

Planning for the sustainability of community-based health programs: conceptual frameworks and future directions for research, practice and policy

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Abstract

Attention to the sustainability of health intervention programs both in the US and abroad is increasing, but little consensus exists on the conceptual and operational definitions of sustainability. Moreover, an empirical knowledge base about the determinants of sustainability is still at an early stage. *Planning* for sustainability requires, first, a clear understanding of the concept of sustainability and operational indicators that may be used in monitoring sustainability over time. Important categories of indicators include: (1) maintenance of health benefits achieved through an initial program, (2) level of institutionalization of a program within an organization and (3) measures of capacity building in the recipient community. Second, planning for sustainability requires the use of programmatic approaches and strategies that favor long-term program maintenance. We suggest that the potential influences on sustainability may derive from three major groups of factors: (1) project design and implementation factors, (2) factors within the organizational setting, and (3) factors in the broader community environment. Future efforts to develop sustainable health intervention programs in communities can build on the concepts and strategies proposed here.

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Introduction

Throughout the world, considerable resources are spent implementing community-based health programs that are discontinued soon after initial funding ends (e.g. US Agency for International Development, 1988; Steckler and Goodman, 1989; Bamberger and Cheema, 1990; Bossert, 1990). In recent years, program sustainability has been an issue of growing concern, both in the US and abroad. Attention to the long-term viability of health intervention programs is likely to increase everywhere, as policy makers and funders become increasingly concerned with allocating scarce resources effectively and efficiently.

Often designed as seed-funded or demonstration programs, the primary focus of many community-based programs has traditionally been on determining program efficacy, while the long-term viability of potentially successful programs has been a 'latent' concern (Goodman and Steckler, 1987/88), if considered at all. Systematic research about the long-term maintenance of programs is at an early stage and the very notion of what is meant by *sustainability* yields different approaches. The first part of this article synthesizes a diverse literature that reveals multiple perspectives on the concept of sustainability. Using this synthesis as an organizing framework, we examine indicators that can be used to monitor sustainability over time.

Increasing efforts are being directed toward addressing the sustainability of major community-wide health promotion programs. For example, an international study by Bossert (1990) involved a comparative analysis of 44 projects in Central America and 13 projects in Africa funded by the

US Agency for International Development. In the US, Steckler and Goodman's work on the institutionalization of 10 health promotion programs funded by the Virginia State Health Department (Goodman and Steckler, 1989a,b; Steckler and Goodman, 1989) has served as a basis for recent advances in frameworks and methodologies for conceptualizing and measuring institutionalization. Also notable are recent reports from the now 'classic' community-based cardiovascular disease prevention programs in Pawtucket, Rhode Island (Lefebvre, 1990), Stanford (Jackson *et al.*, 1994) and Minnesota (Weisbrod *et al.*, 1992; Bracht *et al.*, 1994). Initiated with federal funding in the 1980s, these major demonstration programs are just now, 10 and 15 years later, generating reports about their experiences in attempting to maintain the programs in the communities beyond the end of the grant period. While the above works have been described in the literature, little attempt has been made to consolidate what we know about factors that influence sustainability across different studies. The second part of the paper presents an initial set of potential guidelines and strategies for fostering program sustainability within the dynamic context of community. The article ends with a discussion of future directions for researchers, practitioners and policy makers regarding sustainability.

Why be concerned about program sustainability?

Clearly, there are circumstances under which the discontinuation of a program is appropriate. Glaser (1981) rightly observes that:

Not all innovations should last or endure for long periods of time. Circumstances, people, situations, and problems change. When a validated, more efficacious, more suitable or more cost-effective means for meeting a given problem comes to light, the former *modus operandi* very appropriately may be supplanted. Or the problem the given innovation was designed to address may have changed or disappeared.

While not all programs should endure, there are at least three reasons why the failure to sustain programs over the long term may present serious problems. First, program termination is counterproductive when the disease that a program was established to address remains or recurs. Many examples may be provided in public health where continuing disease control, for both chronic and infectious disease, is simply essential. A study by Holland *et al.* (1993) clearly illustrates the result of discontinuing cancer screening in a community. In this study, an examination of cervical cancer trends over a 19 year period in Newark, New Jersey showed that the ratio of *in situ* to invasive cancer cases increased (an indication of a shift to an earlier, more curable stage of disease) with the introduction of educational and screening programs for the prevention of cervical cancer, only to revert to pre-intervention levels when funding for the prevention programs ended. The New Jersey example highlights the critical importance of the *maintenance* of screening for the continuing control of invasive cervical cancer.

Second, sustainability is a concern common to many community health programs; having incurred significant start-up costs in human, fiscal and technical resources, many programs see their funds withdrawn *before activities have reached full fruition*. In one study, sustainability was identified as a concern in six out of nine foundation-funded programs in the western US, despite their different settings, target groups and health goals (Altman *et al.*, 1991). Specifically, program staff, community coalition members and other representatives from surveyed community health promotion projects identified deficient funding, and the need for a diversified and reliable long-term funding base as obstacles to achieving current goals and objectives. Further, securing resources to ensure self-sufficiency and integrating the program into the community to ensure that health promotion remains when funding ends were stated as two future goals in eight and six communities, respectively, out of the nine surveyed. Janz *et al.* (1996) found that adequacy in duration of funding and the ability to locate additional funds were

reported as factors that impeded intervention effectiveness by staff of almost half of 37 AIDS prevention and service projects nationwide. Surprisingly, the frequency of the reporting of these concerns exceeded that of other concerns that might be expected to present particular challenges in AIDS prevention, such as the target population's reluctance to be involved with AIDS (only 27% reported this to be highly problematic) and reaching the target group (11%).

A third reason to be concerned with program sustainability is that new programs may encounter diminished community support and trust in communities with a history of programs that were abruptly or inappropriately terminated (Goodman and Steckler, 1987/88).

Sustainability: from a 'latent' goal to a planned approach

Sustainability was a goal of many of the projects the authors have collaborated on over the years in an urban African-American community. This paper is the result of an ongoing process over several years to organize our cumulative insights and experiences from field work, research and the relevant literature to provide the beginnings of a coherent and systematic knowledge base about program sustainability. This paper is also intended to guide others who are also attempting to build sustainable programs.

Experiences in community-based projects for breast and cervical cancer control

Involvement by one of the authors (M. C. S.-R.) in a community-based cancer control prevention program over a 5 year period provided extensive experience in planning, implementing and evaluating a program which recruited lay neighborhood residents to educate inner-city women in Baltimore, Maryland about cervical cancer and encourage them to seek appropriate screening (Mamon *et al.*, 1991). In the final year of the program, the success of this program, combined with the impending termination of its funding from the National Cancer Institute, led to

various activities to continue the program beyond the grant period. For example, several meetings and focus groups were held with representatives from local and state health departments, the recipient community, voluntary associations and funding agencies. Lay community volunteers were very enthusiastic about continuing their health education work with the women in their communities, even expanding it to include other women's health concerns. In addition, the local American Cancer Society (ACS) demonstrated a great deal of interest in taking over supervision of the network of lay community volunteers that had been developed during the project; this fit well with the ACS's desire at the time to increase their targeting efforts to lower income communities. However, despite best intentions, the ending phase of the project meant that remaining staff, time and resources were too few to permit building adequate mechanisms for a successful transition of this component of the project to another organization. Our experience in this project was consistent with Goodman and Steckler's (1987/88) observation that sustainability is often a 'latent' concern in many health promotion programs, i.e. various constituencies may well wish the program to continue but, in the absence of early and active planning, the conditions that would most enhance the prospects for sustainability in the long term are not created and sustainability does not occur.

Experiences from the East Baltimore partnership program

The second case example presented in this paper is a program which began in 1974 with a clinical trial to test the effectiveness of educational and behavioral interventions in improving blood pressure care and control, and subsequent morbidity and mortality, in an urban African-American patient population in Baltimore, Maryland. The success of the trial led to a community-based demonstration phase in the same community. This second phase was intended to test the feasibility, acceptability and impact of an outreach approach which linked trained community health workers (CHWs) with provider institutions.

Over the years, the program has changed to reflect a broader approach to health promotion and disease prevention, and enhanced partnership efforts with community members and organizations, with a particular focus on including the clergy. Beginning with the clinical trial, the high blood pressure control efforts in the East Baltimore community have been in place for over 20 years. The various phases and components of the program have been described in detail elsewhere (Bone *et al.*, 1989; Levine *et al.*, 1992a,b, 1994).

At the inception of the community-based phase of the program, the approach was to mobilize existing community and provider resources in a coordinated effort to improve the health of the community. The program recruited and trained community members as CHWs to provide education, outreach and follow-up, and was directed by a Community-Provider Advisory Board, a steering committee of community residents, leaders and health care providers.

Initially, the program was fully supported by the National Heart, Lung and Blood Institute (NHLBI) in both the clinical trial and the demonstration phases. Later, support was secured through local resources and continuing support from grants. The final phase in fiscal sustainability is to seek third-party reimbursement for CHW services.

Consistent with the commitment to having the community directing these programs was the commitment to provide skill building and job opportunities for a community with a very high unemployment rate. We recognized early in the project that if the CHW model was shown to be effective, it would have the potential to be expanded to include other health problems in the community. Gradually, other cardiovascular risk factors, including obesity, smoking, heavy alcohol consumption and diabetes, were added to the CHWs' training and service provision. Continuous training with the introduction of added skill building enhanced career development and potential upward mobility is necessary.

In the East Baltimore project, early planning for sustainability focused on planning for the retention of (and sources of remuneration for) CHWs. The

CHWs, initially volunteers, were later provided stipends and eventually a few workers were employed full-time by the program. While there has been attrition, new community health workers have been trained each year and one worker remained with the program for 10 years. Initial planning in the more prosperous climate of the 1970s focused on ways of integrating CHWs within existing organizations in the community. This strategy failed, partly due to the sluggish economic climate at the time (1980s). A subsequent strategy was to integrate the program into the local health department. This strategy was also unsuccessful because of the community's ambivalence toward the health department. Eventually, the program became incorporated into the provider system by placing CHWs in the local hospital emergency room. The program now continues with CHWs placed in various prevention sites in the community.

The program was a partnership between the community, health care providers and faculty from the Johns Hopkins Medical Institutions in East Baltimore. This Advisory Board planned, directed and evaluated the program. The chairperson of the Board was viewed as the program champion within the community, with support from the project staff. In her role as Assistant Director of a decentralized mayor's office which provides health and human services at the local level, she was committed to improving the health status of the community. She was also the primary source for recruitment of CHWs and served as their leader and motivator. She advocated for the program and particularly for its sustainability at critical points in its history. Although her commitment to the community and the program did not change, her influence and ability to advocate for the program at the city-wide level shifted when a new mayor was elected.

The two projects described above provided multiple lessons learned about sustainability. Unlike the cervical cancer project which was not sustained beyond its initial grant period, planning for the sustainability of the East Baltimore partnership program began early during the first year with the community demonstration phase. The motivation for this early planning, lacking

knowledge of whether the intervention would be effective, was concern over disrupting the community and damaging the academic center's relationship with the community. An important factor contributing to the sustainability of the East Baltimore project has been the continuity over a 20 year period in principal program-related positions and in some key community persons. We also learned that the choice of the host organization for the program has important implications for the way it is perceived by the community as well as for the viability of program integration. A related point is that having multiple alternative strategies for sustainability is critical. Another lesson learned was that active community involvement in decision-making through the Community-Provider Advisory Board was an important factor in sustaining a long-term commitment of the community to the program. We also gained insight into the value of sustainability as capacity building of the community through training and skill building of community members.

In our projects, while we were committed to the concept of sustainability, we were not researching the process or the factors influencing it; rather, our primary interest was continuity of our community-based fieldwork. In this paper, we are proposing a *research-based* perspective on sustainability. In formulating an empirical basis for sustainability, we have found the following definition of *planning* by Levey and Loomba (1973, p. 273) to be very helpful:

Planning is the process of analyzing and understanding a system, formulating its goals and objectives, assessing its capabilities, designing alternative courses of action or plans for the purpose of achieving these goals and objectives, evaluating the effectiveness of these plans, choosing the preferred plan, initiating necessary actions for its implementation, and engaging in continuous surveillance of the system in order to arrive at an optimal relationship between the plan and the system.

This definition suggests that moving sustainability from a 'latent' goal to a planned

approach will require formulating sustainability goals and objectives *and* developing and implementing strategies specifically to foster sustainability. A third critical component is assessment or evaluation where both objectives and strategies are continuously monitored and revised. This view of planning underlies the organization of the paper. After discussing available definitions of sustainability, we review measurement issues for assessing progress toward sustainability. A subsequent section addresses strategies to foster sustainability in applied community settings.

Sustainability defined

Little consensus exists in the literature on the conceptual and operational definitions of sustainability. Several terms have been in use to refer to the phenomenon of program continuation. Among these are: program 'maintenance', 'sustainability', 'institutionalization', 'incorporation', 'integration', 'routinization', local or community 'ownership' and 'capacity building'.

In the literature, the following definitions have been offered as clarification of the various concepts:

Definition I

Sustainability is the capacity to maintain service coverage at a level that will provide continuing control of a health problem (Claquin, 1989).

Definition II

Project sustainability is defined by many economists and international development agencies as the capacity of a project to continue to deliver its intended benefits over a long period of time (The World Bank's definition in Bamberger and Cheema, 1990).

Definition III

A development program is *sustainable* when it is able to deliver an appropriate level of benefits for an extended period of time after major financial, managerial and technical assistance from an external donor is terminated (US Agency for International Development, 1988).

Definition IV

The term '*institutionalization*' refers to the long-term viability and *integration* of a new program within an organization (Steckler and Goodman, 1989).

Definition V

Organizational change ultimately involves the process by which new practices become standard business in a local agency. Whether the process is called *routinization*, *institutionalization*, *incorporation*, or some other term, it is central to all organizations... (Yin, 1979).

Definition VI

'...the optimal way to maintain heart disease prevention activity was to *develop the health promotion capacity* of community health educators. We defined health promotion capacity as the extent to which a community has local access to the knowledge, skills and resources needed to conduct effective health promotion programs.' (Jackson *et al.*, 1994).

While these terms tend to be used interchangeably, they are not synonymous. The definitions of sustainability advanced by leading development agencies (Definitions I–III) emphasize health *benefits* as being at the heart of the sustainability process. In contrast, the emphasis in '*institutionalization*' (Definitions IV and V) is on the persistence of the program itself rather than on the benefits it delivers. '*Institutionalization*' may carry the connotation of inflexibility and adoption of a program in toto. Finally, Definition VI characterizes sustainability as a process occurring at the level of the community as a whole.

Interestingly, '*institutionalization*' has been the term more commonly used domestically to describe program continuation (e.g. Steckler and Goodman, 1989; Lefebvre, 1990; Altman *et al.*, 1991; Goodman *et al.*, 1993a) while '*sustainability*' is more often used in the international context (US Agency for International Development, 1988; Bamberger and Cheema, 1990; Bossert, 1990; Lafond, 1995). This difference in usage may well stem from perceived differences in institutional

strength in the two realms. The developed countries are seen to possess well-developed and sophisticated health systems into which new programs can be readily integrated, whereas, internationally, the third world is characterized by weaker and more fragmented administrative structures less capable of nesting new programs. Greater emphasis appears to have been placed by international donor agencies on infrastructure development in developing countries (Bossert, 1990; Lafond, 1995) because third world country government capacity to fund even the most basic health services is often too limited for short-term financial self-sufficiency to be a realistic goal. Other perceived differences include greater political stability and more affluence in developed nations.

Sustainability thus appears to be a multi-dimensional concept of the continuation process and the term encompasses a diversity of forms that this process may take. For example, an entire program may be continued under its original or an alternate organizational structure, parts of the program may be institutionalized as individual components, or there may be a transfer of the whole or parts to community ownership (Shea *et al.*, 1996). Moreover, continuation may occur at levels other than the organizational level, including the individual and network levels. At the individual level, key community members assume a personal commitment to continuing program messages, products or services. At the network level, individuals and organizations are brought together to create networks that reinforce program goals and promote coordinated efforts (Lefebvre, 1990).

Sustainability is the global term we will use hereafter to refer to the general phenomenon of program continuation. The choice of the term is dictated by two considerations. First, *sustainability* is a broad term that incorporates essential notions in continuation (permanence, time) without limiting its manifestations to any particular form. For example, unlike the terms '*institutionalization*', '*incorporation*' or '*integration*', *sustainability* does not restrict continuation to survival within an organizational structure. Second, *sustainability*

does not imply a static program, in contrast to the notions of institutionalization and routinization which imply something that is repetitive but fixed. A dictionary definition of the word 'sustain' is 'to supply with sustenance: nourish', suggesting a living entity with the power to respond and change, just as a program must adjust to new needs and circumstances if it is to continue. Indeed, Pressman and Wildavsky (1979) have observed that change is essential to program survival; they write that 'a basic reason programs survive is that they adapt themselves to their environment over a long period of time'. In sum, *sustainability* appears to better capture the dynamic process involved in program continuation and the broad range of its potential forms than the notion of 'institutionalization'.

Conceptual frameworks and measurement issues

The three categories of definitions reviewed above provide three sharply different perspectives on sustainability. These are: (1) maintaining health benefits achieved through the initial program, (2) continuation of the program activities within an organizational structure and (3) building the capacity of the recipient community. A diverse literature from a range of different fields is needed to advance our thinking about sustainability from each of the three perspectives. In the section below, we discuss concepts and principles from such diverse fields as public health, organizational theory, and community-level change and development to show how they can contribute to advance our thinking about sustainability from each of the three perspectives.

Concepts and principles from public health

In the first perspective on sustainability ('sustainability as the maintenance of health benefits over time'), concepts and approaches from the field of public health can give insight into methods of tracking health-related behaviors and health problems to assure the *continuing* control of disease. Both practitioners and researchers agree

that many programs are prematurely terminated, resulting in recidivism in negative health outcomes.

The complexity of preventive interventions for the control of both infectious and chronic disease highlights the importance of sustaining slow and difficult changes in health behaviors. There are two basic reasons why intervention programs must attend to ways to sustain behavior, not just develop strategies for initial behavior change.

First, modifications in populations' health habits are only slowly achieved through education and social change, hence the need for an environment in which change is supported and reinforced (Resnicow and Botvin, 1993; Prasad and de L Costello, 1995). To cite but one example, while there is support for the short-term effectiveness of school-based substance use prevention programs, studies have reported decaying program effects in long-term follow-up. Resnicow and Botvin (1993) caution *not* to think that these prevention programs do not work, but rather that it is necessary to use strategies which may improve the *durability* of positive effects, such as booster sessions, enhancing implementation fidelity, utilizing multiple intervention strategies and attending to attrition issues in evaluation studies.

Second, educational messages and other intervention activities need to remain in place for new generations of individuals to be exposed to them. For example, in the area of communicable diseases of childhood, Streefland discusses 'the need to continuously vaccinate new cohorts of children with a high degree of coverage and in an appropriate manner' (Streefland, 1995). In Natal/Kwazulu, South Africa, a national mass measles immunization campaign led to a drastic reduction in measles admissions to a major referral hospital in the first 12 months following the campaign; however, within 2 years of the campaign, measles admissions had risen steadily to above pre-campaign levels, attesting to the consequences of the failure to maintain adequate vaccination coverage levels (Abdool Karim *et al.*, 1993).

This illustrates the need for long-term strategies for disease control, not short-term solutions. Disease surveillance has been defined as the

'continued watchfulness over the distribution and trends of incidence through the systematic collection, consolidation, and evaluation of morbidity, and mortality reports and other relevant data' and the regular dissemination to 'all who need to know'. Diseases that are now rare due to successful control measures may be perceived as no longer important, but this should be assessed in light of their potential to re-emerge (Halperin and Baker, 1992). The resurgence of tuberculosis may be the best recent example of the unfortunate consequences of the failure to adhere to this important public health principle. The return of tuberculosis has been attributed by some to sharp reductions in funding, leading to the breakdown of the infrastructure—public health preventive systems of case finding and supervision of infection and disease—needed to maintain effective long-term control (Joseph, 1993; Reichman, 1993).

In recent years, concepts and approaches in the area of surveillance have been expanded to include monitoring methods for chronic disease, not just infectious diseases (Halperin and Baker, 1992). Community-wide behavioral change must be sustained over a long period of time before any significant decrease in actual morbidity or mortality can occur and be measured. This is well demonstrated in the North Karelia Project where a delay of several years is reported between health behavior and risk factor changes and respective changes in coronary heart disease rates (Puska *et al.*, 1985).

Theories of organizational change and innovation

In the second perspective (sustainability as 'institutionalization' of a program or program components within an organization), theories of organizational change and innovation (Yin, 1979; Rogers, 1983; Goodman and Steckler, 1989a,b; Steckler and Goodman, 1989) offer a conceptual approach for how new programs become incorporated into organizations and institutions. Most of these models view program sustainability as the final stage of program implementation in a process that occurs over time.

The organizational change perspective suggests that a process of mutual adjustment occurs such that both the innovation and the organization change to adjust to each other. The innovation eventually loses its separate identity and becomes part of the organization's regular activities, a process that has been referred to as 'routinizing' or 'routinization'. The conditions that lead an innovation to become routinized are internal conditions specific to the local agency or organization (Yin, 1979; Rogers, 1983; Goodman *et al.*, 1993a).

Steckler and Goodman's study of 10 health promotion programs in Virginia provided the basis for the development of a framework for conceptualizing program institutionalization (Goodman and Steckler, 1989a). Building on prior work by Yin and Katz and Kahn, these researchers conceptualized the level of institutionalization of a program as a function of two dimensions. The first dimension (y-axis) represents the *extensiveness* of a program's integration into the subsystems of its host organization, of which Katz and Kahn identified five: production, maintenance, supportive, adaptive and managerial. *Intensiveness*, or the depth of program integration into each subsystem, forms the second dimension (x-axis) of institutionalization and has three degrees: passages, routines and niche saturation. The first two degrees are based on Yin's (1979) prior work which viewed routinization as a combination of 'passages' and 'cycles'—the key events in the life history of an organization. In Yin's view, a 'passage' (e.g. the transition in an innovation's financial support from temporary to permanent funding) is a significant change in organizational structure or procedures that generally occurs once, while a 'cycle' (e.g. an annual budget cycle) is an organizational event that occurs repeatedly in the life of an organization. Goodman and Steckler introduced two changes to Yin's original formulation. First, they replaced the term 'cycles' with 'routines', arguing that passages (the first degree of institutionalization intensity) need to be transformed into routines (the second degree of intensity) in order to become permanent, but while many routines are cyclical, others are either intermittent or continuous. Second, they

added the notion of 'niche saturation' (the third degree of intensity), defined as an institutionalized program's maximum feasible expansion within a host organization. These two dimensions of institutionalization provide a measure of this concept: the more cells in the resulting matrix that the health promotion program occupies, the more institutionalized it can be considered to be. Findings from a recent study of the construct validity of the level of institutionalization (LoIn) scale showed initial support for a multi-factor model corresponding to the various cells in the institutionalization matrix (Goodman *et al.*, 1993a). A study of the inter-rater reliability of the LoIn scale has also been reported (Bryant, 1993).

Models of community-level change

In the third perspective (sustainability as community 'capacity building'), models of community-level change and community development can provide the appropriate conceptual perspective from which to view the process of building the problem-solving abilities of individuals and the larger community.

The last 15 or 20 years have witnessed a paradigm change in health promotion and disease prevention whereby the community has become the new 'center of gravity' for health promotion (Green and Kreuter, 1991). The 'new' health promotion movement (Robertson and Minkler, 1994) has shifted the locus of health promotion from the individual or lifestyle to the community, based, at least in part, on a growing recognition that lasting, widespread behavioral change is best brought about by changes in norms of acceptable behavior at the level of the community as a whole. The principle of participation, central to community-based approaches to health, posits that change is more likely to occur when the people it affects are involved in the change process. Rifkin *et al.* (1988) define community participation as 'a social process whereby specific groups with shared needs living in a defined geographic area actively pursue identification of their needs, take decisions and establish mechanisms to meet these needs'.

In addition to 'participation', related constructs

increasingly found in the literature include the notions of community 'involvement', 'empowerment', 'ownership', 'competence' and 'capacity' (Wallerstein and Bernstein, 1994a,b). While these constructs are loosely used, it appears that 'participation', 'involvement' and 'empowerment' all refer to the actual process of enabling individuals and communities, in partnership with health professionals, to participate in defining their health problems and shaping solutions to those problems (Rifkin *et al.*, 1988; Wallerstein, 1992; Minkler, 1994; Robertson and Minkler, 1994). Intervention programs frequently pay only lip service to participation, hence the need to assess the actual level (depth and scope) of participation (Rifkin *et al.*, 1988).

What is the relationship of 'participation' ('involvement', 'empowerment') to 'ownership' and 'capacity' ('competence')? The literature suggests that community 'participation' enhances community 'ownership'; in turn, 'ownership' leads to increased 'capacity' (or 'competence') and promotes program maintenance (Bracht and Kingsbury, 1990; Flynn, 1995). Robertson and Minkler (1994, p. 308) state that 'high-level community participation...increases capacity on the individual and community levels'. Similarly, Wallerstein (1992, p. 201) writes that 'community competence has been proposed as an important research outcome of social network and community participation interventions' (emphasis added). Similarly, Flynn (1995) proposes a key mediating role of perceived ownership as an intermediate variable between community participation and program effectiveness and maintenance.

Cottrel was the first to develop the concept of 'community competence', characterizing a competent community along eight dimensions. Capacity building has also been defined as 'the nurturing of and building upon the strengths, resources and problem-solving abilities already present in individuals and communities' (Robertson and Minkler, 1994, p. 303). More recently, an expert panel convened by the Centers for Disease Control and Prevention identified 10 dimensions

of community capacity (Goodman *et al.*, in preparation).

In thinking about community competence or capacity, community is the appropriate unit of analysis. However, just as with the related construct of empowerment, capacity may also be measured as an individual and organizational phenomenon to the extent that capacity building also involves the individuals and organizations in the community. Measurement at all three levels acknowledges that changes at one level may be related to changes at other levels (Wallerstein, 1992; Israel *et al.*, 1994).

In summary, the three perspectives on sustainability reviewed above suggest different sets of frameworks as approaches to conceptualizing sustainability. The implications of the different conceptual approaches for the development of measurable objectives for sustainability are discussed next.

Measuring sustainability

In order to lay the groundwork for research in the area of sustainability, there is a clear need to develop operational definitions of the term. Sustainability is probably a matter of degree rather than an all-or-none phenomenon. 'Gold standards' for sustainability may not be appropriate as there may be wide variability in what can or should be sustained by project type, setting or resources. Nevertheless, indicators are needed for planning *what* is to be sustained, *how* or *by whom*, *how much* and *by when*. These indicators can serve as sustainability objectives to be monitored during and after the project period. We discuss below the development of objectives appropriate to each of the three perspectives on sustainability and present some examples from the literature. This is also shown in Table I.

Maintenance of health benefits from programs

Two examples may serve to illustrate the usefulness of measurable objectives for tracking and maintaining the health benefits achieved through a program. First, the unique achievement of the world-wide eradication of smallpox presents a historical example of how program activities were

adapted to changing needs and objectives. Over time, as cases of disease were diminishing, the program's emphasis (the *what* in sustainability) shifted from *routine vaccination* to *investigation* of reports of suspected residual smallpox cases. This required a continued *post-eradication smallpox surveillance system* (the *how*) to monitor possible recurrence. This surveillance system remained in place *10 years after the last case of smallpox was reported* (the *when*) (Henderson, 1987; Jezek *et al.*, 1987).

We can also refer back to the tuberculosis example discussed earlier. It has been suggested that (the differences between the two diseases notwithstanding), as was required with the eradication of smallpox, interest and commitment to the control and eventual elimination of tuberculosis should not have been allowed to decline, even when cases of disease diminished over time. Public health activities, such as case finding and contact tracing, should have been continued and even intensified, if the disease was to be kept under control or eliminated (Reichman, 1993). In order to face the resurgence of tuberculosis, a critical task facing public health now is the revitalization of tuberculosis control systems.

National periodic surveys of the distribution and trends of health-related behaviors and diseases such as the National Health Interview Survey (conducted annually by the National Center for Health Statistics) or the Behavioral Risk Factor Surveillance System (conducted by the Centers for Disease Control and Prevention) provide additional methods to track health-related behaviors and diseases of the American population over time. Surveillance findings can help determine whether public health interventions are meeting their objectives, both in the short and longterm (Halperin and Baker, 1992).

Institutionalization objectives

The development of institutionalization objectives corresponds to the second view of sustainability as organizational integration. The level of institutionalization scale (Goodman and Steckler, 1989; Goodman *et al.*, 1993a) provides a beginning

Table I. Conceptual approaches to sustainability planning, corresponding operational measures and examples of planning objectives

Concept	Operational measure	Example of a planning objective
Maintenance of health benefits	Continued monitoring for control of the health problem	Maintenance of a public health system to monitor possible recurrence of disease
Institutionalization	Integration of the program within an organization	Incorporating intervention programs in community organizations after the withdrawal of funding
Capacity building	Local community's access to knowledge, skills and resources	Training community members to serve as a source of information and expertise for health promotion for the community

basis for developing quantitative measures of institutionalization which can be repeated at different time periods to monitor changes in the degree of institutionalization of a program within an organization.

Other examples from the literature include the Minnesota Heart Health Program's tracking of the 'incorporation' status of intervention programs in study communities through annual surveys. Using this measure of incorporation, survey findings showed initial rates of 67% (18 out of 27 programs), 61% (16 out of 26 programs) and 84% (21 out of 25 programs) in each of the three study communities in 1989, the year of federal funding withdrawal. Three years later, the incorporation rate had dropped to 56, 58 and 68%, in each of the respective communities (Bracht *et al.*, 1994).

Capacity-building objectives

Developing capacity-building objectives corresponds to the third view of sustainability as community capacity building. For example, in the Stanford Five-City Project (FCP), the capacity-building partnership between FCP staff and the Monterey County Health Department (MCHD) included three long-term objectives: (1) self-sufficiency of the MCHD in the use of acquired resources and knowledge to design, implement and evaluate heart disease prevention programs in the community, (2) the MCHD would serve as a source of health promotion information and expertise for health educators in the community, and (3) MCHD and FCP staff would collaborate on new projects

where collaboration would be viewed as mutually beneficial (Jackson *et al.*, 1994).

Several studies have described attempts at developing instruments to track changes in community capacity (and intervening variables such as ownership) over time as a way of monitoring progress in achieving capacity-building objectives. For example, Flynn (1995) tested the Community Ownership Scale in three programs utilizing a similar university-community partnership model. In this study, community leaders were asked to rate the amount of control they perceived for themselves, the university and the local program staff, on 14 key program functions. Based on initial evidence of the scale's validity, the author suggests its application at different stages in the life of a program to monitor the degree of perceived community ownership over time.

Goeppinger and Baglioni (1985) developed a questionnaire for use by trained community health workers to assess community competence. Telephone interviews of 433 community residents in five rural Virginia communities demonstrated that none of the communities seemed to surpass any of the others in overall competence, rather each community demonstrated its specific areas of strength and weakness. Fourteen of the 22 survey items discriminated between the five communities; these 14 items also successfully captured six of Cottrell's eight dimensions of community competence.

Eng and Parker (1994) also measured yearly changes in community competence after

implementation of a health promotion empowerment program in three communities. Community representatives generated 23 traits of a community that 'could get it together'. Evaluators and program staff then constructed a questionnaire to measure community competence (items measured Cottrell's original dimensions and a new dimension—social support—which was contributed by the community members). Changes in community competence over time were monitored by interviewing 15 key informants in the three project communities at baseline and once a year after implementation. Results showed that levels of competence became more similar across communities after year 1 of the intervention; in all three communities, the pattern of competencies also changed, e.g. from internal social interactions to a more external focus on mediating with outside institutions and officials.

Influences on program sustainability

The first part of this paper discussed conceptual distinctions in the various constructs used in referring to the general process of sustainability. Planning for sustainability may be very different depending on what one envisions to sustain, with different implications for measuring and monitoring sustainability. This second part of the paper reviews what is known about how to facilitate processes that will lead to sustainability.

Understanding the conditions under which programs are most likely to continue is required to move from a 'latent' or passive approach to sustainability towards active attempts to modify conditions to maximize the potential for long-term sustainability. A framework for conceptualizing program sustainability is presented in Figure 1, listing three major groups of factors as potential influences on sustainability, derived from our review of the available sustainability literature:

- (1) Project design and implementation factors.
- (2) Factors within the organizational setting.
- (3) Factors in the broader community environment.

The factors grouped under these three main headings were not derived using a quantitative summary of research findings (e.g. meta-analysis) nor are they an exhaustive list of all factors that may be found to influence sustainability. Rather, these factors were distilled through a review of the literature using *Medline* searches of publications in the last 15 years, manual searches of major health education and health promotion journals, and searches of references cited in published papers. These factors are presented here as a starting point for summarizing similar findings across multiple studies regarding potential influences on sustainability. These influencing factors, presented in Table II as potential guidelines for sustainability planning, are reviewed below. Table II can also be used as a checklist for researchers, practitioners and policy makers interested in maximizing the potential sustainability of their programs.

Project design and implementation factors

The first group of factors relates broadly to the resources available to the project, including staff, financial resources and time for project activities to reach fruition, and the implementation activities determining the use of these resources.

Project negotiation process

Projects imposed by a funding agency may be less likely to be sustained than those which are the result of a 'mutually respectful negotiating process' between funders and host governments (Bossert, 1990). A similar perspective is offered by Bermejo and Bekui (1993) who write that, compared to the 'participatory' approach in disease control programs where goals, targets and time frames emerge from the interaction of local people and service providers, and are adapted as the project evolves, the 'project' approach with pre-specified objectives and time frames is much less conducive to community participation.

In the US, the funding of intervention programs is often driven by priorities for categorical health problems. To legitimize health programs and increase their acceptance among community leaders and groups, services should be provided

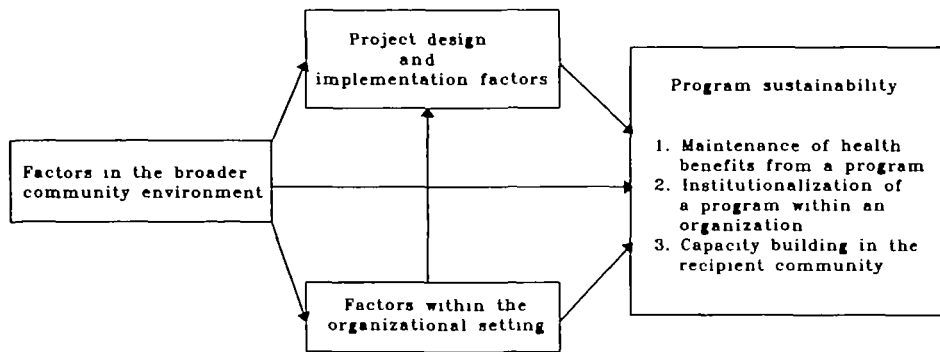


Fig. 1. A framework for conceptualizing program sustainability.

Table II. Guidelines for sustainability planning

Project design and implementation factors

1. *Project negotiation process.* Are project approaches and goals discussed with recipient community members, as equal partners? Are the needs of the community driving the program or those of external donor agencies and technical experts? Is a negotiation or consensus-building process in place to reach a compromise for addressing everyone's (including donors, community, technical experts) needs?
2. *Project effectiveness.* Is the project (perceived as) effective? Is it visible? What are the (desirable and undesirable) secondary effects of the program?
3. *Project duration.* What is the project's grant period (number of years in operation)? Is it a new project or is it an existing program that is acquiring additional funds?
4. *Project financing.* What are the sources of funds for the program (internal, external, a mixture)? What are the community's local resources? Can the community afford the program (e.g. is it able to pay maintenance and recurrent costs)? How much are community members willing/able to pay for services? What strategies are in place to facilitate gradual financial self-sufficiency?
5. *Project type.* What type of project is it (e.g. preventive versus curative)?
6. *Training.* Does the project have a training component (professional or para-professional)?

Factors within the organizational setting

7. *Institutional strength.* What organization will be implementing the program? How mature (developed, stable, resourceful) is this organization? Is it likely to provide a strong organizational base for the program?
8. *Integration with existing programs/services.* Is the program vertical (categorical) or is it a horizontal (comprehensive or integrated) program? Are goals, objectives and approaches pre-specified or are they adapted to the local population and setting and over time? Is the program integrated into the standard operating practices of its host organization? Is the mission of the program compatible with the mission and activities of its host organization? Is the implementing organization the recipient of program funds or is there an intermediary organization?
9. *Program champion/leadership.* Is there a program champion? What are his/her attributes? If not, can one be identified/nurtured so that he/she may serve as an advocate for the continuation of the program? Is the program endorsed from the top? How well is it supported?

Factors in the broader community environment

10. *Socioeconomic and political considerations.* How favorable is the general socioeconomic and political environment for the sustainability of the program to be a realistic goal?
11. *Community participation.* What is the level of community participation? What is the depth (amount) of involvement? What is the range of involvement (types of activities)?

Planning for sustainability along these various guidelines must begin early in the program and assumes a minimal level of political and economic stability.

that are desired by the community (Shea *et al.*, 1992). This requires a negotiation or consensus-building process about how to best serve the community.

Project effectiveness

It has been noted that although successful program implementation does not guarantee sustainability (Goodman and Steckler, 1989b), a program is only worth institutionalizing if it has been shown to be effective (Steckler and Goodman, 1989). In reality, community-based programs are difficult (and expensive) to evaluate and programs may be sustained with no real evidence of impact or regardless of the direction of the evidence. For example, in Bossert's study (1990, p. 1019), 'it was the reputation for effectiveness and not objective evidence that was important for sustainability'. Others have similarly maintained that high visibility in the community, through the dissemination of information on project activities and early evaluation results, is essential to program continuation (Bracht and Kingsbury, 1990).

Project duration

In general, the short-term horizon of governments and funding agencies, due to a crisis mode of operation, short budget cycles and internal political pressures, has negatively affected the process of sustainability (Bamberger and Cheema, 1990). In a cross-case analysis of the development of health systems in several low-income countries, Lafond (1995) finds that two features of the traditional aid system exert a detrimental effect on sustainability: its inward focus and its short-term investment cycles. Donor agencies are accountable to institutions which demand swift and visible evidence of their investments; these requirements conflict with the long-term needs of the recipient communities.

Available research shows that short grant periods for establishing new programs impede institutionalization. Steckler and Goodman (1989) found that a grant period of 3 years was too short to achieve institutionalization of new health promotion programs. They suggest that funding

agencies may want to consider supporting worthy programs up to 5 years to enhance institutionalization prospects. Similarly, Scheirer's (1990) study of the Fluoride Mouth Rinse Program in schools shows that number of years in operation was strongly related to the likelihood that the program continued: on average, continuing sites had used the program for 6.6 years compared to only 3.7 years for discontinued sites, a statistically significant difference.

Project financing

Financing is probably the most prominent factor in sustainability. In international aid programs, the financial sustainability of a health project beyond external donor support is typically dependent on one of two sources of national funding: host country government support or beneficiary support through cost-recovery mechanisms (Bossert, 1990). In the Bossert study, the availability of national funds after the end of external funding was related to efforts at gaining alternative sources of financial support during the life of the project and gradual independence from external support (e.g. through progressive absorption of recurrent costs into the governmental budget).

There has been increased reliance on community financing as a funding source for health programs in the last two decades, as a result of declining government resources and the global recession of the 1980s (Abel-Smith and Dua, 1988; Gertler and van der Gaag, 1990). Haws *et al.* (1992) document the experience of 20 family planning clinics in Mexico, the Dominican Republic and Brazil in implementing strategies for financial sustainability following the withdrawal of external funds: the most common strategy was an increase in client fees. In most clinics, the effect of introducing user fees was a reduction in the volume of clients and a change in client profile with a fewer number of the poorer clients served. However, a few clinics which sought various additional cost-recovery strategies—including donations from local community groups, use of sliding-scale fees for services, diversification of services and contracts with public- and private-sector companies—did

not experience a change in size or type of caseload. Based on the study findings, the authors made the following recommendations to assist programs in achieving sustainability: (1) the need for careful planning by donors and grantees for eventual cutbacks in funding, (2) the ability to identify costs and set realistic fees, (3) adopting an entrepreneurial spirit in seeking alternative sources of funding, and (4) diversification of services.

An aspect of financial sustainability that is often overlooked is that there is a supply side and a demand side. The availability of external resources illustrates the familiar supply side of sustainability. Focusing on the demand side of sustainability shifts the attention away from the donor to the recipient's behavior. Beneficiaries' willingness and ability to pay for services is a central issue for the demand side of sustainability (Jensen, 1991). The demand side also underscores the need for services to achieve a high level of quality: good quality leads to increased demand; in turn, demand for services attracts monetary resources (Ashford and Haws, 1992). Paradoxically, excessive outside funds (the supply side) can inhibit sustainability, as often happens when a program requires recurrent funds for continuation that exceed local resources (the demand side) (Mburu and Boerma, 1989).

Project type

Lesser resources tend to be allocated to preventive than to curative care, perhaps because the American health care system has generally been less prevention oriented (Abel-Smith and Dua, 1988). Under this *modus operandi*, it follows that preventive programs may be more difficult to sustain than curative programs. Bossert's (1990) research supports this hypothesis; in his work, health service projects (including health worker training, clinic construction and other infrastructure development) were most likely to be sustained with national funds, while preventive health projects (family planning, malaria control and nutrition planning) were least likely to be sustained. However, significant variation was found within project type.

Training

Projects with training (professional and para-professional) components are more likely to be sustained than those without: those trained can continue to provide benefits, train others and form a constituency in support of the program (Bossert, 1990).

The experience of the Stanford FCP provides further support for the inclusion of training as a sustainability-enhancing strategy. A key component of the Stanford FCP's capacity-building approach to intervention maintenance involved training a cadre of local health educators to continue the work in heart disease education, begun by the university-community partnership program (Jackson *et al.*, 1994). A 'training of trainers' model was employed where a core group of 16 health educators from the county health department received intensive training enabling them to subsequently transmit knowledge and skills to other health educators in the community, thereby benefiting lay members of the community at large.

Factors within the organizational setting

Factors considered in this category include organizational and managerial structures and processes. These encompass factors related to the organizational location of the program, its administrative structure as well as political processes within the organization that inhibit or support program continuation.

Institutional strength

The 'strength' of the institution or organization that is implementing the program was identified in the Bossert (1990, p. 1018) study as a variable positively related to program sustainability; in this study, institutional strength referred to 'institutions which were well integrated, had goal structures that were consistent with the project goals, and had strong leadership and relatively high skill levels'.

In the US, Steckler and Goodman (1989) similarly found that implementing organizations which were stable and mature were more likely to promote program institutionalization by providing a strong organizational base for new programs. In

this study, a health promotion program which was implemented in a school district fared better in terms of achieving institutionalization than another program which was implemented in a free-standing community wellness center. The researchers' case study analysis suggests that, compared to the school district, with its multiple divisions offering the program alternative supportive structures into which it could be integrated, the community center was less well developed organizationally and less resourceful.

Integration with existing programs/ services

'Vertical' (i.e. stand alone or self-contained) programs are less likely to be sustained than programs that are well integrated with existing systems (Bossert, 1990) or into the standard operating practices of their host organizations (Glaser, 1981). 'Vertical' programs are privileged because they can focus resources and activities on well-defined goals and with little pressure to compromise; but they also tend to create institutional jealousy and are less likely to attract national sources of funding, making them vulnerable to demise when external funding ends (Bossert, 1990). Similarly, Lafond (1995) found that vertical programs 'limit the potential spin-offs of investment by insulating external interventions from the health bureaucracy. Parallel management structures created for donor-funded interventions aimed to ensure strict control of funds. However, they can also fragment the health system'. Thus a vertical approach seems to help initial implementation but not long-term sustainability.

The likelihood of integration may be influenced by the fit or compatibility of the program with organizational mission and activities. In Steckler and Goodman's (1989) study, a factor favoring integration was direct funding to the organization implementing the program rather than to an intermediary organization. Funding implementing organizations directly presumably fosters the necessary local adaptations in the organization that ultimately would institutionalize the program.

A study of a vaccination program in India

provides further support for the positive relationship between program continuity and its incorporation in the regular health system. In addition, a second key aspect of integration in this study was adaptation of the program to the sociocultural environment of the host community (Streefland, 1989). Adjustment of formal program rules to local conditions contributes to continuity as the program and the environment adapt to each other. This type of adaptation is facilitated when information is transferred across the different organizational levels. For example, setting target levels for vaccination coverage should be done not by upper-level administrators acting alone but as a joint task with input from field workers at lower levels (Streefland, 1995).

Program champions/leadership

It has been argued that while program implementation is primarily focused on immediate programmatic concerns, the process of program institutionalization is politically oriented and is largely one of generating goodwill for the continuation of a program (Goodman and Steckler, 1987/88). Such goodwill seems to be most effectively garnered by influential individuals within the implementing organization acting as program advocates or 'champions'. 'Linking agents', external to the organization, may seek out or substitute for the role of the internal champion in diffusing a program to multiple adopting organizations (Orlandi, 1986; Monahan and Scheirer, 1988). Attributes of program champions include: mid- to upper-level managerial position within the organization; a sense for the compromises necessary to build support for the program; and negotiating skills. Programs with a champion possessing all three attributes exhibited the highest levels of institutionalization in a study of 10 Virginia programs (Steckler and Goodman, 1989). Results of a study of discontinuation processes surrounding the Fluoride Mouth Rinse Program in public school districts also points to the key role of an internal champion in both initially adopting the program and preventing it from being discontinued later (Scheirer, 1990).

Glaser (1981) also found that endorsement and support of the program from the top of the host organization is an important factor in its survival.

Factors in the broader community environment

A program does not operate in a vacuum. The relationship of the program with the larger 'environment' (political, economic, social) must be considered. The political and economic environment, and the depth and range of involvement of target community members will influence program impact and endurance.

Socioeconomic and political considerations

Bossert's comparative analysis of health projects demonstrates that projects in Africa were significantly less likely to be sustained than those in Central America; this was attributed to a generally less favorable environment for sustainability in Africa, due to greater economic deterioration and weaker governmental institutions compared to Central America. Cross-country analyses by both Bossert (1990) and Lafond (1995) suggest that minimal levels of economic resources may be necessary for sustainability to be attainable.

In the US, Shea *et al.* (1992, 1996) identify several challenges to the dissemination of the community model in disadvantaged communities. They identify competing problems (of poverty, unemployment, crime, housing and homelessness, overcrowded schools, and drug abuse) as one of the potential barriers to adoption of a program modeled after earlier cardiovascular disease prevention programs in North Karelia, Stanford, Minnesota and Pawtucket, which were all implemented in more affluent and stable communities. Moreover, they question the assumption that the community can continue the program on its own beyond an initial funding period, given that it has few local resources to draw upon. They conclude that programs in poor, disadvantaged communities may require an ongoing commitment of resources from external agencies in order to be viable in the long run.

Others have argued, however, that even the

poorest of communities have resources and focusing on communities' strengths rather than deficits is a more fruitful avenue. For example, McKnight (1987) advocates a vision of 'community as the basic context for enabling people to contribute their gifts' and 'community associations as contexts to create and locate jobs, provide opportunities for recreation and multiple friendships, and to become the political defender' of the rights of people. McKnight suggests that social policy that excludes community and its unique capacities will ultimately fail.

Community participation

As previously noted, the involvement and participation of the beneficiary community in designing and implementing health programs is receiving increasing attention in the literature. The literature overwhelmingly shows a positive relationship between community participation and sustainability in both domestic (e.g. Bracht and Kingsbury, 1990; Flynn, 1995) and international settings (e.g. Rifkin, 1986) although a few studies, notably Bossert's (1990), have indicated no relationship except with respect to community financing. This may be related to the different meanings attached to community participation: the concept lacks a widely accepted definition because of the multiple meanings of each of the terms 'community' and 'participation' (Rifkin *et al.*, 1988) and the varying approaches and levels of involvement of community members in health programs (Rifkin, 1986).

There appear to be many avenues by which the process of community involvement enhances program sustainability. First, a major premise of a community approach to health behavior change is that lasting widespread change is more likely to occur if a broad range of health professionals, health institutions, community groups and private citizens are involved in a 'collective attack on health risk behaviors and the conditions that produce and support them' (Kinne *et al.*, 1989). Other avenues by which community participation influences program sustainability is through the intermediate process of promoting a sense of

ownership of the program (Bracht and Kingsbury, 1990; Flynn, 1995). Also, community participation enhances overall community competence and capacity (Wallerstein, 1992; Robertson and Minkler, 1994).

Future directions for research, practice and policy

Informed planning for program sustainability will require more research into the sustainability process, more training to teach programs to incorporate strategies specifically directed at fostering sustainability and changes in policy making.

Directions for research

As in all scientific endeavors, the process of building upon the available knowledge base for sustainability will involve a cumulative process of research across different locations, populations and health problems. Different sustainability objectives may be appropriate in different contexts, but future research must clearly identify the approach used to address sustainability in that particular context and specify appropriate operational measures. For example, in the past, the specification of an acceptable time frame for assessing project sustainability has been limited to indefinite suggestions such as 'over a long period of time' (see Definition II above) or 'for an extended period of time' (see Definition III above), usually translating, in practice, to 3 and 5 years post-project period as cut-off points. While the appropriate time frame for sustainability may be dependent on project type and how soon the benefits from the project activities can be expected (Bamberger and Cheema, 1990), the critical point is that the time frame issue should not be arbitrary and should be monitored.

Few appear to disagree about the value of sustainability as a general goal. However, there is less consensus about *what* is to be sustained. For example, Green (1989) has questioned whether long-term program continuation, or 'institutionalization', is the proper goal of grant-funded

programs, arguing that long-term program effects may best be seen 'as investments in people rather than investments in programs.' In Green's view, grants should seek to develop problem-solving skills and community leadership and confidence rather than to seek institutionalization of programs that may become sterile bureaucracies. Green's perspective on sustainability has two important implications for *what* should be sustained. The first implication is that the merit of sustaining programs should probably be gauged, first and foremost, against the intended *benefits* of a program, not its activities. Bossert (1990) also stresses the need to evaluate (and not assume) that continued activities actually produce continued benefits (e.g. when latrines are built, are they used?). Thus an evaluation of the *health benefits* achieved through a program, not just the *program activities*, is essential to an overall assessment of sustainability.

Secondly, the notion of investing in people implies that capacity building is a legitimate program benefit. Others (Rifkin, 1986) have similarly maintained that since the community-based approach to health is a community development model rather than a purely medical or health services model, expected program benefits include improvements both in health status *and* community capacity.

Further research comparing the process of sustaining programs in different contexts and settings, e.g. public versus private organizations, and profit versus not-for-profit organizations, is needed to advance the available empirical knowledge base. We would expect that the framework to consider in planning for sustainability would be similar in the different contexts, but different priority may be given to different factors in diverse settings. For example, cost considerations may be most prominent in for-profit agencies and less important in not for-profit organizations.

Some instruments for measuring program institutionalization and capacity building already exist. For example, we have discussed the LoIn scale (Goodman *et al.*, 1993a), the community

ownership scale developed by Flynn (1995), and community competence questionnaires developed by Goepfinger and Baglioni (1985) and Eng and Parker (1994). These instruments need further testing and validation before they can be broadly applied in different settings. Moreover, instruments for measuring sustainability should tap its different levels, including the personal, organizational and community levels (Lefebvre, 1990; Wallerstein, 1992; Israel *et al.*, 1994).

Directions for practice

Assistance to community groups in maintaining programs should focus on the three groups of factors proposed as influences on program sustainability: project design and implementation factors, factors within the organizational setting, and factors in the broader community environment. At the present time, some of these guidelines are well accepted, while others have received less empirical support.

Some of these factors are more amenable to control by program staff than others. For example, strategies that are within the control of program staff include the extent of community involvement; training community members to promote program maintenance after the withdrawal of external assistance; the choice of an organizational base for the program or program components; and 'cultivating' and nurturing program champions who can advocate for program continuation.

The community model of health promotion and disease prevention often requires collaborative approaches leading to interorganizational collaboration and coordination, such as community coalitions (Goodman *et al.*, 1993b), university-community partnership programs (Levine *et al.*, 1992a,b, 1994; Bracht *et al.*, 1994; Jackson *et al.*, 1994), and strategic alliances among health service providers (Kaluzny, 1991). Adequate start-up time is needed for a new program to develop linkages with existing programs and organizations in the community that will enhance sustainability; policy makers and funders must adjust to likely delays in demonstrating program impact.

While process and intermediate measures of

program effectiveness may not be predictive of eventual impact on health status, they can be used to disseminate project activities and enhance the visibility of the program, and commitment of the staff and leadership. These early results may be the stimulus for earlier sustainability planning.

Directions for policy

Factors, such as financial resources, program duration and the process of project negotiation, are ultimately a matter of policy. Under current practices, program funding is often driven by funding agencies' own time frames, budget cycles and internal political pressures (Lafond, 1995). The process of sustainability is unlikely to be significantly facilitated until funders and policy makers alter their funding practices. The following are some suggested criteria which funders should consider to enhance sustainability prospects.

- Community health programs must be driven by the needs of communities, not those of external donor agencies or technical experts. There is beginning awareness of the need for change in this area (Lafond, 1995). In the US, university-community partnership models for community-based public health must not allow academics' own needs for professional advancement to supersede or interfere with community-chosen goals and activities (Breslow and Tai-Seale, 1996).
- Sound planning for sustainability dictates that programs be designed with local capability in mind. A program is more likely to be sustained when its host community can afford it. Considerations of affordability must include, not only financial aspects, but also other costs such as time (Yacoub and Walker, 1991) and technical resources.
- While excess resources may not be justifiable, too little is not satisfactory either. For example, Schwartz *et al.* (1993) find that community-based cardiovascular disease programs have suffered from inadequate financial support to state health agencies. They suggest that inadequate resources lead to a 'poverty cycle' where a poor resource base leads to a poorly

designed intervention; in turn, the intervention yields only a modest impact, a situation which only stifles the ability to obtain appropriate funding in the future. Unless *enough* resources are allocated to yield initial success, long-term sustainability is unlikely.

- Allocating resources to cover the maintenance and recurrent costs of existing programs or services with a proven track record rather than making investment decisions that are biased toward spending on new programs (Steckler and Goodman, 1989; Lafond, 1995).

Concluding comments

This paper has presented an organizing framework for conceptualizing and measuring sustainability and tentative guidelines to facilitate sustainability in community programs. Throughout the paper, we have emphasized that sustainability is a dynamic process, and that goals and strategies for achieving it must continuously adapt to changing environmental conditions. Future efforts to develop sustainable health intervention programs in communities can build on the concepts and strategies proposed here.

The research reported throughout this paper suggests that many of the same factors are found to influence program sustainability in the US and in developing countries. There are clearly shared problems and common lessons to be learned. For example, major system flaws exist in some areas of the developed world, as demonstrated by the types of issues that surfaced during recent attempts at health care reform in the US. There are also pockets of social and political instability in developed nations that reflect underlying socioeconomic conditions similar to those seen in third world poverty areas. Finally, adequate resources for health care is a critical issue in all programs. These parallels should not be ignored, lest important lessons go unheeded.

A final point relates to placing the discussion on program sustainability in its broader context. The examination of the sustainability of a particular health program—which was a major focus of this

article—is merely the narrowest perspective on sustainability. A broader perspective on sustainability arises when one considers the total health and well-being of communities, not just the benefits associated with improvements on a single health problem or program viewed in isolation (King, 1990a,b). The third and broadest perspective on sustainability comes from viewing the health of communities in the context of ecological sustainability (the health of the planet). *Sustainable development* is an increasingly debated topic among environmentalists and other development specialists. Defined as 'development that meets the needs of the present without compromising the ability of future generations to meet their own needs', it is seen as requiring the use of an interdisciplinary approach (Ruttan, 1994).

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