Chapter 9
Linking Public Health Surveillance System to Policymaking and Local Development

Ligia Malagón de Salazar

Introduction

Despite the high importance given to public health surveillance systems as inputs for decision making, planning, and allocation of resources, in real terms, it is not very high on the list of priorities in most developing countries; on the contrary, it represent a major challenge. For years developing countries have been facing similar constraints regarding the production of timely and credible data as well as utilization of the available information. Several factors could explain this situation: (a) the low priority given by decision makers and health services providers to surveillance systems; (b) the scant resources assigned to maintain these systems; (c) poor links between surveillance results and health policy development; (d) limited local capacity related to technical issues such as data gathering, processing, and analysis; (e) utilization of surveillance data for planning, evaluation, and decision-making has been neglected and not always well received. In summary, key issues such as political will, community involvement, rationale behind decision-making processes, accountability partnerships, and communication strategies are not considered in surveillance system development despite their important role. Therefore, strategies and mechanisms for linking surveillance information to local planning and policymaking processes need to be developed through capacity building that exceeds technical boundaries.

Although some of these problems have been slightly mitigated, none has been completely eliminated, and some are even worse than before. What could be the main explanation for these persistent problems? Why have responses to the

L. Malagón de Salazar (✉)
Foundation for Public Health Development (FUNDESALUD), Cali, Colombia
e-mail: ligiadesalazar@gmail.com

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aforementioned issues not produced the expected results? Are there alternative ways to face the limitations inherent in the problems and their solutions? Trying to respond to these questions, the Universidad del Valle, through the Center for the Development and Evaluation of Technology in Public Health (CEDETES) and the nongovernmental organization Foundation for Public Health Development, created a school-based surveillance system known by its Spanish acronym as SIVEA (which stands for "Sistema de Vigilancia de base Escolar"), which is a type of community surveillance system, having the school as the operation center. The main results and impacts, as well as limitations and drawbacks, of this tool are presented here.

Also, we will refer to issues related to the sustainability, impact, and weaknesses of the alliance between the participating sectors. In that sense, we will highlight three aspects that we consider useful for the analysis: first, the usefulness and effectiveness of interventions are not the only criteria that should be considered by decision makers; second, there is a need to articulate territorial structures and local resources to contribute to the sustainability of interventions; and finally, the role and responsibility of territorial actors in long-term transformative processes, especially government, local institutions, civil society, and international cooperation agencies that influence decisions, must be kept in mind. To better understand the results of this experience lets summarize the theory base and context where the SIVEA was developed and implemented.

Theory Supporting the SIVEA

Risk factor surveillance is based on behavioral and sociopolitical sciences, not only biological ones. Therefore, social inequities, social organization, social support, economic domination, and power relations, among others, are part of its theoretical and operative definition. It should also be recognized that scientific evidence is not enough and does not necessarily produce expected effects on events and associated factors (social determinants). 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" (Krieger 2001).

The need to create surveillance systems that go beyond data release has been widely recognized. As a result, knowledge, communication, and action oriented toward behavioral 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 Ali et al. 2003), for predicting the future burden of chronic disease on populations, and for identifying potential interventions to reduce future burdens (Strong and Bonita 2003). Public health surveillance also contributes to the monitoring and evaluation of intervention, as 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 given period. Survey data combined with information provided by systematization

of experiences could be an effective alternative to making evaluation feasible and to increase the utilization of surveillance data. This type of surveillance should have a population-based approach, demanding that population and policymakers be co-responsible for and aware of the utility of data, participate when possible in the design and implementation of surveillance, and, finally, be shaped according to local culture.

According to foregoing rationality, risk factor surveillance systems must consider the following characteristics:

- The system should allow local capacity building to face preceived problems and challenges, as well as to reduce and control risk factors and create protective environments. The integration of surveillance with public health, health promotion, and primary healthcare (comprehensive health systems) has been widely recognized (McQueen and Puska 2003; WHO 2003a).
- The system should be defined according to geographical and social characteristics. It should be conceived within specific contexts/scenarios that motivate behavioral changes and protective environments. Gandhi, as cited by Lister, recommends, "To go back to the village"; it is in our community that true health is determined (WHO 2003b).
- Planners and researchers must be aware that motivation for behavioral change goes beyond scientific evidence.
- To ensure that surveillance results are utilized to improve health, the system itself must be a means for capacity building and not just an end. Being aware of this fact will allow us to consciously redirect our efforts toward this objective.
- The system should be oriented to define territorial structures such as schools, health centers, and workplaces, among others, so that relevant and timely answers to population needs and expectations can be provided.
- We recognized the role educational institutions could play as socialization spaces for information and knowledge production and sharing. For that, the target population and local actors must be co-responsible and participate actively in the surveillance system design, implementation, and utilization of information release.

Differences between risk factor and disease-oriented surveillance are important issues to be considered in the design of these systems. It is known that the criteria to select risk factors associated with disease have been based upon cause-effect relationships; however, the criteria to select behavioral risk factors must also consider eco-social and biopsycho-social theories.

Surveillance provides important input to generate new research questions, hypotheses, and etiological studies as part of capacity-building processes. On the other hand, there has been a tendency to adopt 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 that prevent people from leading healthy lifestyles (Abel et al. 2000; Krieger 2001).

Closing the gap between information and action implies the *integration of surveillance data* with information from other sources, to get a clearer vision about not only risks, but also the feasibility of change. For that reason the information that is gathered should make sense not only for data collectors but also for primary users. In the case of behavioral risk factor surveillance, we must obtain more information about aspects that motivate behavior changes and conditions that contribute to these changes. The information has been used to design and articulate school and municipality development plans, to monitor changes in schools, to advocate for interventions related to risk factors and healthy environments, and to sway public opinion about major health determinants in the municipality.

The interdependency between individual and collective behavior, shaped by the context in which it develops, has been well recognized. Therefore, interventions must go beyond reducing risk exposure to bring about structural conditions that can promote health, social interaction, and control with a multilevel and multifactorial vision. These interventions should include interpersonal relationships, culture, public policies, and legislative and organizational features and resources.

The concept of territory is first and foremost a social construct containing various ways to, from a systematic view, understand social space, cultural production, and reproduction. The social construct does not simply refer to a mental representation, according to Moreira (1982):

> The territory is the materialization of the permanent process of social reproduction. Given that this process does not develop isolated from natural conditions, but that these conditions are permanent and allow for such a process, it must be clear that, although the territory cannot be reduced to geo-ecological conditions (whether originating or transformed), one can talk about territory (or society) without taking into account those conditions. (1982:41)

As is known, population surveillance systems, more than any other type of surveillance system, are affected by sociopolitical context: In Colombia contextual factors such as health reform, local and national infrastructures, decentralization, and privatization of health institutions, among others, shape and affect any strategy that tries to change power relations between the different service providers and decision makers. The context in which surveillance is carried out is critical. Its implementation should be rooted in local structures and resources, using appropriate methods and techniques to collect, process, analyze, interpret, communicate, and utilize information, to change health and social conditions. We are not only facing health inequities but also a lack of opportunities and unequal access to information and power to influence decision affecting our lives.

Harrison (2000) stated that surveillance systems should be developed and managed within a local context at a level where they can be understood and used to improve population living 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 behavior and thus reduce exposure to risk (Strong and Bonita 2003). Zimmern et al., as cited in WHO (2003b), have addressed the issue of knowledge and evidence when making decisions. The authors' point of

view is 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, regardless of the amount of evidence one has, a judgment about how to understand something rather than knowing it will always have to be made.

Background

The different approaches taken (at different times) by the Universidad del Valle through CEDETES to studying and serving the population of the municipality of La Cumbre have left a series of lessons that will be shared in this chapter. As a result of the alliance between the municipal government and Universidad del Valle, various studies were conducted for the purpose of strengthening the municipality's capacity to face challenges surrounding the health and well-being of its population: the school-based surveillance system (2003); perceptions of risk factors associated with chronic noncommunicable diseases (CNCDs); the community information system in primary health care (SICAPS) year; epidemiological–sociological analysis, municipality of La Cumbre (2012); social determinants of health and community participation (2014); intersectoral management for addressing inequities in health from the municipal territorial entity: capacities, limitations and challenges (2015); capacity building for local development in the municipality of the summit—Cauca Valley 2015–2018 (2016). This study presents the results of different workshops, in which the expectations and proposals of participants were identified, applying exploratory/consultative techniques, regarding key issues for building local development plan.

By the late 1990s, the Centers for Disease Control and Prevention (CDC) had been able to institutionalize four strategies to support schools and local agencies in identifying and implementing effective programs and policies to prevent health problems: (1) monitor critical health events, policies, and school programs to help reduce the risks of these events; (2) synthesize and apply research to improve school policies and programs; (3) provide support to implement policies and programs in schools; and (4) conduct evaluative research to improve such programs. The application of these strategies, along with other education and prevention initiatives at school, showed that schools could help prevent cardiovascular disease, cancer, and diabetes. The experience of the CDC has amply demonstrated the effectiveness of school-based surveillance systems in improving the health of populations (CDC 2000 Chronic Disease Notes & Reports, National Center for Chronic Disease Prevention and Health Promotion. • Number 1 • Winter 2001).

In 2003 we set out to test the surveillance system in rural areas with different social and geographic conditions, as well as needs, facilities, and resources. SIVEA is supported by the same principles, but its operation changed to respond to new conditions and challenges.

Description of Surveillance System

What Does SIVEA Mean?

SIVEA is defined as a set of interrelated elements and resources that, through different methods and techniques, collect, analyze, interpret, deliver, and promote the use of information on risk factors and social determinants of health of the school-age population and their families. It has a dual objective: create capacity to monitor and intervene with more frequent risk factors in this population, and generate information to direct policies and programs that contribute to people's health and well-being. Hence, the SIVEA system not only produces information but also promotes dialogue and consensus building between data producers and policymakers (Fig. 9.1).

Characteristics of SIVEA: simplicity, flexibility, acceptability, and opportunity. (a) Simplicity was considered in the design of the system and in the structure of its operation, which correspond to the characteristics and culture of primary and secondary educational institutions (schools); (b) flexibility consists in the inclusion or replacement of different variables of interest to improve data quality; (c) acceptability is addressed by involving the educational community and other actors and municipal sectors in the different stages and activities required for the development of SIVEA, defining levels of responsibility and agreements for compliance; (d) the opportunity criterion relates to the identification of the moments in which information is needed according to institutional and community culture.

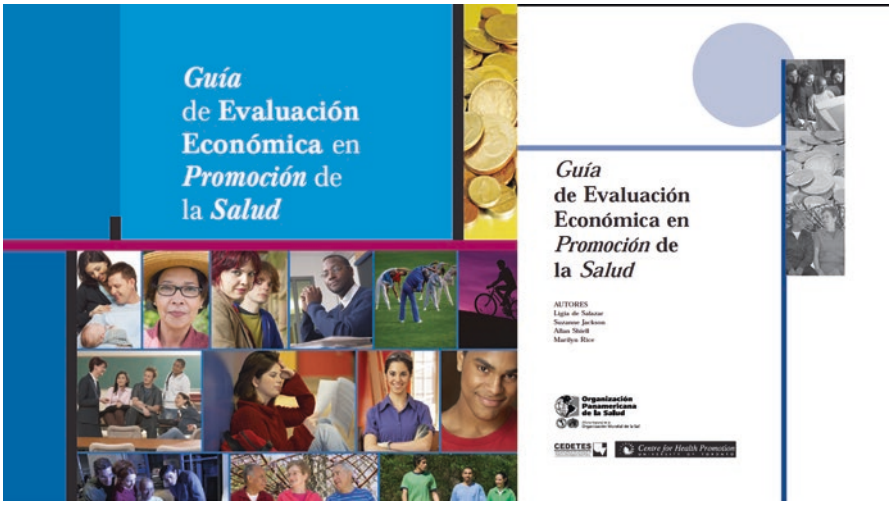

Fig. 9.1 Evaluation guide to socioeconomic status of health

Objectives

General: Strengthen individual, collective, and institutional capacity to produce and use information on behavioral risk factors and determinants associated with the health and well-being of the school population and their families.

Specifics

- Identify the occurrence and evolution of risk factors of behaviors and associated factors present in the school population and their families, using tools, mechanisms, and resources of the educational institution to produce, analyze, and interpret data and information.
- Incorporate into the school curriculum and pedagogy (pedagogical model) the actions of SIVEA and the programs available to respond to identified risks.
- Provide timely, relevant, and reliable information to decision makers and different authorities related to adolescent health and well-being that helps to reduce/control risk behaviors in this population.
- Provide information and advocacy to key actors in the territory, especially those responsible for the health of the adolescent population.
- Monitor and evaluate the effectiveness of SIVEA in terms of performance during implementation and compliance with objectives, impacts, and costs.

Variables and Categories of Study

The selection of variables was based on a review of literature on adolescents' health problems, theories about the behavioral risk factors for this population, and analysis of the structural aspects that condition their lifestyles; the adaptation and adjustment of instruments with similar purposes in other countries; and finally, challenges and structural problems identified by the participating educational institutions, as well as by the municipality. It was established that information should be collected once a year, prior to school planning. Other sources of information were taken into account in the analysis of the data provided by SIVEA. These include the municipality information system; development plans reports, censuses, and community surveys; visit records; and data from theater and games.

Implementation

SIVEA was implemented in the municipality of La Cumbre, which is a 90 minute drive from Cali the capital of the department of Valle del Cauca. Characteristics of surveillance systems, such as the systematic and periodic collection of information,

were incorporated, but emphasis was placed on the combined use of quantitative and qualitative methods and the need for information to be relevant and adequate to the interests, needs, and time for decision making at the institutional and local levels. Resources and school infrastructure were also used to implement the system.

For its operation, SIVEA is based on a pedagogical model that incorporates the functions of the surveillance system into curricular planning and daily school activities, as well as into the normativity of the educational sector. It uses the methods, structures, and physical and human resources of the locality and especially of the school. The generation of a sense of belonging of the educational community vis-a-vis SIVEA and the construction of SIVEA's capacity to obtain, process, analyze, and use surveillance information were considered key aspects.

The periodicity of the survey took into account the planning of the school period in order to provide relevant and timely information for the development of institutional educational projects, which each educational institution must formulate annually. As a result, it was established that system data should be collected once a year prior to school planning.

Strategies and Mechanisms of Communication and Advocacy

One of the central aspects of SIVEA was the implementation of a communication system to generate public opinion about the system, its achievements, limitations, as well as strategies to strengthen it. To this end, local resources, such as theater, routine school tasks, parent meetings, and social events, were used. The intention was to ensure that information reached the largest number of people, institutions, and associations in the community, as well as increase information use to satisfy the interests of users. Contribute to generate favorable public opinion against the continuity of successful interventions, benefits, and gains from working in collaboration with the education community, health sector, and academia and helped to make decisions for the extension of SIVEA to other venues and educational institutions, the municipality, and the department.

Communication and advocacy strategies were incorporated into the system based on an analysis of the actors, according to their interests and motivations for using the results. To that end, we explored answers to the following questions: Who needs the information? Why do they need it? For what? And what do they already know? Based on analyses of answers to these questions, different surveillance communication processes and products were designed for different audiences, including institutional and community decision makers. Communication committees were formed in each of the participating educational institutions.

A drawing titled "El vigilante de la salud," from which an iconographic symbol for SIVEA was selected and refined, was especially important in the initial sensitization phase because it stimulated the interest and participation of more students in the activities of the study, since one of the first alternative activities of the SIVEA was to expand information about adolescent perceptions regarding their health and

perceived risks. Likewise, with the communication committees at the educational institutions, the design and construction of a ¨situation room" in the schools was carried out as a structure that would contribute to increasing the dissemination and use of the information produced by the surveillance, reaching the educational community and the population in general. The results obtained in the survey on cultural consumption and perceptions of adolescents in relation to the media most used by adolescents served as a basis for students to develop other communication mechanisms, supported by a peer strategy and using the media available at the educational institution. Students presented to other adolescents, teachers, and parents the results of the survey for each of the themes investigated in the questionnaire using mechanisms designed by them and resources of the educational institution, such as murals. The students also presented their results to the Council of Social Policy of the municipality and made a video to inform the general community about the purpose of SIVEA, its progress, benefits, and scope.

Evaluation of SIVEA

The main feature of the methodological approach to evaluating SIVEA was the articulation of different sources of data (monitoring, surveillance, reports), which was utilized to support daily activities at the educational and health institutions.

A longitudinal ecological design was applied in which repeated measurements of events of interest were analyzed collectively, integrating quantitative and qualitative data. The evaluation results emphasized that we should not wait to have definitive results to provide decision makers with information to justify an investment in the system. The evaluation process was useful in creating awareness about the utility of this type of study. The evaluation of the system responded to decision makers' interests on three issues: the benefits of implementing the system, the comparative advantages and costs of its implementation, and the requirements to make it successful. Despite this, the information produced has served to reorient and commit resources and generate initiatives that try to improve the detected conditions.

Results and Lessons Learned from SIVEA

Many lessons could be extracted from the experience in the municipality of La Cumbre. We have learned that by using local available resources, empowering local people and communities to run their own interventions—such as the risk factor surveillance system—and applying effective strategies to increase key actors' participation and political will, our contribution to the capacity-building objective is not only possible but also effective. However, some issues and challenges need to be resolved to strengthen this effort: how can we make data relevant, credible, and desirable to multiple parties, policymakers, donors, communities, and researchers?

What is the priority? Is data quality modified by participation of laypeople and decision makers? Are there tradeoffs between meaningful and accurate data? What should be the link between surveillance systems in and out the health sector, and how should that link be established and maintained? Where should behavioral surveillance systems be placed? Who should occupy the leadership positions? How can a surveillance system be linked to other health promotion and public health functions?

Answers to the foregoing questions would help in the definition of the scope of the surveillance system and the construction of new ways to overcome the long-standing problems we have been facing. Our experience after more than a decade of working in the municipality of La Cumbre is summarized by the following key issues, which in some way try to respond to the foregoing questions:

(a) *Behavioral risk factor surveillance as a catalyst of social change*. To this end, the surveillance system was linked to health promotion and disease prevention interventions at the population level. Communication strategies were applied to articulate surveillance results to decision-making processes taking place at different levels in the municipality. The WHO refers to the last issue in this way: "management decisions based on measures of overall risk are more cost-effective than those based on single risk factors….[and] individual behaviour change is difficult in the absence of conducive environmental alterations" (WHO 2003a).

(b) *Articulation of the system to power structures:* such as government, schools, workplaces, and geographic units, which serve as promoters and guarantee an ongoing process. Being bound to these structures implies that there should be accountability inside and outside these structures, that results should be used to support advocacy and create public opinion with respect to the entire population, that links to local plans and programs are critical for the sustainability of the surveillance system, that information access based on needs at different levels is critical, and that awareness of the decision process should be widespread.

(c) *Supporting structures*: surveillance systems have a population- and territory-based approach, although they may use specific or additional strategies on the most vulnerable populations. A working principle of school-based surveillance systems is the use of scenarios that may constitute support structures. This is the case of "the schools," which are part of a specific territory and able to articulate community interests around them. Schools create cohesion and articulate groups around a common purpose, such as the health and quality of life of the school population (De Salazar 1996).

(d) *Local capacity building and empowerment of key actors*: To be sustainable, a surveillance system should be treated as a tool and a means for capacity building. Capacity building, therefore, should not be limited to technical aspects, and the system should be rooted in a local context, built on 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. For Amartya Sen, capacity

refers to the potential that people have to achieve valuable things in life; this is understood within a broad social framework starting from which understand the approach of strengthening of capabilities (understand is, opportunities effective of self-realization and joint social wide) the strengthening of capabilities accurate of the accompaniment interinstitutional that ensure the field of opportunities and enables the realization of those runs valuable (citizenship) (sociability, partnership, mobilization, among others).

(e) *Technical packages suited to local conditions*: Develop or adjust strategies, mechanisms, and tools to the culture and specific conditions of the population and the territory. For example, we found that a single source of information was insufficient to provide inputs for all parties. Interventions should be *socially responsible*, and therefore there is a need to develop strategies aimed at strengthening skills to produce data and information, oriented toward building public awareness, encouraging participation, providing relevant and timely inputs to decision makers, taking relevant and timely actions, and making optimal use of local resources.

(f) *Monitoring and evaluation as a technical tool with political purposes*: We developed attractive and simple formats and manuals for gathering, analyzing, and interpreting data. Schoolteachers and students actively participate, as do researchers from CEDETES. School resources and daily activities such as homework, computer lessons, parent meetings, planning school activities, extracurricular activities, and school rules were used to train the school community. The rectors of the educational institutions were trained in the management and use of monitoring systems, methodologies for planning and using information, decision making, and the formulation and management of promotion and prevention projects. CEDETES implemented and evaluated a school-based risk factor monitoring system, which, following the completion of the demonstration project after 3 years, continues, not only in operation, but also in coverage and scope.

(g) *Dynamic meaning of intervention*: Finally, the intervention (SIVEA) did not have the same achievements during its implementation. Hence, its evaluation and the recommendations arising from it should take into account this dynamism and the reasons for the changes. To account for these issues we used the technical tool called "systematization of experiences," which provided very important information, not only on the evolution of the system but the factors that influenced the change.

(h) *Optimization of school and local resources:* The implementation cost of SIVEA was around US$3000 dollars per educational institution, per year, which represents a cost of US$2 per child per year, covering the whole education population of children and adolescents. This cost could be much lower after the second year since training, monitoring, and follow-up activities are included at the beginning of the system. It was assumed that after the second year the educational institution could run the process by itself without external support. Sampling methods, time between surveys, and available resources at the time the system starts account for investment differences among educational institutions.

(i) Given that the intervention was intended to affect the overall population using an educational institution as the entry point, its benefit may be greater than anticipated. A cost-effectiveness study was developed whose results were used to increase key actors' participation and political will, showing in a convincing manner why surveillance is an important investment for students and the community as a whole and showing how decision makers at different levels could take advantage of this initiative to reduce decision uncertainty.

(j) *Permanent advocacy:* Continuous use of visible gains for all parties as a product of interventions to reduce risk factors and improve health is very useful for the appropriateness of the system for different sectors. Mandatory action, along with permanent monitoring and evaluation of different stakeholders, supports 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.

(k) *Geographical units and subgroups of the population in a territory*: This could be a microcosm of what happens in larger populations. An example is what our group found in school-based behavioral risk factor surveillance. Although the system has been oriented toward the primary school and adolescent populations, the risk factor for chronic disease prevalence was similar for the rest of the population, which could be explained by behavior 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 subjected to further investigation.

(l) *Evaluation and evidence:* There is no single simple method by which to evaluate public health 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 and Anderson 2001), drawing our attention to the relevance and utility of applying traditional epidemiological approaches to measure the effectiveness of public health and health promotion interventions and consider as scientific evidence not only those results from natural or biomedical sciences but also those from policy or social sciences. It is also recognized that the different types of science require quite different types of research methodologies. To evaluate the effectiveness of the surveillance system, we used trends produced from repeated surveys, complemented by other sources of data within and outside educational institutions. This model allows the measurement of risk factor prevalence, trends, and correlation of interventions oriented toward the prevention and control of risk factors, as well as the influence of health determinants.

Final Remarks

The objective of showing the theoretical basis and some positive results of SIVEA is to provide information that invites reflection on the reasons for an intervention like this is no longer relevant. The SIVEA experience is revolutionary in terms of

the nature and scope of what is considered within the concept of surveillance systems, that is, it transcended the production of data to expand its scope, becoming what we call a promoter instrument for transformations in a territory to improve health conditions and a population's well-being.

The alliance between municipalities and universities has had its ups and downs from 2003 to date, with changes in the nature of the alliance, actors, and participation mechanisms among partners, type and scope of results, and, most importantly, lessons on specific political conjunctures of each of the previous interventions. This experience about alternative surveillance systems started in the municipality of Cali as a school-based information system covering 4 schools with 1500 children (De Salazar 1999). Later, the information system evolved into a school-based surveillance system and was implemented in a municipality in Colombia known as La Cumbre, with 7 educational institutions reaching 1300 children. Although the decision to extend SIVEA to the rest of the state was considered by local authorities and the school community, different factors prevented this decision from being taken.

Let us examine some of the factors that we believe are responsible for this situation and that, therefore, should be considered in future efforts.

(a) Diseases receive a higher priority than risk factors for morbidity and mortality. Behavioral risk factors have become real epidemics in cities, tending to become endemic owing to worsening living conditions as a result of the rapid urbanization of the region and the dramatic changes in the state's role (De Salazar 2003). Rapid urbanization puts pressure on the physical environment and poses specific health threats to inhabitants. In many economically disadvantaged cities, the "street" has replaced the family as a provider of shelter and security for children and young people, who are exposed to a wide range of health and behavioral problems, such as malnutrition, infectious diseases, accidents, substance abuse, prostitution, and interpersonal violence, among others (Ferguson 1993). The lack of opportunities for development, culture, and progress for young people, in both large and small cities, has been growing and increasing the vulnerability to acquiring unhealthy behaviors.
(b) Therefore, monitoring the risk factors of behavior in adolescent populations becomes a priority for any community, given the effects they have on the health and quality of life of inhabitants presently and will have in the future (CDC 1990). The mitigation of social and economic costs generated by such risk factors, for example in the area of preventable or avoidable chronic diseases, becomes a priority investment for the medium and long term, in which different sectors and actors of the community.
(c) Organization and infrastructure for surveillance. A Municipal Technical Committee of SIVEA was formed; it included the municipal educational coordinator, the rector of the institution, the manager of the local hospital or its delegate, a teacher representative , and, in the implementation phase of the system, representatives of the team of CEDETES technicians. The purpose of this committee is to meet periodically to define the work plan and monitor the operation of the system, according to its nature and purpose, and initiatives or interventions designed with the information obtained on the risk factors of the

system. Behavior was investigated, and a written agreement was also drawn up in which the local hospital is committed to providing physical space and facilitating other elements that are useful for the development of the system in the municipality and to take actions to improve the well-being of adolescents based on the information and recommendations of surveillance.

(d) The results of the cost-effectiveness study of SIVEA after 8 years of operation did not provide sufficient support for the continuation of the program.

(e) 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 geographical areas such as the municipality. For instance, surveillance results helped to develop institutional plans and public health strategies such as healthy schools. At the same time, surveillance results were integrated with municipality development plans aimed at creating a healthy municipality. In this regard, surveillance and information systems already in place could provide a better picture not only about risk factors but the determinants of health and behaviors for the entire population in an effort to link surveillance to health promotion initiatives and policy planning.

(f) Training of the educational community. To strengthen institutional capacity, to train a basic team of teachers and managers who are knowledgeable about the management and application of SIVEA to achieve its continuity and permanence, and to promote the sustainability of the system, training was provided to teachers, administrative staff, students, government school staff, representatives of the local hospital, and teachers on the development of the different phases of the surveillance system and the available methodologies and tools. Some pedagogical modules to support the implementation and uses of SIVEA were designed, developed, and applied in these trainings.

(g) Information management is not only one of the most critical activities to guarantee information use but also the most neglected. To overcome this problem, many activities must be implemented on a continual basis, such as advocacy, communication, and advertising to involve and motivate parties within and outside the school. Linking surveillance to evaluation is an efficient way to increase not only the use of data but the sustainability of the system. Also, closing the gap between information and action implies linking 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 behavior change and conditions that make it possible.

(h) The planning and operation of programs follows a sectoral logic block intersectoral actions necessary for the achievement of the objectives to promote health and prevent risk factors of disease. The solutions proposed by the inhabitants of La Cumbre reflect the inhabitants' most basic hopes for social change. These solutions range from the more elemental viewpoint of citizens to elaborate reflections and approaches.

(i) The main objective of capacity building for local development is to have actors (institutions, people, or communities) who are empowered to strengthen their autonomy and ability to face the challenges to be healthy. The types of capacity building indicate the need for differentially (institutional, community, research) and jointly identifying how articulate efforts and resources available.

(j) The existence of various problematic situations and traditional interventions, from the point of view of sectoral logic, has made it difficult to obtain far-reaching results, given the need to have the different sectors work together under a key strategy like intersectorality. The fragmentation of programs together with unfair distribution of resources is the main obstacle to provide equitable access to health services, especially to the most marginalized population.
(k) The fundamental objective of developing local capabilities involves count with actors (institutions, people, or communities) is to empower the local community to strengthen its autonomy to develop those valuable runs. Those types of capacity strengthening indicate the need of make it differentially (institutional, community, investigative), identifying jointly how is articulate efforts and provision of resources materials and not materials.

Capacity development can stem from any effort to teach someone to do something or make better. It can also mean creating new institutions or strengthening already existing ones. Some people believe that the development of capabilities should center on education and training; others adopt a vision of greater scope and include actions to improve opportunities to exercise the right to health and individual freedom to make their own decisions (Ramos Rodríguez et al. 2015:340).

> The capacity development can be any effort to teach someone to do something, or make it better. For others, it may mean creating new institutions or strengthening existing ones. There are those who feel that capacity building has its Center in education and training; but there are also those who adopt a broader view and include improving access, rights and individual freedoms. Maybe all they are right, what the attributed meanings involve a vision from the complexity and function of each actor is to achieve the objective of the development of capacities to integrate. Perhaps College appropriate education and training for the development of capacities, others create new institutions or services may incur. (Ramos Rodríguez et al. 2015: 340)

The sustainability of problem-solving capacity-building processes requires prospective planning, flexible operational plans, and conditions conducive to change, such as the political will expressed in the budget. The sustainability of programs depends to a large extent on the balance of power relations between the different levels of society, so that the benefit of the programs is not for some to the detriment of others. Experience teaches that it is a fundamental task of government and participating actors to ensure the distribution of benefits.Experience teaches that it is a fundamental task of government and participating actors to ensure the distribution of benefits. The lack of sustainability fracture to short term it monitoring citizen on the expenditure in health, and them processes complementary (monitoring, effectiveness and evaluation) that accompany them advances of the same. The sustainability process of a specific intervention of the participation of a group of relevant stakeholders identified by their exposure to a specific problematic situation: civilians, government officials, prosocial organizations, sectoral officials. The identification and interaction of these actors is indispensable.

> There are different ways of perceiving health problems, some problems we construct or explain in terms of conflicts between our objectives and those of others (Ackoff 1981). Three strategies have been created to deal with these conflicts. The first concerns the intention to solve a problem; in this case the conditions that generated the problem are accepted and the desired outcome is sought regardless of the implications or collateral findings that

may arise. Second, we talk about solving a problem which is an intermediate situation in which the factors surrounding the problem are accepted and the benefits and losses distributed between them. Third, we talk about dissolving a problem. In this case, the conditions that produce the problem are not accepted as given (and unquestionable), and attempts are made to reconstruct the context in which the problem arose to transform people's perceptions. Subsequent actions seek to transform the context in such a way that the perceived problem disappears to give life to the idealized design. (Aldana and Reyes 2004: 4)

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