12

Towards Oral Health Promotion

José Roberto de Magalhães Bastos et al.*
University of São Paulo/ Faculty of Dentistry at Bauru
Brazil

1. Introduction

What is the concept of health? What is oral health? What is the concept of health and oral health promotion? Is there a prescription to follow for any individual or a population? Can this universal prescription be refined to serve both developed and developing countries as well as populations with social deprivation characteristics? Many other questions could be raised before the discussion of oral health promotion or health promotion, yet the fact is that oral health is an important part of general health (1). Previous studies have thoroughly documented the association between oral health and other health conditions as well as also oral health's relation to quality of life (2, 3). However, health promotion cannot be targeted to only health sector efforts; intersectorial actions are necessary to make oral health more affordable. Therefore, it is not possible to improve oral health without assembling the evolution of the concept of health promotion.

2. Oral health

Would it be possible to conduct oral health promotion on a regular basis? In the first place, the concept of health and oral health should be clear to as many professionals as possible. The internationally accepted definition of the World Health Organization is a good start for clarification, because in the preamble of its constitution, it describes health as "a state of complete physical, mental and social well-being and not merely the absence of disease and infirmity" (4).

The primary concern must be professionals' idea of health as more than the absence of disease, and to do so, it is necessary for professionals to understand what would be classified as a disease or as infirmity. Although this chapter does not aim to delve deeply into the philosophy of health, illness and disease, it can help readers to understand disease overall as a disturbance in the balance of the health-disease process.

The complete state of physical, mental and social well-being would be too hard to explain in full to a person; nevertheless, this must be considered a target to health promotion practitioners. Consider this issue as a gradient of health wherein these three dimensions

*Magali de Lourdes Caldana[1], Luis Marcelo Aranha Camargo[2], Ariadnes Nobrega Oliveira[1], Ricardo Pianta Rodrigues da Silva[3], Angela Xavier[1], Fábio Silva de Carvalho [1] and Roosevelt da Silva Bastos[1]
[1]*University of São Paulo/Faculty of Dentistry at Bauru, Brazil*
[2]*University of São Paulo/ Biomedical Sciences Institute, Brazil*
[3]*São Lucas University, Brazil*

(physical, mental and social) cause the person to be healthier or unhealthier, depending on their condition (Fig. 1).

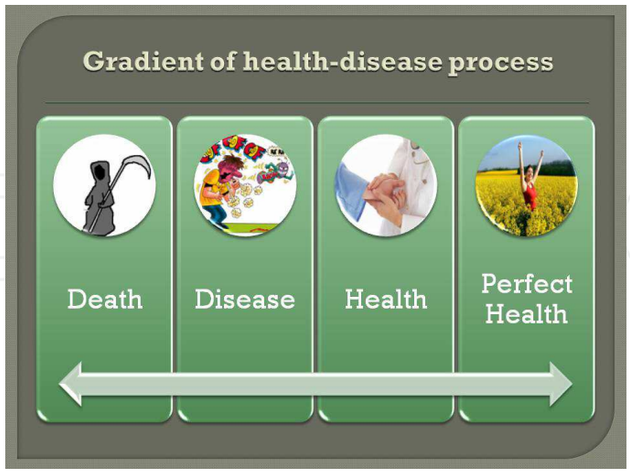


Fig. 1. Gradient of health-disease process

Oral health is another important concept to be clarified. Through time, many definitions have been presented with the aim to establish a state of acceptable oral health. Chaves (5) (1986) describes oral health as a harmonious state with normality patterns and a sound mouth. Yewe-Dyer (6) (1993) conceptualizes oral health as a mouth state with associated support structures where the possible diseases are controlled, the future diseases are inhibited and the occlusion is enough to chew food and the teeth present a healthy social appearance. These authors normally emphasize the absence of problems in the oral tissues such as teeth, gums and oral mucosa, but as Chaves (5) (1986) emphasizes, health is a personal state and it is impossible to exist in part, that is, as an entity of an isolated organ or system. Nevertheless, for practical reasons, this chapter handles the partial concept, as the partial concept is commonly used in oral health and dental health, with the aim of identifying partial objectives in public policies. Still, the concept of health as a whole cannot be far from a professional's understanding in any health specialty.

3. Reminding history and the development of concepts

The term "health promotion" first appeared in 1920 in Winslow at the end of the First World War with the strengthening of workers' organizations. The Winslow community was organized and prepared to develop policies that ensured the implementation of education programs to improve the health of the community's population (7).

After the end of World War II in 1945, the United Nations (UN) was founded and the scope of one of the UN's main discussions was the additional creation of a global health organization. The nations worldwide organized themselves in order to maintain peace and to establish criteria for the maintenance of harmony between countries. This was an important milestone for humanity to unite the nations in the post-war environment around the entity that governs not only the crucial issues of that time (such as the concept of living in peace with others) but also trade relations and health (4).

In 1946, Sigerist defined as the essential tasks of medicine as health promotion, prevention of disease and accident and curative care. He said that health is promoted by providing

decent living conditions, good working conditions, education, culture, physical forms of leisure and rest. He called for coordinated efforts of politicians, trade unions and employers, educators and medical professionals. He felt that the lattermost people, as health experts, should set the standard for health settings and pursue them (8).

On July 22, 1946, Sigerist lead the World Health Conference in New York, which catalyzed the establishment of the World Health Organization (WHO). The United Nations inaugurated the WHO's activities in 1948, and the World Health Organization (WHO) opened its doors in the preamble of launching its charter and gave a definition if health that also provides its contributors with a goal they must reach (4).

The preamble of the WHO's constitution presents basic principles for happiness and harmonious relationships and the source of security for all people. It also discusses the actions that nations should take to provide to their populations with the rights of every human being without distinction of race, religion, political beliefs, and economic or social conditions. In this regard, governments technically possess responsibility related to health care services and therefore must achieve good results through policies in social and health areas.

The definition of health (4) as a *state of complete physical, mental and social and not merely the absence of disease or infirmity* was a great step for humanity. This definition provides a basis for all professionals around the world to follow, and it includes well-being as a major objective. This definition also adds the physical term undertaking somatic issues, the psychological health to be considered, and finally the social aspect of health. Living in harmony with society becomes a prerequisite of obtaining health. Furthermore, this definition does not stagnate and stops at a definitive point; instead, it continues by explaining that health is not simply the exclusion of suffering from the hardships of a disease. This definition has received some criticism, because it uses abstract terms such as state of complete well-being, and it sometimes characterizes health from the perspective of a particular individual and his relationship with his own physique, his mind and his social relations. As such, it does not highlight the importance of the health of a community. However, this definition brings together the concept of quality of life, as it shows different dimensions of an individual's health in terms of his or her physical, mental and social aspects.

In 1974, the Canadian Minister of Health and Welfare announced "A new perspective on the health of Canadians" that was so important it became known as the "Lalonde Report", immortalizing the name of this authority (9). In this document, for the first time, the term "health promotion "became part of an official government publication. The report begins its preface of the document with the following sentence:

Good health is the bedrock on which social progress is built. A nation of healthy people can do those things that make life worthwhile, and as the level of health increases so does the potential for happiness.

Motivated by the need to contain costs of the ministry, Marc Lalonde based his concerns upon the important concept of social determinants in health. He presented the process of his health-disease model in four parts: the environment (natural and social), lifestyle (behaviors that affect health), human biology (genetics and human function) and the organization of health services. Although this report was an advanced concept for its time, it was strongly behaviorist and based on individual decisions, thus highly preventivist. One of the criticisms launched at this report points out that the people who are affected by health problems are possibly to be blamed for living with their iniquities (10).

In Alma-Ata, the International Conference on Primary Health Care took place and was attended by 134 delegations and 67 international organizations. The Declaration of Alma-Ata first of all reaffirmed strongly the WHO's definition of health by stressing that health should be considered a fundamental human right. The declaration also said that other sectors, social or economic, should concentrate their efforts into the health sector to achieve the "greatest social objective" (11).

The Declaration of Alma-Ata defined and granted international recognition to the concept of primary health care, so Health for All by the Year 2000 should have used it as a strategy to make their mission a reality. The meeting ended by calling attention to the urgent need for government involvement, especially in developing countries, so that international action actually coincided with the commitment of governments, WHO, UNICEF (UN Children's Fund), non-governmental organizations, other international agencies, all workers in the area and the entire world community. WHO's goal is to create a commitment to primary health care and to channel increased technical and financial support to the detriment of investments in armaments and military equipment so that in the year 2000, the world population would reach an acceptable levels of health (11).

After eight years, the First World Conference on Health Promotion gathered thirty-five nations in 1986 to the Canadian capital. Its participants then disclosed the Ottawa Charter as a result of their discussions. New Health Promotion has established itself as a landmark. This event served to create the health sector's strategy for people throughout the world. Fundamental conditions and resources were cited as prerequisites for improving health, such as peace, education, food, income, stable ecosystem, sustainable resources, social justice and equity. Since the founding of the charter, several strategies have been listed and recommended for implementation throughout the world and are listed as follows (12).

1. **Develop healthy public policies based on health promotion.** In relation to equity in health, it was recommended that politicians should become aware that any of their decisions, not only their decisions in the specific area of health, could lead to better or worse living conditions for the population, so health promotion goes beyond good attendance, care and service.
2. **Supplant supportive environments into societies.** The environment's impact on the well being of people is undeniable. Thus, the protection of natural resources and the search for a suitable environment for the unfolding of life, whether in the area of technology, labor, energy production or urbanization should be observed continuously as to constitute positive factors for the communities.
3. **Community action should strengthen due to the importance of health to the population's engagement for decision-making strategies and their implementation.** The requirement in this goal is the public's access to information, learning opportunities and financial support for health issues. This is the concept of empowerment put into practice.
4. **The development of personal skills.** The individual might be prepared for the various stages of their existence that they will face throughout life. The risk of chronic disease incidence and disease's external causes should be addressed in a timely manner. We should not forget the necessary participation of educational, professional, commercial and voluntary institutions and even the government.
5. **Institutions should reorient health services.** Specifically, health services were advised to redirect their "compass" of attention so that it was not focused solely on clinical and emergency services. Professionals should also combine their experiences to give one

another a comprehensive approach that enables them to understand and respect the cultural peculiarities of each community that they assist. Finally, the Ottawa Charter ends with the commitments that its participants had made to a strong alliance with public health, It urges the international community to commit to public health, as well: "The Conference is firmly convinced that if people in all walks of life, nongovernmental and voluntary organizations, governments, the World Health Organization and all other bodies concerned join forces in introducing strategies for health promotion, in line with the moral and social values that form the basis of this charter, Health For All by the year 2000 will become a reality."

The Second International Conference on Health Promotion, held in Australia in 1988, reaffirmed, with the spirit of Alma-Ata by the Declaration of Adelaide (13), the five key points of the Ottawa Charter above. Additionally, it added four more:

1. **Support women's health.** Public policies that focus on this area address equal rights in the division of labor, performance of delivery according to the preferences and needs of women and the mechanisms that support working women, such as maternity leave.
2. **Food and nutrition**. The eradication of hunger and malnutrition must comprise a fundamental part of public policies for health. This eradication includes ample food in hospitals, schools, shelters and workplaces.
3. **Tobacco and alcohol**. This goal includes the implementation of any public policies aimed at reducing the production, distribution, marketing and consumption of these products.
4. **Creating healthy environments**. This conference encouraged the addition of ecology to public health in order to achieve socioeconomic development and sustainability in human use of the planet.

According to the Adelaide Declaration, health is both a fundamental right and a sound social investment. In order for improvements to occur, which will increase levels of citizens' health, investments from the government and private sectors are desperately needed in healthy public policies.

Many conferences ran around the world with health promotion at the center of their attention so that they could develop new concepts and continue the engagement of nations worldwide to achieve health for all (Sundsvall (14), Sweden, 1991; Jakarta (15), Indonesia, 1997; Mexico City (16), Mexico, 2000).

Bangkok, Thailand, hosted the Sixth International Conference on Health Promotion in 2005 (17). The Bangkok Charter reaffirmed and analyzed concepts and strategies reported by the previous conferences. This meeting discussed the current condition of the social determinants of health, which the Bangkok conference found to be very different from the time they were disclosed by the Ottawa Charter:

- Increasing inequality within countries and between countries;
- New patterns of consumption and communication, global procedures and marketing;
- Changes in the environment that affect all parts of the world; and
- The growing process of urbanization.

New challenges were raised, among them the fact that women and men are affected unequally, and increased vulnerability caused inequalities in the health of children, excluded groups, disabled and indigenous peoples (WHO, 2005).

Strategies to promote a globalized health strategy while respecting the autonomy of nations with their particular cultural characteristics were discussed in an attempt to control positively the determinants of health.

The commitments to "Health for All" were confirmed by the health ministers present:

1. Make health promotion a central concern in the global development agenda;
2. Make health promotion a core responsibility for government as a whole;
3. Make health promotion a major focus of communities and civil society;
4. Make health promotion a requirement of good corporate practice.

Given the non-materialization of shares based on the resolutions set out in previous conferences, the Bangkok Charter has completed its appeal to member countries to apply the theory in the practice of health promotion, public policies. Partnerships should be implemented for this purpose.

In 2009, the Nairobe conference for health promotion took place (18) with the aim to address health and development. The globalized world allowed financial crisis to interfere with the national economies in general, so the health systems were also affected. Global warming and climate instability was another source of concern, and the conference gave special attention to lower income countries as well as security threats.

Health promotion appears in the field of public health as a paradigm of transformative actions that aim to improve living conditions. With that change, it became necessary to conceive of health in a positive vision, seeking an expanded awareness that is integrated, complex, intersectional and pertinent to the environment, current modes of production and various lifestyles (19, 20).

Similarly, the conceptual framework of health promotion highlights the influence of the social health of individuals and populations. Scientific studies contribute to addressing the challenges related to health and quality of life that, combined with social components, are essential for individuals and communities to achieve a high health level profile (21, 22).

The current juncture is marked by social inequalities. In response, contemporary health promotion emphasizes the importance of social determinants in search of models of care that go beyond the medical curative effect. Thus, the present state of public health raises discussions about the new design for health managers, health professionals and society (23).

The discussion of health promotion has ventured into different settings, representing a change in the direction of health actions. This discussion is searching for a way to attempt social transformation, given the fact that promoting health today means to fight poverty naturalization so that social issues are recognized for what they are, which is social inequality (7, 20, 24).

It is noteworthy that relative social deprivation (more than the absolute) is associated with poorer health. In practice, this theory means that populations with high economic disparities will also feature high disparities in health states. Health promotion must be integrated equally on all social levels in order to address consistently the model of social determinants of health (25).

The commitment of the actions proposed by the Ottawa Charter aims to break with the fragmentation of the current health care model, imposing practices that can overcome the culture of medicalization and at the same time ally to the production of health through strategies that promote changes in lifestyle and promote the autonomy of individuals and social groups (23). Thus, health promotion requires intersectoral cooperation and joint actions, such as legislation, tax system and fiscal measures, education, housing, social services, primary health care, employment, leisure, transport and urban planning, among other segments. To achieve effective health promotion, however, these joints should not be geared to the demands of the international market, but targeted to the needs of the population in question (23).

It is important to think of health promotion as an important tool that catalyzes new modes of care and health management that improve the quality of life. It can also catalyze other realities that may make it possible to achieve equity in health (23).
Meanwhile, health determinants have begun to be the focus of attention with the aim of improving life and reducing disparities between countries and amongst the localities within countries.

4. Approaching the community

The selection of a criterion is important to the oral health promotion of any population. This criterion is influenced by philosophical, political and professional matters. Obviously, the biological events that arise from a disease have been apparent since Louis Pasteur and Robert Koch demonstrated the importance of microbiology for the treatment and prevention of any infectious disease. Additionally, epidemiological research has shown many other influences may concur to the incidence of different problems relating to the environment and the health state of a person or a population and the social determinants of health (26) (Fig. 2).

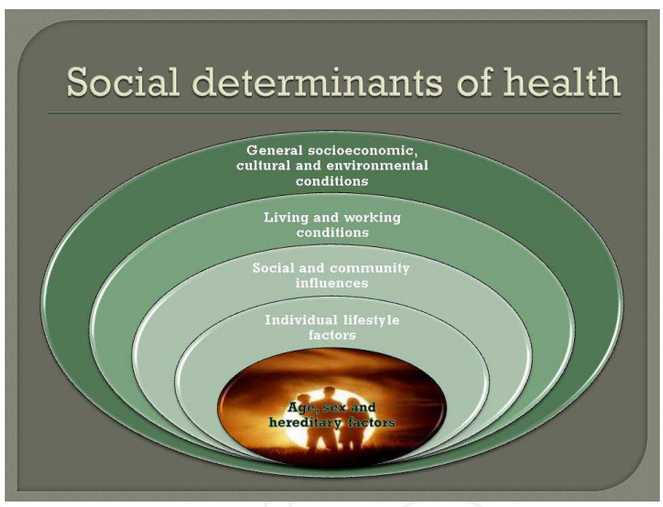


Fig. 2. Social determinants of health

The social determinants of health may be well exemplified in the upstream and downstream tale (27). As man lies beside a stream and hears a scream from downstream. The man recognizes a person drowning, and as fast as he can, he rescues the person when he hears another scream. Again, he rushes downstream and rescues another person, but the screams never end. As fast as possible between the rescues, he calls for medical help and many health professionals and swimmers came together to provide specialized assistance with ambulances, nurses and doctors, They all face a significant increase in the number of new cases of drowned people, sometimes with important cardiac complications. Suddenly, while the assistants were only helping the people who were already drowning in the water, somebody asks some important questions. "Why is a person who does not know to swim in the water downstream? Why is the number of people in this crazy situation so high and why don't out efforts stop the new cases downstream?" Finally, they ask the most important question, "What is pushing these people into the water upstream?" (Fig. 3).

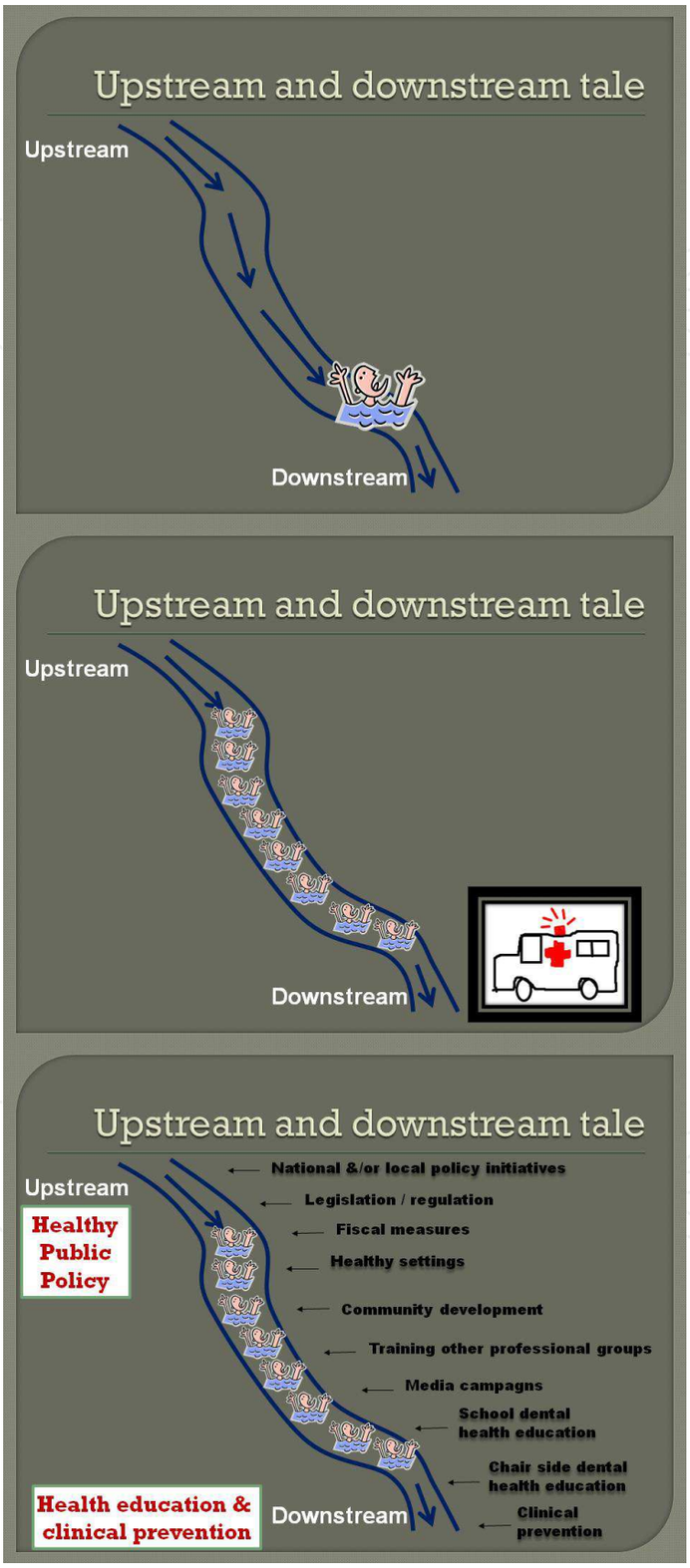


Fig. 3. Upstream and downstream tale

The drowning in this tale illustrates the diseases, such as dental caries and periodontal diseases. Social determinants of health, which are well represented by Dahlgren and Whitehead (26), would be representative of what is pushing people into the water. The assistance downstream to the "victims" is very important to the relief of actual health problems that are presently affecting people's lives, such as pain, infection and other consequences that destroy the organism and the quality of life. Unfortunately, the health policy planning is often forgotten. If there are no policy plans in action, new cases of drowning (disease) will continuously appear and perhaps increase, and the needs of diseased patients will highly increase as time goes by. A saying in Brazil likens this situation "to dry ice". This is the reason why upstream action is so important. The upstream actions are necessary to guide the whole population to be away from the "stream" toward a healthy life with a better range of choices offered by and for the whole community.

A disparity in the distribution of chronicled diseases, such as dental caries, happens between countries, across countries and amongst localities. What would be the appropriate approach to prevent health problems of a specific population?

Dental caries is still the most important disease that public health dentistry must combat. After the industrial revolution at the end of the eighteenth century, the spread consume of sugar cane throughout the globe caused a terrifying increase in the incidence of this disease (28-31). Preventive measures started to be effective within the early years of the twentieth century through the fluorosis studies, as they discovered the effect of fluorides and preventive effects on dental caries (32-35). The move to fluoridate the public water supply made possible a significant decrease in the prevalence of dental caries in young populations throughout the nineteenth century. The topical fluoridated products that are applied directly to the teeth professionally or at home made possible another remarkable decline in the prevalence of dental caries, first in the industrialized world. This technology later spread to developing countries. However, the decline, even within the industrialized world, was not evenly spread across the population, and the polarization of dental caries started to become a concern for researchers. Regular methods to prevent dental caries made possible a significant decrease in the prevalence of the disease and seems to have stopped near DMFT 1.00 in patients at twelve years old in many populations (36).

Epidemiological basic data are the baseline for establishing the criterion needed to balance the approach beyond a specific community in a strategy for the whole population, including high-risk groups, in a developed or developing community. The balance must attempt to answer a simple question. Will the population in focus benefit the most from a small decrease in the oral disease risk in a great number of people or a great decrease in the risk for a small population?

The British epidemiologist Geoffrey Rose (37-39) defined the first three possibilities for preventive measures regarding chronic diseases such as dental caries.

The high-risk strategy gathers preventive efforts to modify the risk distribution of a community (Fig. 4). While the strategy's attention focuses on a small group of the population, the rest of this population does not benefit (40) (Table 1).

Dental caries is a disease that affects all communities and has generalized causes with intrinsic social influence. Dental biofilm, fermentable carbohydrates, oral hygiene and fluoride exposure are directly associated with the incidence of dental caries and the whole community is exposed to all of these risk factors. These characteristics make dental caries a chronic disease that can be managed by the population approach. Obviously, such characteristics call for an intersectorial decision regarding social, economic, industrial,

political and other sectors with the intention of a massive upstream action, that is, a population strategy (Fig. 5).

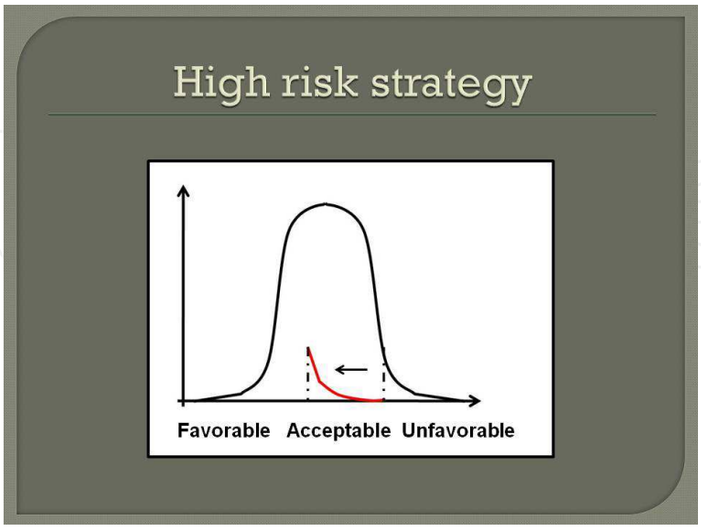


Fig. 4. High-risk strategy graphic

Advantages	Disadvantages
Appropriate intervention to the individual	Over prevention of a person
No intervention for those who are not exposed to a special risk	Palliative and temporary success
Ethically appropriate for the organization of dental services	Inappropriate behavioral strategy
Selectivity improves the risk-benefit ratio and therefore there are more cost-effective resources	Limited by poor prediction Reliability problems and costs Contribution to the overall control of the disease may be disappointing and small

Adapted from: Baelum, Sheiham and Burt, 2011(41).

Table 1. Advantages and disadvantages of the high-risk preventive approach

While the defenders of the high-risk approach attempt only the right arm of distribution, the population strategy intends to move all distribution to the left, carrying together the high-risk group, represented by the right arm of distribution (fig. 5).

Baelum, Sheiham and Burt (41) (2011) consider three main advantages to the population approach. First, they consider a radical approach. The social determinants of health would be addressed when the biological determinants of disease are targeted, such as the fermentable carbohydrates and the dental biofilm related to dental caries. Second, they propose a powerful approach. Public health education may focus on common risk factors

for different diseases. For example, when parents control their child's sugar consumption through a better daily diet and control sweet snacks between meals, they may decrease the dental caries in their child as well as their child's likelihood of becoming obese and contracting other related health problems, such as diabetes and cardiovascular disease. Thirdly, they stress that the population preventive approach is appropriate. Any chronicle disease is associated with social problems of a society and this approach protects the "victims" from being blamed.

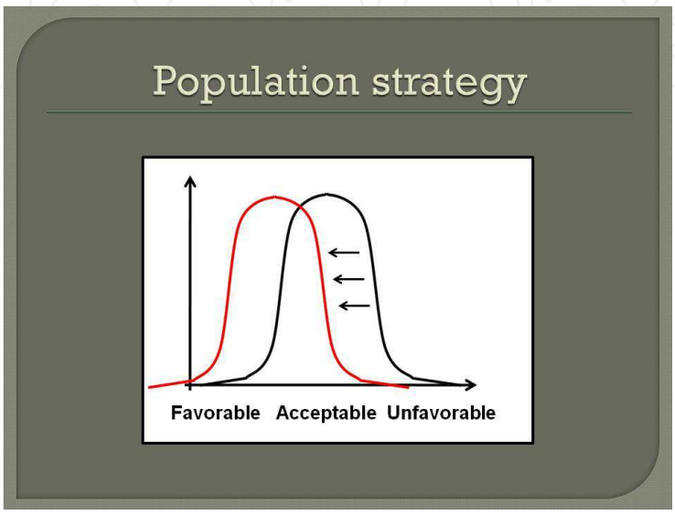


Fig. 5. Population strategy graphic

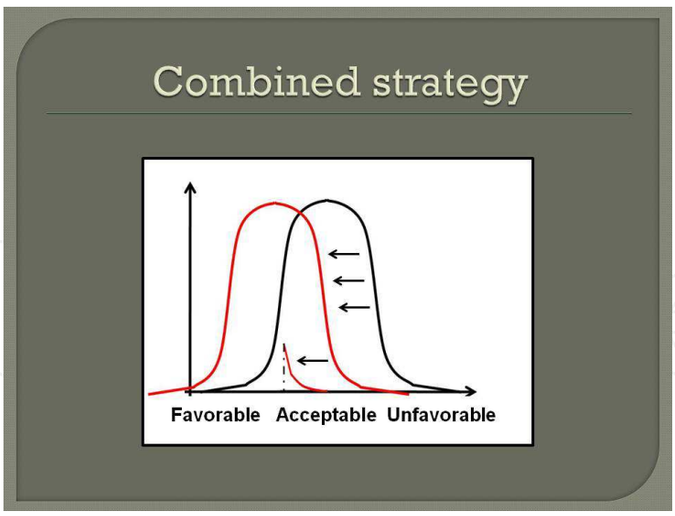


Fig. 6. Combined strategy graphic

Some disadvantages might arise during the population approach. The first one is a limitation in the acceptability of the preventive measures regarding the desire of people for visible, imminent and probable results according to the eye of a layman. Reliability is the second limitation; this topic is related to economic, political and other barriers. It is simple; the sugar industry is not interested in investing money in or otherwise endorsing

educational lessons regarding carbohydrate consumption. The third limitation is the primary financial costs of this approach and the unknown benefits of educational and preventive measures.

Therefore, blending the population approach with some components of the high risk strategy seems to be the most acceptable way to implement preventive measures in a community so that the community can avoid the access inequality of the population approach and avoid the victim blaming related to the high risk approach (40). It is been named the combined strategy (Fig. 6).

5. Project USP in Rondônia: An example

The project USP in Rondônia emerged in 2002 with the aim of health promotion for a population devoid of attention in this regard. The Faculty of the Dentistry of Bauru offers two grade degrees, Dentistry and Speech, Language Pathology and Audiology Sciences. Students from both grading courses participate in activities in the far state of Rondônia regarding dentistry and speech pathology, prevention activities, health promotion, health assistance and rehabilitation.

Twice a year, expedition teams provide health services to the population in an area bounded by the urban and rural areas of a municipality within the State of Rondônia, Monte Negro and the adjacent rural riverine population. A large percentage of this population lives far from the centers of reference and thus remains oblivious to the basic conditions of sanitation, education and basic health programs (primary, secondary and tertiary). Therefore, the project "USP in Rondônia" researches local realities in order to boost the actions already undertaken in the municipality and thus provide better quality of life for this underprivileged population(41).

The state of Rondônia was created by complementary law No. 41, December 22th 1981, which rose from the federal territory with the same name, whose dismembered territory consisted of areas from the states of Amazonas and Mato Grosso, previously called Guaporé Territory. The geographic surface of Rondônia is 243,044 km2, representing 7.11% of the North Region and 2.98% of the entire area of Brazil. Its colonization is directly linked to economic cycles occurring in that region, such as the cycles of gold and rubber.

The municipality of Monte Negro originated from Boa Vista and was transformed into a city by law No. 378 on February 13th, 1992, with designation of Monte Negro, named because of an accidental relief of its territory. Its population totals 14,091 inhabitants according to the demographic census (2010), and 52.57% of this population is male and 47.43% female. Of this total population, 6,701 people live in rural areas and 7,390 in the urban area. It has 1,931.37 km² and a population density of 7.30 inhabitants per Km². Its Human Development Index (HDI) is 0.685 and the average per capita income in 2000 was R$ 170.88 (around U$ 100.00). It derives its main economy from logging/wood processing, followed by local trade, agriculture (mainly coffee, corn, rice) and cattle feeding (Fig. 7).

The rural riverine communities attended are Calama, Rio Preto and Demarcação, which are all localized in the northern region of Rondônia. Calama is a district of Porto Velho with 3,400 inhabitants and has two schools for children. The basis of its local economy is fishing and planting cassava, i.e., subsistence agriculture. The community of Rio Preto is distant three hours from Calama by river, and it is located on the bank of the Madeira River. It is composed of about 25 families who live in tracts that are subdivided where families live

based on subsistence agriculture, animal husbandry (chicken, pigs) and fishing. The community does not present any kind of commerce or local health clinic. If community members wish to purchase food, medicine or assistance of any kind, they must travel by boat to the District of Calama. The community of Demarcação is also on the banks of the Madeira River and comprises about 300 people. They acquire their electricity from a generator and the community has a good organizational structure. The basis of the local economy is fishing and subsistence agriculture. There is a spot healer who is highly respected by the community, and he is aware of many herbs that can treat diseases.

Fig. 7. Monte Negro, state of Rondônia, Brazilian Amazon

Situational diagnosis of Monte Negro:

- Dearth of and poor access to information;
- Population with low levels of education;
- Inadequate oral health and speech therapy;
- Lack of knowledge of teachers and educators;
- Lack of information for the community's health workers and health agents;
- A large percentage of the population lacks basic sanitation; and
- They all experience difficulties in accessing health care, especially the people living in rural areas.

Situational diagnosis of the rural riverine population:

- Low levels of education and no notion of citizenship;
- Lack of expectation for the improvement of living conditions;
- Lack of even the minimum conditions of sanitation;
- Lack of access to basic services;
- Lack of access to health care;
- Lack of means to prevent dental caries and speech problems;
- Difficulty accessing medicines; and
- Need for training of professionals in the field of education and health.

In addition, the diagnosis included a lack of basic hygiene, sanitation, general health and basic dental and speech notions. This revealed the need for a population strategy with

educational activities that involve the local teachers and community workers and health professionals so that they can become multipliers of knowledge and information throughout the year, aiming to improve the standard of health for their entire community.

Among the rural riverine populations that benefited from this project highlight are the communities of the Lower Rio Madeira (Tabajara), Calama, Rio Preto, Demarcação, Santa Luzia D'Oeste and Nova Brasilândia D'Oeste.

During the first expedition, i.e., from 2002 until 2011, a total of 13,499 patients were attended to for a total of 37,976 procedures. This work of health promotion benefits the entire population of the city, rural and coastal populations, as well as promoted the welfare activities also carried out in educational activities with not only the patients who attended, but also their family members, teachers, educators and health professionals, making them all multipliers of information to continue with the work of health education during the months' interexpeditions.

The actions taken by the project "USP in Rondônia" have direct and indirect impacts on quality of life and health of people of urban, rural and rural riverine communities, where improvements are found top be increasing through the implementation of education-prevention activities and assistance in the field of dentistry, speech and language therapy and audiology to patients. Such activities are undertaken with patients treated in clinical and educational activities in kindergartens, schools and PETI (Program for the Elimination of Child Labour) and health education activities with schoolteachers, educators and Community Health Agents.

Over the course of almost ten years of design, we observed a high number of welfare activities in which people benefited greatly from further work in Health Education with influential people in the community enabling information to reach thousands of others, because they acted as a chain of multipliers for health in this municipality.

Dentistry, Speech, Language Pathology and Audiology attended 13,499 patients for a total of 37,976 procedures. It is noteworthy that the procedures installed 172 total dentures and 64 partial dentures in addition to 110 hearing aids.

Training courses about health education for teachers and for the Community Health Agents are a result of the locals' participation and community involvement with the project, which aims to increase the benefit provided. Some individuals' gain in professional knowledge might spread to the entire community, depending on their roles in the community.

Age	dft (SD)	DMFT (SD)	DT (SD)	MT (SD)	FT (SD)	Caries Free (%)	SiC Index	Care Index (%)
5	3.15 (3.12)	-	2.67 (3.06)	0.00 (0.00)	0.48 (1.15)	34.42	6.65	23.30
12	-	3.41 (2.69)	2.53 (2.24)	0.25 (0.64)	0.63 (1.45)	14,81	6,70	21,72
15-19	-	5.98 (4.19)	3.27 (2.87)	1.09 (1.59)	1.62 (2.66)	8,16	10,61	29,40
35-44	-	16.00 (7.30)	2.21 (2.33)	9.79 (8.65)	4.00 (4.16)	0,00	24,38	25,00
65-74	-	25.96 (9.82)	0.89 (1.60)	24.71 (10.74)	0.36 (1.15)	1,78	32,00	1,41

Table 2. Dental caries profile by component (decayed teeth [DT(SD)], missing teeth [MT(SD)] and filling teeth [FT(SD)]) of Monte Negro population, Rondônia state, in 2008

The improvement of general health, oral health, speech, language, audiology and behaviors for healthier daily habits can be observed over the intervening years. The tables 2 and 3 shows the results of the epidemiological surveys conducted in the rural riverine population and in the municipality of Monte Negro during the years 2005/2006(42) and 2008(43).
To review the aspects of speech, language pathology and audiology science, the project team conducted an epidemiological survey of hearing disorders in the urban population between 2005 and 2007 and found the prevalence of disabling hearing loss in the town to be3.81%, with 3.43% at moderate loss and 0.38% at severe loss. This prevalence might be considered low compared to the prevalence in Canoas in southern of Brazil, which was 6.8% (44). Note that the results found in the North of Brazil (Monte Negro) are within the range of data found in studies supported by the World Health Organization (45), which range from the lowest incidence (2.1%) in Oman and the highest incidence (7.8%) in North Vietnam. It is noteworthy that the survey of Monte Negro made adjustments for hearing aids, which benefited 52 patients with hearing impaired analog devices, donated by the company Phonak, at a total of 110 devices. These patients are still professionally followed.

Age		**DMFT (SD)**		**p (Test t)**
Monte Negro	Rural Riverine	Monte Negro	Rural Riverine	
5	4-5	3.15* (3.12)	4.31* (3.42)	0.03
12		3.41 (2.69)	2.65 (3.01)	0.07
15-19	18	5.98 (4.19)	5.42 (5.33)	0.24
35-44		16.00 (7.30)	17.73 (8.61)	0.10
65-74		25.96 (9.82)	21.56 (11.95)	0.05

* dft data

Table 3. Comparison of the dental caries profile of Monte Negro (2008) and rural riverine populations (2005-2006)

The sustainability of the Project "USP in Rondônia" has always been a concern since its beginning. Since 2005, it has invested in training courses for teachers and community health professionals. The Course in Health Education Project believes that this type action is of fundamental importance, because these professionals have the function to multiply information for this population, providing autonomy and independence.
Investments, acquisitions of new equipment, means of divulgation within and outside the academic community and the motivation of the teamwork involved provides higher credibility and support to the entire population for this project. The assessments are made on each shipment of activities undertaken and the results obtained for both the team's work and for the population served, so new actions are planned constantly according to the observed changes in the pattern of the population's health.

6. Final considerations

"Health promotion is the process of enabling people to increase control over, and to improve, their health. To reach a state of complete physical, mental and social well-being, an individual or group must be able to identify and to realize aspirations, to satisfy needs, and to change or cope with the environment. Health is, therefore, seen as a resource for everyday life, not the objective of living. Health is a positive concept emphasizing social and

personal resources, as well as physical capacities. Therefore, health promotion is not just the responsibility of the health sector, but goes beyond healthy life-styles to well-being". This part of the Ottawa Charter (1986) is still in context.

The individual health counseling toward changing personal behavior will not last if there is no frequency in sessions. A community in need of health promotion must be accessed by two main aspects, a common risk factor and the population approach, as "Project USP in Rondônia" has been doing since 2002.

7. References

[1] Watt RG. Strategies and approaches in oral disease prevention and health promotion. Bull World Health Organ. 2005;83(9):711-8.

[2] Kumar S, Goyal A, Tadakamadla J, Tibdewal H, Duraiswamy P, Kulkarni S. Oral health related quality of life among children with parents and those with no parents. Community Dent Health. 2011;28(3):227-31.

[3] Saintrain MV, de Souza EH. Impact of tooth loss on the quality of life. Gerodontology. 2011.

[4] WHO. Constitution of World Health Organization. New York: World Health Organization; 1946.

[5] Chaves M. Odontologia Social. São Paulo: Artes Médicas; 1986. 448 p.

[6] Yewe-Dyer M. The definition of oral health. Br Dent J. 1993;174(7):224-5.

[7] Sícoli JL, Nascimento PR. Promoção de saúde: concepções, princípios e operacionalização. Interface: Comunicação, Saúde, Educação. 2003;7(12):101-22.

[8] Nunes ED. Henry Ernest Sigerist: pioneiro da história social da medicina e da sociologia médica. Educ Med Salud. 1992;26(1):70-81.

[9] Lalonde M. A new perspective on the health of Canadians. Ottawa: Ministry of Supply and Services of Canada; 1981.

[10] Heidmann ITSB, Almeida MCP, Boehs AE, Wosny AM, Monticelli M. Promoção de saúde: trajetória histórica de suas concepções. Texto Contexto Enfermagem. 2006;15(2):352-8.

[11] WHO, UNICEF. Declaration of Alma Ata. International Conference on Primary Health Care. Alma Ata: World Health Organization; 1978.

[12] WHO. 1st Global Conference on Health Promotion: Ottawa 1986. Geneve: WHO; 1986.

[13] WHO. 2nd Global Conference on Health Promotion: Adelaide 1988. Geneve: WHO; 1988.

[14] WHO. 3rd Global Conference on Health Promotion: Sundsvall 1991. Geneve: WHO; 1991.

[15] WHO. 4th Global Conference on Health Promotion: Jakarta 1997. Geneve: WHO; 1997.

[16] WHO. 5th Global Conference on Health Promotion: Mexico 2000. Geneve: WHO; 2000.

[17] WHO. 6th Global Conference on Health Promotion: Bangkok 2005. Geneve: WHO; 2005.

[18] WHO. 7th Global Conference on Health Promotion, Nairobi 2009. Geneve: WHO; 2009.

[19] Lefèvre F, Lefèvre AMC. Promoção de saúde: a negação da negação. Rio de Janeiro: Vieira & Lent; 2004.

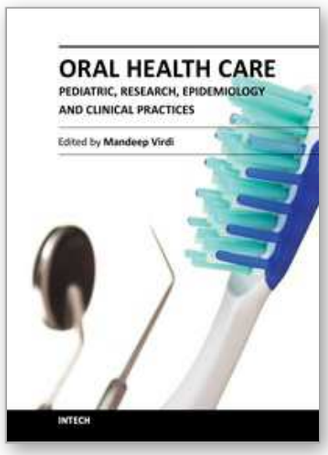
[20] Westphal MP. Promoção da saúde e prevenção de doenças. In: Campos GWS, Minayo MCS, Akerman M, Júnior MD, Carvalho YA, editors. Tratado de saúde coletiva. Rio de Janeiro: FIOCRUZ; 2006.

[21] Buss PM. Promoção de saúde e qualidade de vida. Ciênc Saúde Coletiva. 2000;5(1):163-77.
[22] Menossi MJ, Oliveira MM, Coimbra VCC, Palha PF, Almeida MCP. interdisciplinaridade: um instrumento para a construção de um modelo assistencial fundamentado na promoção da saúde. Rev Enferm UERJ. 2005;13:252-6.
[23] Silva JG, Gurgel AA, Frota MA, Vieira LJES, Valdés MTM. Promoção da saúde: possibilidades de superação das desigualdades sociais. Rev Enferm. 2008;16(3):421-5.
[24] Czesrenia D, Freitas CM. Promoção de saúde: conceitos, reflexões , tendências. Rio de Janeiro: FIOCRUZ; 2003.
[25] Marcondes WB. A convergência de referências na promoção da saúde. Saúde e Sociedade. 2004;13(1):5-13.
[26] Dahlgren G, Whitehead M. Policies and strategies to promote social equity in health. Stockholm: Institute for Future Studies; 1991.
[27] Watt RG. From victim blaming to upstream action: tackling the social determinants of oral health inequalities. Community Dent Oral Epidemiol. 2007;35(1):1-11.
[28] Woodward M, Walker AR. Sugar consumption and dental caries: evidence from 90 countries. Br Dent J. 1994;176(8):297-302.
[29] Helöe LA, Haugejorden O. "The rise and fall" of dental caries: some global aspects of dental caries epidemiology. Community Dent Oral Epidemiol. 1981;9(6):294-9.
[30] Dijs F. [Sugar and the birth of dentistry]. Ned Tijdschr Tandheelkd. 2004;111(6):243-5.
[31] Moore WJ. The role of sugar in the aetiology of dental caries. 1. Sugar and the antiquity of dental caries. J Dent. 1983;11(3):189-90.
[32] Newbrum E. Cariology. Baltimore: Williams & Wilkins; 1983.
[33] Jiménez-Farfán MD, Hernández-Guerrero JC, Juárez-López LA, Jacinto-Alemán LF, de la Fuente-Hernández J. Fluoride consumption and its impact on oral health. Int J Environ Res Public Health. 2011;8(1):148-60.
[34] Tenuta LM, Cury JA. Fluoride: its role in dentistry. Braz Oral Res. 2010;24 Suppl 1:9-17.
[35] McGrady MG, Ellwood RP, Pretty IA. Why fluoride? Dent Update. 2010;37(9):595-8, 601-2.
[36] Marthaler TM. Changes in dental caries 1953-2003. Caries Res. 2004;38(3):173-81.
[37] Rose G. Sick individuals and sick populations. Int J Epidemiol. 1985;14(1):32-8.
[38] Rose G. Sick individuals and sick populations. 1985. Bull World Health Organ. 2001;79(10):990-6.
[39] Rose G. Sick individuals and sick populations. Int J Epidemiol. 2001;30(3):427-32; discussion 33-4.
[40] Rose G. High-risk and population strategies of prevention: ethical considerations. Ann Med. 1989;21(6):409-13.
[41] Baelum V, Sheiham A, Burt B. Controle da cárie em populações. In: Fejerskov O, Kidd E, Nyvad B, Baelum V, editors. Cárie dentária: a doença e seu tratamento clínico. São Paulo.: Santos; 2011. p. 616.
[42] Silva RH, Castro RF, Cunha DC, Almeida CT, Bastos JR, Camargo LM. [Dental caries in a riverine community in Rondônia State, Amazon Region, Brazil, 2005-2006]. Cad Saude Publica. 2008;24(10):2347-53.

[43] Bastos RS, Silva RP, Maia-Junior AF, Carvalho FS, Merlini S, Caldana ML, et al. Dental caries profile in Monte Negro, Amazonian state of Rondônia, Brazil, in 2008. J Appl Oral Sci. 2010;18(5):437-41.

[44] Béria JU, Raymann BC, Gigante LP, Figueiredo AC, Jotz G, Roithman R, et al. Hearing impairment and socioeconomic factors: a population-based survey of an urban locality in southern Brazil. Rev Panam Salud Publica. 2007;21(6):381-7.

[45] WHO. Ear and hearing disorders survey. Protocol for a population-based survey of prevalence and causes of deafness and hearing impairment and other ear diseases. Prevention of Blindness and Deafness (PBD). Geneva: WHO; 1999.



Oral Health Care - Pediatric, Research, Epidemiology and Clinical Practices

Edited by Prof. Mandeep Virdi

ISBN 978-953-51-0133-8
Hard cover, 302 pages
Publisher InTech
Published online 29, February, 2012
Published in print edition February, 2012

Oral health care in pediatric dentistry deals with complete oral health, including preventive aspects for children right from their conception to adolescence, encompassing all the spheres of dentistry including various specialties. It also includes planning a preventive program at individual and community levels. The current research interests in oral health care include studies regarding the role of stem cells, tissue culture, and other ground-breaking technologies available to the scientific community in addition to traditional fields such as anatomy, physiology, and pharmaceuticals etc of the oral cavity. Public health and epidemiology in oral health care is about the monitoring of the general oral health of a community, general afflictions they are suffering from, and an overall approach for care and correction of the same. The oral health care-giver undertakes evaluation of conditions affecting individuals for infections, developmental anomalies, habits, etc. and provides corrective action in clinical conditions. The present work is a compendium of articles by internationally renowned and reputed specialists about the current developments in various fields of oral health care.

INTECH
open science | open minds

InTech Europe
University Campus STeP Ri
Slavka Krautzeka 83/A
51000 Rijeka, Croatia
Phone: +385 (51) 770 447
Fax: +385 (51) 686 166
www.intechopen.com

InTech China
Unit 405, Office Block, Hotel Equatorial Shanghai
No.65, Yan An Road (West), Shanghai, 200040, China
中国上海市延安西路65号上海国际贵都大饭店办公楼405单元
Phone: +86-21-62489820
Fax: +86-21-62489821

IntechOpen