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Building capacity for risk factor surveillance in developing countries: a new approach

Summary

The need to create surveillance systems that go beyond data release and generate useful, relevant and accessible information has been widely recognized. To reach this goal the design and implementation of surveillance systems should consider not only technical issues but aspects that guarantee their sustainability and utility and more important, the utilization of surveillance data for resource allocation and planning of health programs and interventions. Until now key issues have been neglected, such as political will, community involvement, decision-making processes and accountability in surveillance outcomes.

For many years we have faced the same problems, all within an epidemiological mosaic where infectious and communicable diseases coexist, with limited capacity to conduct surveillance, low priority given by decision-makers, lack of resources, scarce utilization of information, competing priority between chronic, infectious diseases and risk factors surveillance.

Technical, management and political approaches involving new partnerships, new ways to involve different stakeholders in the process, new methods and tools, ways to overcome resource restrictions and improve surveillance effectiveness, have to be achieved. An alternative approach has been suggested to meet the above problems and to make surveillance socially responsible; relevant and effective, not only for reporting, but for its contribution to produce the needed health changes and sustain these outcomes.

The vision, strategies, methods, tools and results of a community-based surveillance system are presented. Three aspects are addressed, the context in which the surveillance is applied; the theory supporting behavioural risk factor surveillance; the perspectives, goals, solutions and lessons learned from previous experience.

Keywords: Effectiveness – Risk factor surveillance – Health promotion – Capacity building – Sustainability.

Linking surveillance to health promotion, effectiveness evaluation and policy-making

A major difficulty faced in developing countries in the design and implementation of surveillance systems is linking outputs from these systems to health interventions. For years developing countries have been facing the same problems: limited technical capacity to conduct surveillance, lack of resources, low priority given by decision-makers, scarce utilization of the results, and a gap between surveillance results and health policies, among others. Although some of these problems have been slightly reduced, none has been completely overcome, and some are even worst at the moment. What could be the main explanation for these persistent problems? Why have responses to these issues not produced the expected results? Do we have to think in alternative ways to face these limitations?

Approaches to capacity building have considered mostly technical aspects, including data gathering, processing and analysis as the main themes of study. However, the processes of planning, managing and using information in order to generate actions that can lead to significant changes have been neglected and not well received. In this regard, political will, community involvement, rationale behind the decision-making processes and accountability have an important role to play. In order for the information to promote action, capacity that exceeds technical boundaries must be created. Therefore strategies for linking surveillance information to policy-making, legislation and local planning should be implemented.

To address these issues, three aspects have to be considered here: the *context* in which the surveillance is applied; the

Soz.- Präventivmed. 50 Suppl 1 (2005) S33–S37
0303-8408/05/010S33–5
DOI 10.1007/s00038-005-4010-9

theory supporting behavioural risk factor surveillance; and *the perspectives, solutions and lessons learned* from previous experiences.

Context

Surveillance of behavioural risk factors, more than any other type of surveillance is affected by the socio-political context. Health reforms, public health priorities, local and national infrastructures, decentralisation, privatisation of health institutions, and globalisation, among others, shape and affect any strategy to develop surveillance capacity. The problem of infrastructure is critical. We are not only facing social inequities, but also lack of opportunities to participate in decisions affecting our health; asymmetric access to information and power to influence decisions; human resources, poorly trained, and paradoxically inappropriate use of available resources.

The context in which surveillance is implemented is critical. Its implementation should be rooted in local context, using appropriate methods and techniques to collect, process, analyse, interpret, communicate and utilize information, and at the same time, to impact on health.

Theory

Risk factor surveillance is based on the behavioural and socio-political sciences, not only biological ones. Therefore, social inequities, social organization, social support, economic domination, and power relations, among others, should be part of its definition and practice. It should be recognized that scientific evidence is not enough and does not always need to produce behavioural changes. As Nancy Krieger points out "if social epidemiologists are to gain clarity on causes of and barriers to reducing social inequalities on health, adequate theory is a necessity not a luxury" (2001). This type of surveillance should have a population-based approach, demanding that population and policy makers be co-responsible and aware of the utility of data and when possible, participate in the design and implementation of surveillance; and lastly be shaped according to local culture.

According to the above rationality risk factor surveillance system should consider the following:

- The system should be linked to interventions oriented to face problems and challenges to reduce and control risk factors and create protective environments supported in theory. The integration of surveillance into public health and comprehensive health system led by primary health care and health promotion strategy, has been widely recognized (McQueen & Puska 2003; WHO 2003a).
- It should be conceived within specific context identifying the intrinsic characteristics that motivate behavioural changes.
- Planners and researcher must be aware that motivation for behavioural change goes beyond scientific evidence.
- Similarly, the target population of a behavioural risk factor surveillance system must be co-responsible and participate actively in its design, implementation and utilization.
- The system should be defined according to geographical and social characteristics. Gandhi cited by Lister recommends to go back to the village; it is in our community that the real health is determined (WHO 2003b).
- To ensure that surveillance results are utilized to improve health, the system itself must be a means for capacity building, more than an end. Being aware of this fact will allow us to consciously reconsider our efforts toward this objective.
- The system should be oriented to define territorial units-scenarios, shaped in such a way to respond to local culture, so that relevant and timely answers to population needs and expectations can be provided.

Along with the above principle differences between risk factor and disease-oriented surveillance; community and individual behaviour or individual and ecological perspective; and behavioural and epidemiological approach, are important issues to be considered.

Although selection of risk factors affecting health has been based upon cause and effect relationships, when we focus our attention to behavioural risk factor surveillance the criteria to select risk factors are also related to behaviour theories within an eco-social and bio-psychosocial approach. Risk factor surveillance provides important input to generate new research questions, hypotheses and etiological studies.

On the other hand, there has been a critique of "blame the victim" lifestyle theories, which emphasize the individual's responsibility to choose so-called healthy lifestyles and to cope better with problems. In contrast, the new approach explicitly addresses social, economic and political determinants of health and disease in a population, including structural barriers to people living healthy lives (Abel et al. 2000; Krieger 2001).

The interdependency between individual and collective behaviour shaped by the context in which it develops has been well recognized. Therefore, interventions must go beyond reducing risk exposure to provide structural conditions that can promote health, social interaction and control with a multi-level and multi-factorial vision. These interventions should include interpersonal relationships, culture, public

policies, and the legislative and organizational features and resources.

Harrison (2000) has drawn our attention to this aspect claiming that surveillance systems should be developed and managed within a local context at the level where it can be understood and used to improve population life conditions. The World Health Organization (WHO) has recognized this point, stating that strategies that focus on shifting the entire distribution of the risk factors will prevent more disease than would be the case if only high risk groups were targeted, and prevention strategies targeting the whole population aim to encourage healthier behaviour and thus reduce exposure to risk (Strong & Bonita 2003).

Lessons learned

Using as an example the School-based behavioural risk factor surveillance system (SIVEA) developed by the Centre for Development and Evaluation of Policies and Programs in Public Health (CEDETES) at the Universidad del Valle, I will share the strategies and lessons learned in order to build surveillance systems with the characteristics previously mentioned.

This experience started five years ago in the municipality of Cali as a school-based information system covering four schools with 1 500 children (De Salazar 1999). Later, the information system evolved into a school-based surveillance system and was implemented in a municipality in Colombia, named "La Cumbre", with seven educational institutions reaching 1 300 children. At the moment the decision to extend SIVEA to the rest of the state is being analysed to propose the system to the healthy school strategy.

Risk factors associated with the leading causes of premature mortality were included, as well as risk factors associated with family and community risks. At the individual level, cigarette smoking; alcohol consumption; physical inactivity; inappropriate diet; access to health care; school absenteeism; aggressive behaviour, are included. At the family and community level, socio-economic data and geographic location (urban and rural area) were included in the analyses.

First, we see risk factor surveillance as *contributor to social change*. This being the case, surveillance should be linked to health promotion and prevention interventions, to effectiveness evaluation and planning. Surveillance should not be isolated from the decision-making process taking place at different levels. It should have a population-based approach, and it should strengthen the health sector leadership in advocating with other sectors. Through these structures we could promote capacity building and empower groups for recommending, auditing and introducing desired changes.

To be effective, the surveillance systems should be *articulated to power structures* such as schools, work places and geographic units that serve as promoters and guarantee an ongoing process. Being bound to these structures implies: accountability inside and outside these structures; results should be used to make advocacy and create public opinion covering the whole population; links to local plans and programs are critical for the sustainability of the surveillance system; information access, according to needs at different levels; awareness of the decision process.

The system should be *socially responsible* and therefore we must implement strategies to build public awareness about its importance; stimulate participatory information management; support decisions on surveillance information; provide relevant and timely responses to community needs, linking interventions to healthy policies; making optimal use of local resources and creating local capacity and empowering communities to act. To be sustainable surveillance should be considered as a tool and a means for capacity building.

The need to create surveillance systems that go beyond data release has been widely recognized. As a result, knowledge, communication and action oriented toward behavioural risk factor preventions and control require new and innovative approaches, resources, techniques and strategies. Risk factor surveillance systems have been recognized as powerful tools for building health promotion activities (Mokdad et al. 2003); for predicting the future burden of chronic disease in populations and for identification of potential interventions to reduce the future burden (Strong & Bonita 2003).

Capacity building therefore should not be limited to technical aspects, and the system should be rooted in local context, build on a collective effort, using appropriate methods to provide and use information, gain political will, and be a product of strategic planning in which multilevel action through partnerships among users, stakeholders, and society, takes place.

Closing the gap between information and action implies the *integration of surveillance data* with information from other sources, to get a clearer vision not only about risks, but also the feasibility of change. For that reason the information that is gathered should make sense not only for data collectors but for the primary users. In the case of behavioural risk factor surveillance, we must obtain more information about aspects that motivate behaviour changes and conditions that contribute to these changes.

To build a feasible and effective system we utilized available resources and infrastructure at the school. We developed attractive and simple formats and manuals for data gathering,

analysis and information to be used by school teachers and students responsible for the system. The training and implementation of the system was given using school assets and daily activities such as homework, computer lessons, parent meetings, planning school activities, students' extracurricular activities, school legislation, among others.

The information has been used to design and articulate school and municipality development plans; to monitor changes in the school; to make advocacy for interventions related to risk factors and healthy environments, and to create public opinion about major health determinants in the municipality.

The optimization of the school resources allows us to create a system whose implementation cost is around 3 000 US dollars per educational institution, per year, which represents a cost of two US dollars per child per year, covering the whole education population of children and adolescents. This cost could be much lower after the second year given that training, monitoring, and follow-up activities are included at the initiation of the system. It is assumed that after the second year the educational institution can conduct the process by itself without external support. Sampling methods, time between surveys, and available resources at the time the system starts can make investment differences among educational institutions.

Given that the system intended to have an impact on the whole population using the educational institution as the entry point, the benefit of the system could be higher. At the moment a cost effectiveness study is being developed and will be used to increase key actors' participation and political will, showing in a convincing manner why surveillance is an important investment for the school members and the community as a whole, and how decision makers at different levels could take advantage of this initiative to reduce decision uncertainty. The WHO has addressed this issue, stating that management decisions based on measures of overall risk are more cost effective than those based on single risk factors and that individual behavioral change is difficult in the absence of conducive environmental alterations (WHO 2003a).

Continuous use of visible gains for all parties as a product of interventions to reduce risk factors and improve health, is very useful for appropriateness of the system by different sectors. Mandatory action, along with permanent monitoring and evaluation involvement of different stakeholders support the construction of a sustainable system. On the other hand, linking surveillance systems to broader initiatives in health promotion such as healthy schools, healthy cities and regional development plans, increases their effectiveness and sustainability.

Interventions to reduce risk factors were a product of strategic planning in which activities inside the school were linked to higher decision levels, so intervention goes beyond the school to cover wider geographic scenarios such as the municipality. For instance, surveillance results served to develop institutional plans and public health strategies such as healthy schools. At the same time surveillance results are integrated to municipality development plans to create a healthy municipality. In this regard, surveillance and information systems already in place could give a better picture not only about risk factors but the determinants of health and behaviours for the whole population in an effort to articulate surveillance to health promotion initiatives and policy planning.

Information management is not only one of the most critical activities to guarantee information use, but also the most neglected. In order to overcome this problem, there are many activities that have to be implemented on a continual bases, such as advocacy, communication and advertising to involve and motivate parties within and outside the school. Linking surveillance to evaluation is an efficient way not only to increase use of data but the sustainability of the system. Also closing the gap between information and action implies the linkage of surveillance data to information from other sources, to get a clearer vision not only of risks but also of the possibilities for change. In the case of SIVEA, we obtained additional information about aspects that motivate behaviour change and conditions that make it possible.

Certain *geographical units and groups* could be indicative of what happens in larger populations. An example is what our group found in the school-based behavioural risk factor surveillance. Although the system has been oriented to the primary school and adolescent population, the risk factor prevalences were similar for the rest of the population, which could be explained by behaviour theories and interrelations among the study population and the rest of the population in a geographic unit or cultural context, however this aspect should be subject to further investigation in order to define sample.

The contribution of surveillance to evaluation has been recognized by many authors (Jekel et al. 1996) who have pointed out that repeated surveys can be used to determine changes in risk factors and changes in the frequency of disease in populations in a period.

There is not one simple method to evaluate health promotion effectiveness, and produce an absolute form of evidence. The appropriateness of using evidence to formulate health policy, health services and health practice has been addressed by many authors (WHO 2001; 2003b; McQueen & Anderson 2001), calling our attention to the relevance

and utility to apply the traditional epidemiological approaches to measure effectiveness of public health and health promotion interventions, and consider not only as scientific evidence those results from natural or biomedical sciences but also those from policy or social sciences. It has also been recognized that the different types of sciences require quite different types of research methodologies.

Zimmern, Kickbusch, Rantanen, and Taket cited in WHO (2003b) have addressed the issue of knowledge and evidence when making decisions. The authors' point of view are that, in making policy decisions, we do not distinguish between those two, and if evidence replaces judgment, how does that relate to the political risk that elected officials as policy makers are supposed to take in terms of making judgments? Finally it was mentioned that, no matter how much evidence you have, it will never remove the need for judgment, the way to understand something rather than knowing it.

For the evaluation of our surveillance system, SIVEA and for evaluation of the effectiveness of interventions to address risk factors, we are applying trends produced from repeated surveys, complemented with other sources of data within and outside the educational institution. This model allows the measurement of risk factors prevalence, trends and correlation of interventions oriented to prevent and control risk factors and influence health determinants.

We have learned that by using local available resources, empowering local people and communities to run their own risk factor surveillance system and applying effective strategies to increase key actors' participation and political will, we could greatly contribute to the capacity building objective. However some issues need to be resolved to strengthen our effort: How can we make data relevant, credible and desirable to multiple parties: policy makers, donors, communities and researchers? Who is the priority? Is data quality modified by participation of lay people and decision makers? Are there trade-offs between meaningful and accurate data? What and how should be the link between surveillance systems in and out the health sector? Where should the behavioral surveillance systems be placed? who should have the leadership? Answers to these questions would help in the definition of the scope of the surveillance and the construction of new ways to overcome the problems we are facing.

References

Abel T, Cockerham WC, Niemann S (2000). A critical approach to lifestyle and health. In: Watson J, Platt S, eds. Researching health promotion. London; New York: Routledge. 54–77.

De Salazar L (1999). Escuelas promotoras de salud: resultado de alianzas estratégicas entre la academia, el gobierno municipal y la comunidad. Cali, Colombia: Centro para el Desarrollo y Evaluación de Políticas y Tecnología en Salud Pública, CEDETES, Facultad de Salud, Universidad del Valle.

Harrison RG (2000). Artificial neural networks for healthcare, analysis, interpretations, and use of complex social and behavioral surveillance data: looking back in order to go forward. Savannah, June.

Jekel FJ, Elmore JJ, Katz LD (1996). Epidemiology biostatics and preventive medicine. Philadelphia: W.B. Saunders: 11–67.

Krieger N (2001). Theories for social epidemiology in the 21th century: an ecosocial perspective. Int J Epidemiol *30*: 668–77.

McQueen D, Anderson L (2001). What counts as evidence: issues and debates. In: WHO. Evaluation in health promotion, principles and perspectivas. Geneva: WHO: 63–79. (European Series; no 92.).

McQueen D, Puska P, eds. (2003). Global behavioral risk factor surveillance, New York: Kluwer.

Mokdad AH, Strong DF, Giles WH (2003). Public health surveillance for behavioural risk factors in a changing environment. Recommendations from the Behavioural Risk Factor Surveillance Team MMWR *52* (no. RR-9): 1–12.

Strong K, Bonita R (2003). The SuRF report 1: surveillance of risk factors related to non communicable diseases: current status of global data. Geneva: WHO.

WHO (2001). Evaluation in health promotion: principles and perspectives. Geneva: WHO. (European Series; no. 92).

WHO (2003a). The world health report: neglected global epidemics: three growing threats: cardiovascular disease the need to act. Geneva: WHO.

WHO (2003b). The Nuffield trust: the future of health – health of the future: 4th European Consultation on future trends. Geneva: WHO Europe.

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Soz.- Präventivmed. 50 Suppl 1 (2005) S33–S37