions taken to make target audiences aware of the innovative programs across sites and settings.^{18,19} The **adoption** stage is defined as “a decision to make full use of an innovation as the best course of action available.”¹⁶ The adoption phase examines factors that influence the decision to undertake the innovation by an individual or organization.¹⁹ **Implementation** is defined as the extent to which an innovation is carried out with completeness and fidelity. The implementation phase in health promotion programs typically involves various players including the organization, the deliverers, and the receivers of the innovation. And finally, **maintenance** refers to the extent to

which an innovation becomes embedded or integrated into the normal operation of an organization.²⁰

This study was undertaken to better understand the dissemination of physical activity interventions across the U.S., focusing particularly on the evidence-based reviews in the *Community Guide*. Therefore, the purposes of this article are fourfold: (1) to describe the relative importance of various factors in state-level decision making; (2) to categorize the stage of adoption for evidence-based physical activity interventions in state and territorial public health departments; (3) to characterize training needs to enhance awareness, understanding, and use of the *Community Guide*; and (4) to examine the associations between a variety of factors and the stage of dissemination of evidence-based strategies to promote physical activity.

Methods

For this study, the physical activity contact person (e.g., program administrator, health educator) was surveyed in all state health departments, Guam, and the Virgin Islands. These individuals were identified via the Centers for Disease Control and Prevention’s State-Based Physical Activity Program Directory²¹ and through leadership information listed within the Chronic Disease Directors.²² The role of the physical activity contact person from each state is to lead and/or facilitate activities in promoting physical activity, serve as a clearinghouse for information, and develop new initiatives—it is a set of responsibilities rather than a specific job title. This person was chosen to fill out the survey because he or she was likely to be the individual most familiar with physical activity programs, policies, and priorities within each state health department.

Based on the authors’ input and previous literature,^{16,23-26} an initial questionnaire was developed that included 46 questions. The survey was first pretested for length, clarity, and organization at Saint Louis University with five staff members who worked in health communication research. Using established methods of cognitive response testing,²⁷⁻²⁹ feedback was obtained and the instrument was revised. After revision, the questionnaire underwent a second round of testing with employees of the St. Louis County Health Department. Using a 7- to 10-day window, 15 people completed the survey twice to examine test-retest properties. Based on these results, questions with concordance <0.60 were either discarded or revised. The revised survey was also examined using cognitive methods with four employees of the St. Louis County Health Department.

The final instrument included 25 questions (some with multiple parts), covering 4 major areas: (1) biographic information about the respondent; (2) physical activity programs and priorities; (3) funding and the policy environment; and (4) awareness and use of the *Community Guide* (see Appendix).

The survey was conducted by e-mail with the 52 physical activity contact people from March through May 2003. After sending an initial personalized e-mail, a second reminder was provided 2 weeks later. The response rate was 94% (i.e., 49 of 52 responded).

Table 1. Characteristics of participants in the survey of physical activity programs—U.S., 2003

Characteristic	No. of respondents n (%)
Job title	
Program manager or administrator	29 (59.2)
Health educator	7 (14.3)
Program planner	4 (8.2)
Division or bureau head	3 (6.1)
Other	6 (12.2)
Years working for health department	
<2	8 (16.3)
2 to <5	15 (30.6)
5 to <10	7 (14.3)
≥10	19 (38.8)
Highest degree held	
BS or BA	16 (32.7)
MS	6 (12.2)
MPH or MSPH	9 (18.4)
Other master's degree	13 (26.5)
PhD	3 (6.1)
Other	2 (4.1)
Meets physical activity recommendation	35 (71.4 ^a)

Note: n=49.

^aModerate physical activity five times or more per week, 30 minutes or more per day.³²

Descriptive analyses were conducted to summarize all variables. In addition, odds ratio (ORs) and 95% confidence intervals (CIs) were calculated to determine which characteristics were correlated with the presence of evidence-based programs to promote physical activity in community settings. The seven areas were based on the recent and ongoing reviews of the *Community Guide*.^{5,6,30,31} A summary-dependent variable (i.e., “combined interventions”) was created in which program activity was summed over the seven areas, creating a composite variable that was then dichotomized into “high” (five or more evidence-based interventions reported) versus “low” (four or fewer evidence-based interventions reported) activity.

Results

Table 1 summarizes selected characteristics of the sample. Nearly 60% of the surveys were completed by a program manager or administrator. Slightly more than half of the respondents had worked for the health department for at least 5 years, and the majority held a master's degree (57.1%). Using the current public health recommendation for moderate physical activity,³² 71.4% of respondents met physical activity recommendations.

To assess determinants of decision making in their agency, respondents were asked to select the top three of six factors (data not shown). For their top three choices, ranks were assigned from 1 (most important) to 3 (least important). By far, the most important factor, chosen by 46 respondents with a mean score of 1.57, was the availability of adequate resources (i.e., program dollars and staff). The remaining factors

included evidence of scientific effectiveness (n=28, mean score=2.18); the presence of established community coalitions (n=26, mean score=2.42); support or pressure from upper-level departmental management (n=20, mean score=2.20); health burden (n=13, mean score=1.85); and support or pressure from elected officials (n=11, mean score=1.91).

To describe the continuum of dissemination, questions were grouped according to organizational climate and within one of four key stages (Table 2). Regarding the organizational climate, the majority of respondents reported that their health department was supportive of evidence-based physical activity promotion. Awareness of the *Community Guide* among administrators and managers was relatively high (67.3%); awareness of the *Community Guide* among respondents was also high (89.8%). Most survey participants (67.3%) had visited the *Community Guide* website. Few respondents (2.1%) had participated in trainings specifically to learn about the *Community Guide*. Regarding adoption characteristics, nearly 80% of respondents believed that the time was right for implementation of physical activity interventions; however, only about 41% of participants had the authority to decide to implement such programs or policies. A variety of interventions are underway that have been recommended in the *Community Guide*.

A wide range exists in the frequency of use of these programs from a low of 40.8% who reported the implementation of stair use campaigns to a high of 85.7% who conducted programs or policies to enhance access to places for physical activity. About one fifth of the respondents reported a change to existing programs based on the *Community Guide*, and 36.2% noted its use in development of new programs. Regarding conditions necessary for maintenance of physical activity programs, only 14.6% of the respondents perceived that they had adequate staff for program development and implementation. A minority of respondents reported having support from the governor (35.4%) or from most state legislators (21.3%). The effects of budget constraints were evident, as 42% of respondents reported a disproportionate effect on physical activity programs and staff, compared with other public health programs.

A number of potentially modifiable factors appear to have contributed to the adoption of evidence-based interventions (Table 3). Four characteristics showed statistically significant associations with one or more types of evidence-based interventions—that is, the presence of state funding for physical activity, whether promoting physical activity was a high priority for their health department, presence of adequate staffing, and presence of a supportive state legislature. Although not statistically significant, ORs of ≥3.0 were shown for the association between development or implementation of new programs based on the *Community Guide* for four intervention categories.

Table 2. Descriptive characteristics of physical activity programs by stage of dissemination—U.S., 2003

Characteristic	No. of respondents	Agree or strongly agree (%)	Yes (%)
Organizational climate			
Promoting physical activity is high priority for health department	32	65.3	
Administrators and managers supportive of evidence-based interventions	40	81.6	
Awareness			
Administrators and managers at health department are aware of the <i>Community Guide</i>	33		67.3
<i>Community Guide</i> awareness from respondent			
Heard of recommendations in <i>Guide</i>	44		89.8
Read or seen materials of <i>Guide</i>	42		85.7
Visited <i>Guide</i> website	33		67.3
Printed materials from website	23		47.6
Attended training to learn about <i>Guide</i>	10		2.1
Attended professional meeting where <i>Guide</i> was discussed	24		49.0
Adoption			
Now is a good time to implement evidence-based interventions to promote physical activity	39	79.6	
I have the authority to decide to implement physical activity intervention	20		40.8
Implementation			
Physical activity interventions underway			
Community-wide campaigns	35		71.4
Stair use campaigns	20		40.8
School-based physical education programs	36		73.5
Social support interventions	35		71.4
Individually adapted health behavior change	30		61.2
Enhanced access and outreach programs	42		85.7
Urban design, community level	36		73.5
Have changes occurred based on the <i>Guide</i> ?			
Existing programs were changed	10		21.7
New programs were developed or implemented	17		36.2
Maintenance			
My agency's staff is adequate for developing and implementing physical activity interventions	7	14.6	
The governor is supportive of physical activity interventions	17	35.4	
Most state legislators are supportive of physical activity interventions	10	21.3	
Budget constraints have disproportionately affected programs and staff to promote physical activity	19	42.2	

Survey respondents showed a strong interest in training sessions for increasing the use of evidence-based strategies to promote physical activity (data not shown). Nearly all participants indicated that they would take part in such training (95.9%) or would send staff to training (97.9%). Respondents were also asked about the preferred mode of training or technical assistance. Using a 1–5 rating scale, the most popular option was an onsite workshop (mean score=4.1), followed by an expert being available to answer questions (mean score=4.0), help with grant writing (mean score=3.9), using a CD-ROM (mean score=3.7), and using a telephone help line (mean score=3.5).

Discussion

Not unexpectedly, the reported presence of resources (in the form of state funding) was an important corre-

late related to the occurrence of several evidence-based interventions to promote physical activity. The literature is inconsistent regarding the relative importance of agency size or funding level in promoting effective public health interventions. Steckler and Goodman³³ found that larger, more mature public health departments were more likely to adopt programs. Yet in qualitative research, Miller showed that small, relatively young organizations were likely to be further along the continuum of program adoption for HIV practitioners.³⁴ One potentially troubling finding from this survey was that 42% of the respondents reported that due to budget cuts, physical activity programs were more likely to be adversely affected than other programmatic areas in their agency. This is a major challenge for leaders in chronic disease prevention, where the “horizon” for documenting program success is often years or decades.^{10,35} There is also reason for

Table 3. Correlates of adoption of evidence-based interventions to promote physical activity—U.S., 2003

Characteristic	Type of physical activity intervention; OR (95% CI)							
	Community-wide campaigns	Stair-use campaigns	School-based PE programs	Social support interventions	Individually adapted programs	Enhanced access and outreach	Urban design changes	Combined interventions*
Performs moderate physical activity at least 30 min per day, 5 days per week	0.1 (0.0–1.1)	0.1 (0.0–1.1)	0.4 (0.1–1.9)	1.6 (0.4–6.1)	2.9 (0.8–10.4)	1.0 (0.2–5.9)	1.9 (0.5–7.2)	0.7 (0.2–2.6)
Presence/absence of state funding for physical activity	6.1 (1.6–23.4)	6.1 (1.6–23.4)	1.9 (0.5–7.2)	1.1 (0.3–3.9)	1.7 (0.5–5.6)	1.5 (0.3–7.6)	1.9 (0.5–7.2)	2.3 (0.7–7.7)
Promoting physical activity is high priority for health department	2.7 (0.7–9.8)	2.7 (0.7–9.8)	3.5 (0.9–13.7)	1.8 (0.5–6.2)	2.1 (0.6–6.6)	8.8 (1.0–80.0)	3.5 (0.9–13.7)	7.2 (1.9–27.5)
Respondent heard of recommendations in <i>Guide</i>	0.6 (0.1–5.9)	0.6 (0.1–5.9)	0.7 (0.1–6.6)	1.8 (0.3–12.0)	7.7 (0.8–75.5)	1.6 (0.2–16.7)	2.0 (0.3–13.6)	3.2 (0.5–21.5)
Now is a good time to implement evidence-based interventions to promote physical activity	3.3 (0.8–14.2)	3.3 (0.8–14.2)	3.9 (0.9–16.7)	1.9 (0.5–8.3)	1.1 (0.3–4.4)	1.7 (0.3–10.4)	2.2 (0.5–9.6)	2.3 (0.5–9.3)
I have the authority to decide to implement physical activity intervention	0.6 (0.2–2.1)	0.6 (0.2–2.1)	1.8 (0.5–6.9)	1.4 (0.4–4.9)	2.8 (0.8–9.7)	1.9 (0.3–10.8)	3.0 (0.7–12.7)	3.3 (0.9–12.1)
Existing programs were changed based on the <i>Guide</i>	0.9 (0.2–4.2)	0.9 (0.2–4.2)	1.6 (0.3–8.6)	1.8 (0.3–9.7)	7.7 (0.9–66.9)	1.6 (0.2–15.4)	4.0 (0.5–35.2)	2.5 (0.5–13.4)
New programs were developed or implemented based on the <i>Guide</i>	4.5 (0.9–23.2)	4.5 (0.9–23.2)	2.1 (0.5–9.1)	0.9 (0.3–3.4)	1.9 (0.5–6.6)	1.4 (0.2–8.0)	3.9 (0.8–20.4)	3.6 (0.9–15.2)
My agency's staff is adequate for developing and implementing physical activity interventions	2.7 (0.3–24.7)	2.7 (0.3–24.7)	0.9 (0.1–5.3)	1.3 (1.1–1.5)	0.8 (0.2–4.2)	1.0 (0.1–9.8)	2.4 (0.3–22.1)	3.7 (0.4–33.5)
Most state legislators are supportive of physical activity interventions	1.4 (1.1–1.7)	1.4 (1.1–1.7)	1.6 (0.3–8.6)	1.8 (0.3–9.7)	1.6 (0.4–7.2)	0.6 (0.1–3.6)	1.6 (0.3–8.6)	2.5 (0.5–13.4)

*Represents the sum of the seven evidence-based interventions in the columns, total possible score from 0 to 7. OR, odds ratio; CI, confidence interval; PE, physical education.

encouragement in these data. Among important factors influencing decision making in a state health department are health burden and support from decision makers. At least at the state health agency level, knowledge of the importance and burden of physical inactivity appears to be fairly high. More work is needed to increase knowledge among elected officials of the importance of physical activity.

Among seven effective interventions, the least frequently implemented approach involved stair use campaigns (e.g., motivational signs placed by elevators/escalators to encourage people to use nearby stairs for health/weight loss). Characteristics known to influence adoption of innovations such as physical activity, include the complexity or extent to which they are perceived as difficult to implement.^{23,24,36} The ease of implementation of the relatively inexpensive stair-use campaigns, compared with the extent to which such campaigns are currently being conducted, suggests increased promotion of this approach has a high probability for positive effect. Recent research has also shown the important role of the physical environment (e.g., sidewalks, walking/biking trails) in promoting physical activity in community settings.³⁷⁻⁴¹ In this study, these changes to the physical environment are being addressed via the adoption of interventions to enhance access to places for physical activity.

When examining characteristics that correlate with the adoption of evidence-based interventions, the presence of adequate resources and a priority for physical activity promotion at the agency and state legislative levels appears to exert a positive impact in influencing the adoption of new interventions or modifications to existing programs. There also appears to be evidence that adoption of effective programs might be enhanced by more active promotion of the recommendations in the *Community Guide*. For example, 22% of respondents stated that they had changed existing programs based on the *Community Guide*. In addition, nearly all survey participants showed strong interest in training activities to enhance use of the *Community Guide*. Onsite workshops were the most popular mode of training, yet these may also be among the most costly options for improving use of evidence-based approaches. Workshops might be appropriate for target groups who are not aware of the guidelines or are not inclined to alter their practices, whereas more passive approaches (e.g., websites) may be more effective with educated audiences, who are already aware of needs and resources for promoting physical activity. More work is needed to understand what groups will benefit from less labor-intensive approaches to dissemination (e.g., use of a CD-ROM, web-based training), which may improve delivery of programs to promote physical activity.^{19,42} It is also important to note that some interventions in the *Community Guide* may be expensive and beyond the

reach of many public health agencies (e.g., a community-wide mass media campaign).

Although this study provides useful information, it has several limitations. Because it surveyed people working in physical activity promotion, one would expect that their awareness of evidence-based interventions to promote physical activity would be higher than for many other people working in public health practice. Although an attempt was made to develop a reliable and comprehensive instrument, there were few models on which to base physical activity items. Consequently, numerous questions had to be developed de novo. Because the data were self-reported and cross-sectional, it is impossible to ascertain the precise process and timing of program adoption and whether interventions reported are directly due to the *Community Guide*. For example, if a respondent reported that his or her state had implemented "community-wide campaigns," it would be useful to know the scale, duration, cost, and effectiveness of these efforts, along with reasons for adoption. In the future, we plan to add qualitative methods (e.g., case studies) to this research in order to better understand program adoption, implementation, and maintenance. Additional work will also assess patterns of dissemination of physical activity programs in city and county health departments. The sample size was relatively small, making it unlikely that statistical significance would be attained in multivariate analyses. Therefore, patterns in the data were examined in addition to statistical associations. The population surveyed had a rate of moderate physical activity two- to threefold higher than the usual rate among U.S. adults.⁴³ Having a physically active program leader may enhance the rate of adoption of evidence-based interventions.⁴⁴

Conclusion

Considerable work needs to be conducted to determine how to effectively implement and evaluate evidence-based interventions in public health settings. Practitioners often note that intervention research is difficult to apply in "real world" settings and that the research base is not adequately meeting practitioners' needs.^{11,45,46} Furthermore, there is a reluctance among public health decision makers regarding the application of findings from interventions that may not have been based on effectiveness information from their particular locality, setting, or population. Studies like ours may assist in describing and addressing several key issues:

1. Awareness of the importance of promoting physical activity is relatively high in state and territorial health departments.
2. The levels of internal support for physical activity interventions appear to far outweigh external support from elected officials.

3. The stage of adopting physical activity interventions can and should be characterized in order to address appropriate diffusion measures.
4. Organizational factors that predict program adoption include presence of state funding and a priority for physical activity promotion in the health department or legislature.
5. There is a high level of interest in training activities to promote evidence-based interventions for physical activity.

In the U.S., estimates indicate that only 9% of total health-related research funding focuses on prevention research, and within this body of inquiry, <10% involves dissemination research.⁴⁷ Given this sparse attention to dissemination research, studies like ours can provide valuable information for understanding the stages of dissemination and can help in determining ways to accelerate the translation of research findings into public health action.

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References

1. U.S. Department of Health and Human Services. Physical Activity and Health. A Report of the Surgeon General. Atlanta, GA. U.S. Department of Health and Human Services, Centers for Disease Control and Prevention; 1996.
2. Hahn RA, Teutsch SM, Rothenberg RB, Marks JS. Excess deaths from nine chronic diseases in the United States, 1986. *JAMA* 1990;264:2654–59.
3. McGinnis JM. The public health burden of a sedentary lifestyle. *Med Sci Sport Exer* 1992;6(Suppl):S196–S200.
4. McGinnis JM, Foege WH. Actual causes of death in the United States. *JAMA* 1993;270:2207–12.
5. Kahn EB, Ramsey LT, Brownson RC, et al. The effectiveness of interventions to increase physical activity. A systematic review. *Am J Prev Med* 2002;22(4 Suppl 1):73–107.
6. Task Force on Community Preventive Services. Guide to Community Preventive Services. Available at: www.thecommunityguide.org.
7. IOM. Committee for the Study of the Future of Public Health. The Future of Public Health. Washington, DC: National Academy Press; 1988.
8. Alciati MH, Glanz K. Using data to plan public health programs: experience from state cancer prevention and control programs. *Public Health Rep* 1996;111:165–72.
9. Association of State and Territorial Directors of Health Promotion and Public Health Education and the Centers for Disease Control and Prevention. Policy and Environmental Change: New Directions for Public Health. Atlanta, GA: ASTDHPPE and CDC; 2001.
10. Brownson RC, Bright FS. Chronic disease control in public health practice: looking back and moving forward. *Public Health Rep* 2004;119:230–38.
11. Oldenburg BF, Sallis JF, French ML, Owen N. Health promotion research and the diffusion and institutionalization of interventions. *Health Educ Res* 1999;14:121–30.

12. Johnson JL, Green LW, Frankish CJ, MacLean DR, Stachenko S. A dissemination research agenda to strengthen health promotion and disease prevention. *Can J Public Health* 1996;87(Suppl 2A):S5–10.
13. Redman S. Towards a research strategy to support public health programs for behaviour change. *Aust N Z J Public Health* 1996;20:352–58.
14. Nutbeam D. Achieving 'best practice' in health promotion: improving the fit between research and practice. *Health Educ Res* 1996;11:317–26.
15. MacLean DR. Positioning dissemination in public health policy. *Can J Public Health* 1996;87(Suppl 2):S40–43.
16. Rogers EM. Diffusion of innovations, 3rd ed. New York: The Free Press; 1983.
17. Basch CE, Eveland JD, Portnoy B. Diffusion systems for education and learning about health. *Fam Community Health* 1986;9:1–26.
18. Kar SB. Implications of diffusion research for planned change. *Int J Health Educ* 1976;17:192–220.
19. McCormick LK, Steckler AB, McLeroy KR. Diffusion of innovations in schools: a study of adoption and implementation of school-based tobacco prevention curricula. *Am J Health Promot* 1995;9:210–19.
20. Goodman RM, Tenney M, Smith DW, Steckler A. The adoption process for health curriculum innovations in schools: a case study. *J Health Edu* 1992;23:215–20.
21. Centers for Disease Control and Prevention. State-Based Physical Activity Program Directory. Centers for Disease Control and Prevention. Available at: <http://apps.nccd.cdc.gov/DNPAProg/>.
22. Chronic Disease Directors. Chronic Disease Directors. Expanding Public Health Horizons. Available at: www.chronicdisease.org.
23. Brink SG, Basen-Engquist KM, O'Hara-Tompkins NM, Parcel GS, Gottlieb NH, Lovato CY. Diffusion of an effective tobacco prevention program. Part I: Evaluation of the dissemination phase. *Health Educ Res* 1995;10:283–95.
24. Parcel GS, O'Hara-Tompkins NM, Harrist RB, et al. Diffusion of an effective tobacco prevention program. Part II: Evaluation of the adoption phase. *Health Educ Res* 1995;10:297–307.
25. Steckler A, Goodman RM, McLeroy KR, Davis S, Koch G. Measuring the diffusion of innovative health promotion programs. *Am J Health Promot* 1992;6:214–24.
26. Riley BL. Dissemination of heart health promotion in the Ontario Public Health System: 1989–1999. *Health Educ Res* 2003;18:15–31.
27. Forsyth BH, Lessler JT. Cognitive laboratory methods: a taxonomy. In: Biemer PP, Groves RM, Lyberg LE, Mathiowetz NA, Sudman S, eds. Measurement errors in surveys. New York: Wiley-Interscience; 1991: 395–418.
28. Jobe JB, Mingay DJ. Cognitive research improves questionnaires. *Am J Public Health* 1989;79:1053–55.
29. Jobe JB, Mingay DJ. Cognitive laboratory approach to designing questionnaires for surveys of the elderly. *Public Health Rep* 1990;105:518–24.
30. Briss PA, Zaza S, Pappaioanou M, et al. Developing an evidence-based guide to community preventive services—methods. The Task Force on Community Preventive Services. *Am J Prev Med* 2000;18(1 Suppl):35–43.
31. Truman BI, Smith-Akin CK, Hinman AR, et al. Developing the guide to community preventive services—overview and rationale. *Am J Prev Med* 2000;18(1S):18–26.
32. Pate R, Pratt M, Blair S, et al. Physical activity and public health: a recommendation from the Centers for Disease Control and Prevention and the American College of Sports Medicine. *JAMA* 1995;273:402–7.
33. Steckler A, Goodman RM. How to institutionalize health promotion programs. *Am J Health Promot* 1989;3:34–44.
34. Miller RL. Innovation in HIV prevention: organizational and intervention characteristics affecting program adoption. *Am J Commun Psychol* 2001; 29:621–47.
35. McGinnis JM. Does proof matter? Why strong evidence sometimes yields weak action. *Am J Health Promot* 2001;15:391–96.
36. Devine CM, Olson CM, Frongillo EA, Jr. Impact of the Nutrition for Life program on junior high students in New York State. *J Sch Health* 1992; 62:381–85.
37. Humpel N, Owen N, Leslie E. Environmental factors associated with adults' participation in physical activity. A review. *Am J Prev Med* 2002;22:188–99.
38. Brownson RC, Housemann RA, Brown DR, et al. Promoting physical activity in rural communities: walking trail access, use, and effects. *Am J Prev Med* 2000;18:235–41.
39. Brownson RC, Baker EA, Housemann RA, Brennan LK, Bacak SJ. Environmental and policy determinants of physical activity in the United States. *Am J Public Health* 2001;91:1995–2003.
40. Craig CL, Brownson RC, Cragg SE, Dunn AL. Exploring the effect of the environment on physical activity. A study examining walking to work. *Am J Prev Med* 2002;23(2 Suppl 1):36–43.

41. Giles-Corti B, Donovan RJ. The relative influence of individual, social and physical environment determinants of physical activity. *Soc Sci Med* 2002;54:1793–1812.
42. King L, Hawe P, Wise M. Making dissemination a two-way process. *Health Promot Int* 1998;13:237–44.
43. Brownson RC, Jones DA, Pratt M, Blanton C, Heath GW. Measuring physical activity with the behavioral risk factor surveillance system. *Med Sci Sport Exer* 2000;32:1913–18.
44. Estabrooks P, Bradshaw M, Fox E, Berg J, Dziewaltowski DA. The relationships between delivery agents' physical activity level and the likelihood of implementing a physical activity program. *Am J Health Promot* 2004;18:350–53.
45. Frenck J. Balancing relevance and excellence: organizational responses to link research with decision-making. *Soc Sci Med* 1992;35:1397–1404.
46. Glanz K, Oldenburg B. Relevance of health behavior research to health promotion and health education. In: Gochman DS, ed. *Handbook of health behavior research IV: relevance for professionals and issues for the future*, 2nd ed. New York, NY: Plenum Press; 1997:143–61.
47. Farquhar JW. The case for dissemination research in health promotion and disease prevention. *Can J Public Health* 1996;87(Suppl 2):S44–49.

Survey of Physical Activity Programs

Purpose: This survey will take approximately 15 minutes of your time. It is designed to gather information from city, county, state and territorial health departments regarding physical activity programs and policies. Please respond to each question by placing an X on the line corresponding to your answer. Thank you for your time.

Here are a few questions about your background:

1. How do you best describe your job?
 - Program manager/administrator
 - Health educator
 - Epidemiologist
 - Program planner
 - Division or bureau head
 - Department head
 - Other (please specify) _____

2. How long have you worked for this health department? Years ___ Months ___
 How long have you been in your current position? Years ___ Months ___

3. How much of this time has been spent working on physical activity programs (either full or part time)?
 Years ___ ___ Not Applicable

4. The health department you work for is:
 - City
 - County
 - State, Territory, or District of Columbia

5. Which degrees do you hold (check all that apply)?
 - BS/BA
 - MS or MSc
 - MPH or MSPH
 - MA
 - Other Masters Degree
 - MD or DO
 - PhD, DrPH, or ScD
 - Other (please specify) _____

6. In a usual week, do you do moderate activities for at least 10 minutes at a time, such as brisk walking, bicycling, vacuuming, gardening, or anything else that causes some increase in breathing or heart rate?
 ___ Yes ___ No
 If yes, how many days per week? _____ Hours and minutes per day? _____

PLEASE indicate the extent to which you agree or disagree with the following statements. Use the scale below to respond to each item by placing an X on the line that represents your response.

Here are some questions about physical activity programs and priorities:

7. Promoting physical activity is a high priority for my health department.

Strongly Disagree		Neither Agree nor Disagree		Strongly Agree
1	2	3	4	5
_____	_____	_____	_____	_____

8. Administrators and managers at my health department are interested and supportive of evidence-based recommendations to make decisions about physical activity interventions.

Strongly Disagree		Neither Agree nor Disagree		Strongly Agree
1	2	3	4	5
_____	_____	_____	_____	_____

9. When it comes to dollars spent specifically for physical activity, I have the authority to decide whether our health department will adopt a particular physical activity intervention.

Yes No Don't Know

10. Now is a good time to implement evidence-based physical activity programs in my health department.

Strongly Disagree Neither Agree nor Disagree Strongly Agree
1 2 3 4 5
____ _____ _____ _____ _____

11. Are any of the following physical activity interventions currently underway in your state?:

Community wide campaigns Yes No Don't Know

- (e.g. large-scale, highly visible, messages directed to large audiences through media (such as television, radio, and newspapers) typically combined with other approaches including support or self-help groups, community events, or risk factor screenings.)

Stair use campaigns Yes No Don't Know

- (e.g. motivational signs placed by elevators/escalators to encourage people to use nearby stairs for health/weight loss)

School-based PE programs Yes No Don't Know

- (e.g. programs to increase amount of time students spend in PE classes which enhance the length or activity level of students and health education)

Social support interventions in community Yes No Don't Know

- (e.g. focus on changing physical activity behavior through creating, strengthening and maintaining social networks that provide supportive relationships for behavior change)

Individually adapted health behavior change programs Yes No Don't Know

- (e.g. teaching goal setting/self-monitoring of progress, structured problem solving & relapse prevention)

Creation of, or enhanced access to places for physical activity combined with informational outreach activities Yes No Don't Know

- (e.g. built environment-walking trails, biking trails, exercise facilities within worksites/coalitions, agencies)

Urban design, community level Yes No Don't Know

- (e.g. more residents living within walking distance of shopping, work, & school, improved connectivity of streets and sidewalks, preserve or create green-space & improve aesthetic qualities of the environment)

12. Please rank the following factors in their importance when making decisions to develop or adopt programs or policies to increase physical activity in your state.

Please pick the top 3; place an X on the line to the left corresponding to your "top 3 choices"
Then rank these 3 choices as 1-2-3 (1 = most important, 3 = least important)

	Rank
<input type="checkbox"/> Support or pressure from upper management	____
<input type="checkbox"/> Support or pressure from elected officials	____
<input type="checkbox"/> Available resources (program dollars & staff)	____
<input type="checkbox"/> Established community coalitions (e.g. established physical activity coalitions, local partnerships)	____
<input type="checkbox"/> Health burden	____
<input type="checkbox"/> Evidence of scientific effectiveness	____

13. If there were a training session on evidence-based strategies offered to promote physical activity in my state:

a. I would be likely to attend.
 Yes No

b. I would encourage others to attend.
 Yes No

The following questions are about funding and the policy environment:

14. Does your state allocate any funding to physical activity promotion?

Yes No Don't Know

If so, please provide an estimate of this amount.

Estimate: \$ _____

15. Does your state allocate any Federal Prevention Block Grant funding to physical activity promotion?

Yes No Don't Know

If yes, please provide an estimate of this amount.

Estimate: \$ _____

16. Compared to other public health programs conducted by my health department, budget constraints have disproportionately affected programs and staff to promote physical activity.

Does not apply: my health department has no physical activity programs or staff.

Strongly Disagree		Neither Agree nor Disagree		Strongly Agree
1	2	3	4	5
_____	_____	_____	_____	_____

17. My Governor is interested and supportive of physical activity interventions and policies.

Strongly Disagree		Neither Agree nor Disagree		Strongly Agree
1	2	3	4	5
_____	_____	_____	_____	_____

18. Most of our State Legislators are interested and supportive of physical activity interventions and policies.

Strongly Disagree		Neither Agree nor Disagree		Strongly Agree
1	2	3	4	5
_____	_____	_____	_____	_____

19. My department leadership has given a high priority to physical activity interventions and policies.

Strongly Disagree		Neither Agree nor Disagree		Strongly Agree
1	2	3	4	5
_____	_____	_____	_____	_____

20. My agency's staffing level is adequate for developing and implementing physical activity programs and policies.

Strongly Disagree		Neither Agree nor Disagree		Strongly Agree
1	2	3	4	5
_____	_____	_____	_____	_____

21. How many full-time and how many part-time staff members currently work on physical activity promotion in your department?

Full-time: _____. ____ Part-time: _____. ____

Here are some questions about the *Community Guide*:

(Note: If you are not familiar with the physical activity recommendations in the *Community Guide*, refer to the short description that follows.)

"The Task Force on Community Preventive Services developed the *Guide to Preventive Services: Systematic Reviews and Evidenced-Based Recommendations* (the *Community Guide*). The *Community Guide* outlines recommendations based on systematic reviews of the literature. The interventions are classified as strongly recommended, recommended, insufficient evidence, or recommended against. The *Community Guide* can and should be used by anyone involved in the planning, funding, and implementation of population-based services and policies to improve community health. The physical activity recommendations in the *Community Guide* came out in Fall 2001. For more details see: www.thecommunityguide.org

22. Regarding the physical activity recommendations of the Task Force on Community Preventive Services *Community Guide*.

- a. Have you heard of the physical activity recommendations in the *Community Guide*?
 Yes No Don't Know [If you answer No to this Question Skip to Question 23]
- b. Have you read or seen the physical activity materials of the *Community Guide*?
 Yes No Don't Know
- c. Have you visited the *Community Guide*'s website: www.thecommunityguide.org?
 Yes No Don't Know
- d. Have you printed materials from the physical activity section of the *Community Guide* from the website?
 Yes No Don't Know
- e. Have you attended a training course where you learned about the physical activity section of the *Community Guide*?
 Yes No Don't Know
- f. Have you attended a professional meeting where the physical activity section of the *Community Guide* was discussed?
 Yes No Don't Know

23. Administrators, managers and staff at my health department are aware of the *Community Guide*'s physical activity recommendations for interventions to promote physical activity.

Yes No Don't Know

24. Have any of the following occurred?

- a. The delivery or priority of existing physical activity programs was changed based on the *Community Guide*'s recommendations.

Yes No Don't Know
 If yes, how so _____

- b. New physical activity programs were developed or implemented based on the *Community Guide*'s recommendations.

Yes No Don't Know

25. If the following free resources were available to help with the adoption of the physical activity recommendations in the *Community Guide*, how likely would you be to use each of them?

(Rank each of the following in order from 1 to 5; 1 = least likely to use, 5 = most likely to use)

- a. An expert available to answer questions that might arise

Least Likely		Neither Least nor Most Likely		Most Likely
1	2	3	4	5
_____	_____	_____	_____	_____

- b. A telephone help-line

Least Likely		Neither Least nor Most Likely		Most Likely
1	2	3	4	5
_____	_____	_____	_____	_____

- c. An onsite workshop for your staff

Least Likely		Neither Least nor Most Likely		Most Likely
1	2	3	4	5
_____	_____	_____	_____	_____

d. A CD-ROM

Least Likely 1	2	Neither Least nor Most Likely 3	4	Most Likely 5
_____	_____	_____	_____	_____

e. Technical assistance with grant writing

Least Likely 1	2	Neither Least nor Most Likely 3	4	Most Likely 5
_____	_____	_____	_____	_____

THANK YOU FOR COMPLETING THIS SURVEY!

Email your completed survey to ballewp@slu.edu by April 11, 2003
Or Fax your survey to Paula Ballew at (314) 977-3234
For questions, call Paula Ballew at (314) 977-8163

Please fill in the information below, so that we can provide you feedback from our survey:

Your Name: _____

Your E-mail Address: _____

Your State: _____