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Oral health and Primary Health Care

Has the goal been achieved yet?

The UNRWA case

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## **Abstract**

**Aim** - In September 1978 the *Alma Ata Declaration* on Primary Health Care (PHC) was signed by the World Health Organization and the United Nations Children's Fund and recognized as the leading way to the achievement of the ambitious goal of "Health for All by the year 2000". The message from Alma Ata echoed worldwide as revolutionary: inadequate and unequal health care was economically, socially and politically unacceptable.

The aim of this study is to provide recommendations to address oral health according to PHC and to describe a realistic model.

**Methods** - The United Nations Relief and Work Agency for Palestine Refugees in the Near East (UNRWA) oral health services were evaluated in Lebanon, Jordan and Syrian Arabic Republic and analyzed according to PHC.

**Results** - Today UNRWA oral health services face an increasing demand for oral care among refugees and thus they need to be effective and sustainable. UNRWA efforts towards the strengthening of its public health programme together with its commitment to PHC are both very important and valuable resources in meeting the goal of good health and general well being for Palestine Refugees.

**Conclusions** - Oral health is strictly connected to general health. PHC is an approach to health that goes far behind from the paradigm health-illness by recognizing determinants of health. Oral interventions rarely follow PHC worldwide. The global problem lays in the approach to oral health. The overall answer is choice.

**Oral health and Primary Health Care**  
**Has the goal been achieved yet?**

*The UNRWA case*

## **Part I - General Introduction**

*We all want to help one another.*

*Human beings are like that.*

*We want to live by each other's happiness not by each other's misery.*

- Charlie Chaplin, *The Great Dictator*, 1940

## 1. Addressing health

On October 4<sup>th</sup>, 1972, Professor Giulio Alfredo Maccacaro reported back to the President of the Medical Association of Milan in Italy: he had been reprimanded for a lecture he held in Perugia, Umbria, about *Informazione medica e partecipazione (Medical information and participation)*. That lecture described the role of medicine in the market economy, the consequent risks for medical practice (and approach to disease), the liability and complicity of medical information.

Maccacaro (1924 - 1977) was a physician, lecturer in many European and North American universities and is remembered for his research into medical statistics, biometrics and the recognition of the environmental and working causes of disease. After the rebuke by the President of his local Medical Association, Maccacaro replied with a pungent letter, which later on became the preface of the Italian translation of *La médecine du capital* by Jean-Claude Polack <sup>(1)</sup>.

Today, with medical advertisements everywhere and echoes of dreadful starvation overseas, this letter can help us to better understand (or to recall, if necessary) the true meaning of health. The following and other passages reported in this paragraph are parts of the letter.

He was a worker, 32 years old, with a wife and two children. He was also a voluntary blood donor, regularly carrying a card. One August morning, returning from a night shift at the factory, he was called. He left and gave 300 cc of blood; he went home and died before dawn. He died from a heart attack after a day of uneasiness. But was it an inescapable misfortune? That man had a heart defect: a mitral regurgitation, which had been diagnosed previously in a different place. An ear on his chest would have been enough to make the diagnosis: but the doctors in the organization where that worker donated his blood never even gave him a check up. [...] I only say that the worker died because [...] medicine had used him as an object. It was his fault that he did not understand that, his faults were confidence and altruism, a pure expression of the desire to reaffirm his own humanity. [GA Maccacaro. Translation from Italian by the author]

It is well acknowledged that health is a human right.

From the World Health Organization (WHO) Constitution, “the enjoyment of the highest attainable standard of health is one of the fundamental rights of every human being”<sup>(2)</sup>.

Rights are indeed standards that apply to all human beings<sup>(3)</sup>; they are inalienable, guaranteed by States and the international community and legally protected<sup>(4)</sup>, as reported in the *Universal Declaration of Human Rights* proclaimed by the United Nations General Assembly in Paris on December 10<sup>th</sup>, 1948<sup>(5)</sup>.

The 12<sup>th</sup> article of the *International Covenant on Economic, Social and Cultural Rights*, adopted by the United Nations (UN) General Assembly in 1966<sup>(6)</sup>, recognized “the right of everyone to the enjoyment of the highest attainable standard of physical and mental health”; in 2000 the Committee on Economic, Social and Cultural Rights, an independent body under the UN Economic and Social Council delegated to monitor the implementation of the Covenant, stated “a duty on each State to take whatever steps are necessary to ensure that everyone has access to health facilities, goods and services so that they can enjoy, as soon as possible, the highest attainable standard of physical and mental health”<sup>(7)</sup>.

Health is recognized as “a state of complete physical, mental and social well being and not merely the absence of disease or infirmity”<sup>(2)</sup>; it is related to many other rights like the right to life, education, safe and secure housing, employment and many others. Achieving this is both people’s right and duty. Most of all, it is in people’s interest.

### *1.1 Why good health is a common interest?*

Individuals share the same interest in the community they belong to. Nobody can be really healthy if health is not guaranteed to all, also nobody is protected by Law if the same laws do not actually protect all other members of society.

This may sounds obvious but whenever the right to health is questioned, or it is only in name, everyone is at risk: more people will face the direct risk of losing



that right and everyone will be exposed to indirect consequences (among many others the spread of uncontrolled diseases).

David Werner, co-funder of the Hesperian Foundation, introducing the book by Murray Dickson *Where there is no dentist*, depicts a very clear representation of the link existing between individual and community health. He writes: “the health of the teeth and gums is related to the health of the whole person, just as the well being of a person is related to the health of the entire community”<sup>(8)</sup>.

Surely, it is not by chance that the 32<sup>nd</sup> Article of the *Italian Constitution*<sup>(9)</sup>, when referring to health, relates to “individuals” and not only to Italian citizens. This is to remind that every human being, setting foot in Italy, has the right to health care, which is in his and everybody’s interest.

Moreover, health is related to development.

In December 2001, WHO presented *Macroeconomics and Health: Investing in Health for Economic Development*, a report of the Commission on Macroeconomics and Health, presided by Professor Jeffrey D. Sachs. The report pointed out that:

- The role of health has been underestimated as a central input into economic development and poverty reduction;
- Investing in health leads to increased income, productivity, educational attainment, saving and investing;
- Good health and economic growth both lay in the same virtuous circle, each one being the flywheel for the other.

Gregorio Monasta, in *Infant mortality and integrated human development*<sup>(11)</sup>, reports that development “is only possible if there is an accumulation of energy, calories and capital. All these factors are equivalent to each other and equivalent to the concept to have more time to think, i.e. equivalent to living more humanly”. This passage clearly resumes the relationship existing between development and health as prosperity and social well being.

This is the key for effective development.

“Yet now the recognition that we share responsibilities and fates across the social divide will need to be extended internationally so that the world as a whole takes care to ensure sustainable development in all regions of the world”. These are words by Jeffrey D. Sachs from *Common wealth – Economics for a crowded planet* <sup>(12)</sup>.

Additionally, it is worth to recall President Kennedy’s speech, the *Peace Address* <sup>(13)</sup>, he held at the American University in June 1963:

So, let us not be blind to our differences - but let us also direct attention to our common interests and to the means by which those differences can be resolved. And if we cannot end now our differences, at least we can help make the world safe for diversity. For, in the final analysis, our most basic common link is that we all inhabit this small planet. We all breathe the same air. We all cherish our children's future. And we are all mortal.

Despite this, our small and crowded planet is an unequal one, unequal for wealth, technologies, means and health, too.

### *1.2 What is the burden of health inequities?*

Of the 2,736 billion people living on earth at the end of 1968, almost two thirds (i.e. 1,733 billions) lived in areas where there was malaria. Of these 1,733 billions, only 651 – a little more than one third! - live in areas from which malaria has been eradicated. This explains how it is possible (even if it’s repulsive) that – for a disease which we have known all about for some time and with every preventive and curative mean at hand – in the Sixties 100 - 250 million people were affected and 1-2.5 of them died per year. So, if you look not only at what and when but also how and where these deaths occurred, you find with topographic clarity how the countries of colonialism, military in the past and economic today, [...] have freed themselves from malaria, leaving it to the same countries they had already exploited and bled. No, Mr. President, do not say that this interpretation is tendentious. I call Belgium and The Congo to witness the truth. How long and cruel was the

martyrdom imposed from the first to the second by the lure of wealth is universally known. It is also known that throughout The Congo malaria is still endemic while in Belgium it is unknown. But it is not the fault of the Belgians - you argue – if their country belongs to Northern-Europe, while The Congo belongs to subtropical Africa! Instead it is the fault of the Belgians - I mean of the colonial capital of Brussels – to have first shown that it is possible to eradicate malaria, regardless of latitude, and then to have limited that demonstration to the areas of the white colony settlements! [G.A. Maccacaro. Translation from Italian by the author]

Literature is rich of evidence-based research describing the global burden of disease and inequities. Among many others it is worth to remind the strong effort of Italian organizations like the Italian Global Health Watch, Doctors for Human Rights, The Centre for International Health, the Società Italiana di Medicina delle Migrazioni and the web blog Salute Internazionale\* for rising global concern for these main themes.

Unfortunately, the problem is still underestimated nowadays: it is not widely taught in universities or effectively divulged; moreover, it is not felt as a concern by the majority of medical staff and practitioners.

It is proper to distinguish between inequality and inequity in health.

Inequality in health relates to differences that are naturally inevitable, good and even necessary (genetics, age or gender) and are the basis for individual and biological variability.

Inequity in health relates to all those differences that are avoidable and unnecessary: they can be among countries or among different classes within the same country; for example they can refer to access to care, health outcomes,

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\* For further reading, see:

OISG - [http://www.saluteglobale.it/index.php?option=com\\_frontpage&Itemid=1](http://www.saluteglobale.it/index.php?option=com_frontpage&Itemid=1)

MEDU - <http://www.mediciperidirittiumani.org>

CIS - <http://csiunibo.org>

SIMM - <http://www.simmweb.it>

Salute Internazionale - <http://saluteinternazionale.info>

exposition to risk factors, different (and unequal) access to social security, education, housing, and so on.

The following is just a very short list of all the existing inequities in health today.

- Every year more than 10 millions of children below 5 years of age die due to preventable diseases, 90% of those in low-income countries worldwide. These deaths could be easily avoided by simple and cost-effective interventions such as oral rehydration for diarrhoea, breast-feeding, safe delivery for mothers, vaccinations and vitamin A administration <sup>(14)</sup>.
- Every year malaria affects 250 millions people and leads to 1 million deaths, contributing to 20% of all childhood deaths in Africa even though proper and effective drugs are available nowadays <sup>(15)</sup>.
- In 2008, less than half of the 9.7 millions people in need for antiretroviral drugs for HIV/AIDS in middle- and low-income countries had access to proper treatment <sup>(16)</sup>.
- Low-income countries share 99% of all maternal deaths worldwide, with more than half of those occurring in sub-Saharan Africa. Moreover, the maternal mortality ratio is up to 100 times higher in low-income than in high-income countries <sup>(17)</sup>.

All these facts relate to health, to the health of our common global community, to our health.

Therefore it is not exaggerated that many authors addressed this as a “scandal” <sup>(18,19)</sup> or as a deliberate “genocide” <sup>(20)</sup> referring to those millions of children dying every year under 5 years of age.

Health inequities are multiplying (starting from the 80s) and are nowadays hampering any sustainable development. On the other hand, like every inequity, these are the flywheel for new ones to come.

The words by Dr. Eduardo Missoni at the 7<sup>th</sup> Swiss Health Cooperation Symposium are exemplary <sup>(21)</sup>. He recalled that:

- Health for everyone is an indispensable condition to the attainment of peace and security for the world;
- Health for everyone depends upon the fullest cooperation between individuals and states;
- Unequal health promotion and control of diseases are common dangers;
- The nature of health-related issues is global and it is connected with international relations.

### *1.3 Looking beneath diseases*

*Mr. President, the child born today in an industrially developed country has an average life expectancy of around seventy, while from the Greek-Roman times throughout the eighteenth century life expectancy did not exceed thirty years. The same difference exists today between a child born in our countries and a newborn baby in underdeveloped countries. In time and space, it is thus ascertained that the industrial transformation has increased the life expectancy of men. News of this kind is subject to continuous and even scholastic disclosure: they are familiar to all and, perhaps, even to you, too. But it is not taught, not disclosed, and then it is not known that the average lifetime did not use to be distinguished among social classes until the beginning of the industrial revolution: from this point, death and illness learnt to discriminate more and more carefully and strictly within the same community, between rich and poor. [GA Maccacaro. Translation from Italian by the author]*

The facts described above cannot be solved by medical care alone nor can they be addressed by trying to control single diseases but they require a wider comprehensive approach.

Malaria does not kill children only because of *plasmodia* just as women do not die during delivery solely for infective reasons.

They all die for more “distal” reasons, for which additional questions need to be answered.

Why did that child die from malaria?

- *Because he was bitten by flies.*

And why was he bitten?

- *Because there were no nets at his windows.*

Or, why he could not be treated for malaria?

- *Because his mother had not enough money for drugs or for the bus to the local hospital.*

- *Because there were no drugs at the health centre nor enough skilled health workers.*

This could be endless.

Health determinants help to explain the health status of people and communities and can be considered the basis of public health <sup>(22)</sup>. The model about determinants of health proposed by Dahlgren & Whitehead in 1991 <sup>(23)</sup> describes the whole framework of conditions affecting the onset and evolution of diseases.

Different levels are considered with a bottom-up approach:

- The lower level is the individual one with its unmodifiable (the only ones of this list) aspects like age, gender and genetics;
- The second level is life and health behaviour;
- The third is the social and community network;
- Then come people's living and working conditions (alimentation, education, working environment, income, water systems and sewerage, health services and housing);
- Finally, there are the general socio-economic, cultural and environmental conditions.

It is worth mentioning that all these determinants can affect the single disease before and after its occurrence: they can determine it as well as they can drive its outcome.

Different models have been proposed to describe and weight how different factors can influence health. Emphasis can be put on life-style and personal behaviours <sup>(24)</sup>

but forgetting “higher” levels can take away from the true comprehension (and responsibilities) of health determinants.

Determinants of health are nowadays at the core of political and medical discussion, as it will be further discussed in Part II.

In a recent review published in *Globalization and Health*, authors tried to address the relation between contemporary globalization and the social determinants of health <sup>(25,26,27)</sup>. They described how globalization can influence health (and equity in health) and what are the possible pathways.

Not surprisingly they identified such pathways in labour market and global production, trade liberalizations and poverty, use of natural resources and environment, financial crisis and marketplace, marketisation of health systems (state-owned enterprises acting like market-oriented firms according to Milton Friedman theories) <sup>(28)</sup>. Authors concluded that “interventions to reduce health inequities by way of social determinants of health are inextricably linked with social protection policy, economic management and development strategy” and hope for additional and more extensive research on determinants of health.

Truth to be told, there is a line of discrimination among social classes – a true unbridgeable social rift – going through every health system, as Maccacaro wrote in the Seventies.

#### *1.4 A reflection*

Limits of medicine are evident and natural. Life is indeed in strict linkage with decaying (and death).

Medicine involves shifting the exponential decay curve of human potential a little along the time-axis, in the words of Athar Yawar, the Lancet editorialist <sup>(29)</sup>.

Medicine can help us to ease and better face the inescapable and natural decaying. This may seem obvious but it is often forgotten and disguised by advertisements

and health (bad-)education.

Agreeing with this, medicine is entrusted to address the health needs of people, to protect their health, to prevent the occurrence of disease, to recognize whenever prevention has failed and urgently cure all those condition that were not possible to prevent. Moreover, medicine is called upon to recognize (and act on) all those aspects of human life that are connected to health; health descends indeed from social, economic and environmental conditions: social security and protection, sustainable development, employment, housing, safe water and waste management, fair trade are some of the key factors for general and individual well being.

By the way, while some people are claiming today for better health over the natural life course and futile drugs for more and more specific problems, inequity spreads everywhere, in the streets, within countries, in the whole world, firstly affecting the vast majority of people and secondary all of us.

It is dramatically true that, even nowadays, the availability of health care vary inversely with the need for it, according to the so-called *Inverse Care Law*, described by Tudor Hart back in 1971 <sup>(30)</sup>.

Maccacaro described how the most brilliant successes of biomedical sciences cannot reach those people who are most in need of them <sup>(31)</sup> and highlights that even more than 40 years ago, health and health research was not for all: “from about 20 years (in the word of David Rutstein), our health does not know any more progress and, strangely enough, this conflicts with a large expansion of medical scientific research... That expansion, along with the worsening of the health setting, symbolizes the paradox of modern medicine <sup>(32)</sup>.

The Global Forum for Health Research <sup>(33)</sup>, an independent, international organization committed to demonstrating the essential role of research and innovation for health and equity in health, reports how this dreadful fact (inequity in health) must not be of any wonder when considering that already in 1990, the



Commission on Health Research for Development estimated that “only about 5% of the world's resources for health research [...] were being applied to the health problems of low- and middle-income countries, where 93% of the world's preventable deaths occur”<sup>(34)</sup>.

Addressing health, especially this picture of health, requires analysis and decisions. Public Health, along with Epidemiology, can depict settings and situations, make decisions and implement relevant strategies.

Above all, Politics, relating to all the aspects of human life and health, has the mandate (and the capacity) to mould that “picture”.

## 2. Aim of this thesis

This thesis aims to propose a relevant oral health model. Primary Health Care (PHC), as the statement jointly recognized by WHO and UNICEF in 1978, will be benchmark for this proposal.

This thesis will not provide absolute nor exhaustive recommendations: any setting will require different approaches and strategies.

The evaluation of the Oral Health Services of the United Nation Relief and Work Agency for Palestine Refugees in the Near-East (UNRWA), conducted in 2008 and 2009, will be a practical example for the proposal.

Specific aims of this thesis:

- To provide recommendation to address oral health according to PHC;
- To describe a realistic model to address oral health - the UNRWA case.

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## Part II - Oral health and Primary Health Care

*I saw a beautiful woman with bandaged eyes  
Standing on the steps of a marble temple.  
Great multitudes passed in front of her,  
Lifting their faces to her imploringly.  
In her left hand she held a sword.  
[...] In her right hand she held a scale;  
[...] Then a youth wearing a red cap  
Leaped to her side and snatched away the bandage.  
And lo, the lashes had been eaten away  
From the oozy eye-lids;  
The eye-balls were seared with a milky mucus;  
The madness of a dying soul  
Was written on her face –  
But the multitude saw why she wore the bandage.*

- Edgar Lee Masters, *Spoon River Anthology*, 1915

## 1. Decades of “healthy” policies

In *The Conscience of a Liberal – Reclaiming America from the Right* <sup>(1)</sup>, Paul Krugman, Nobel Prize for Economics in 2008, points out:

The United States, uniquely among wealthy nations, does not guarantee basic health care to its citizens. [...] What do we think is the morally right thing to do? There is a morally coherent argument against guaranteed health care, which basically comes down to saying that life may be unfair, but it’s not the job of the government to rid the world of injustice.

In his clear analysis made at the end of the Bush era, Krugman explains how universal care is possible and urgent for the United States and remarks some very simple but significant facts: the United States, relying on private health insurance (and having 15% of the population without any), spends twice as much on health care per person as Canada, France, Germany or Britain – yet its life expectancy is at the bottom of western countries.

This chapter aims to briefly recall the most significant and recent steps leading to the current health situation worldwide: how health has been addressed, how health policies have changed in the last decades, which kind of answer have been given to the question “what is the right thing to do”?

Facts reported are mainly derived from three references:

- *Politica, Salute e Sistemi Sanitari (Politics, Health and Health Systems)* by Professor Gavino Maciocco <sup>(2)</sup>, published in 2009;
- *From Alma-Ata to the Global Fund: the history of international health policy*, a paper by Professors Gavino Maciocco and Angelo Stefanini published in 2007 <sup>(3)</sup>;
- *Evolution of Global Health Policies since the Alma Ata Conference*, a lecture by Professor Eduardo Missoni presented at the 7<sup>th</sup> Swiss Health

Cooperation Symposium – 30 years after Alma Ata: the Future of Community Health – Basel on November 2008 <sup>(4)</sup>.

### *1.1 Birth of a modern health system*

Some facts occurred in Europe since the beginning of the XIX° and the first half of the past century: thus, the main framework for the birth of the modern health system was settled.

Fleeing away from the countryside, more and more people inhabited cities all over whole Europe. Soon afterwards public health concerns started to rise: more people living within city walls required effective and prompt resolution for waste management, sewage systems and water works.

In England, a massive policy for environmental reclamation was undertaken while the first national public health services was created under the *Public Health Act* in 1848.

Social protection became a common concern in Europe. In the last decades of the XIX° century, Otto Bismark introduced a series of reforms in Germany: compulsory health insurance, industrial accident insurance, disability and retirement protection. All these reforms were aimed to work as a restrain to social revolution.

Since the XVIII° century mutual assistance had spread to many European countries: voluntary organizations of workers and craftsmen (from the original *Friendly Societies* in England) were providing economic protection to their members. At the beginning of the XX° century the voluntary basis of this associations demonstrated its weakness and the fact of being obligatory gained ground.



Later on, the Welfare State became a prospective for the whole society and no longer for specific classes of workers. After the economic crisis in 1929, Franklin D. Roosevelt, President of the United States of America, introduced strong and universal social reforms aimed to social security, the *New Deal*. With the consequent *Social Security Act* in 1935 a wide setting of measures were instituted (retirement schemes, assistance for the elderly, the unemployed, disabled and others) but no universal health assistance, surprisingly due to the strong opposition of the American Medical Association.

Only three years later, New Zealand launched the National Health Service, which was universal and entirely funded by general tax contribution.

### *1.2 After the World War II*

1948

Great Britain remarked on the recognition of health as a fundamental human right and launched its National Health Service; universal care and services were free of charge; it was funded through general tax contribution.

From now on, different models were proposed and experimented in the world: European countries, Canada, Japan, URSS endorsed universal health systems (with many significant differences between them). The United States remained an exception where a definitive health reform will never come.

1948

On December 1948 the General Assembly of the United Nations adopted and proclaimed the Universal Declaration of Human Rights <sup>(5)</sup>. All UN member countries were called upon to publicize the Declaration especially in schools and other educational institutions.

The Declaration recognized “the inherent dignity of the equal and inalienable rights of all members of the human family is the foundation of freedom, justice and peace in the world”.

Article 25 stated that:

- Everyone has the right to a standard of living adequate for the health and well being of himself and of his family, including food, clothing, housing and medical care and necessary social services, and the right to security in the event of unemployment, sickness, disability, widowhood, old age or other lack of livelihood in circumstances beyond his control;
- Motherhood and childhood are entitled to special care and assistance. All children, whether born in or out of wedlock, shall enjoy the same social protection.

1949

On April 7<sup>th</sup>, the World Health Organization was established as a prosecutor of the Health Organization of the League of Nations born from the Treaty of Versailles. According to the WHO Constitution some of the functions of the Organization are (6):

- To act as the directing and co-ordinating authority on international health work;
- To assist governments, upon request, in strengthening health services;
- To provide or assist in providing, upon the request of the United Nations, health services and facilities to special groups, such as the peoples of trust territories;
- To promote, in co-operation with other specialized agencies where necessary, the improvement of nutrition, housing, sanitation, recreation, economic or working conditions and other aspects of environmental hygiene;
- To propose conventions, agreements and regulations, and make recommendations with respect to international health matters and to perform such duties as may be assigned thereby to the Organization and are consistent with its objective;
- To promote maternal and child health and welfare and to foster the ability to live harmoniously in a changing total environment;
- To promote improved standards of teaching and training in the health, medical and related professions;
- To assist in developing an informed public opinion among all peoples on

matters of health;

- To standardize diagnostic procedures as necessary;
- To develop, establish and promote international standards with respect to food, biological, pharmaceutical and similar products.

### 1.3 The Seventies

1977

The World Health Assembly adopted the goal of *Health for all by the year 2000* as the main target for Governments and WHO.

The benchmark was a level of health that would have allowed people to lead a socially and economically productive life <sup>(7)</sup>.

1978

On September 6<sup>th</sup>-12<sup>th</sup> the International Conference on Primary Health Care was held in Alma Ata, Kazakhstan, former URSS. Proposed by WHO and UNICEF, it was an historic event because:

- For the first time, all states were gathering for the definition and the promotion of universal health care;
- For the first time, concerns about poor nations and their health systems arose (after the colonialist era);
- Health was associated to the concept of development;
- The Conference reaffirmed that health “is a state of complete physical, mental and social well being, and not merely the absence of disease or infirmity, is a fundamental human right and that the attainment of the highest possible level of health is a most important world-wide social goal whose realization requires the action of many other social and economic sectors in addition to the health sector” <sup>(8)</sup>.

Health care was defined as “comprehensive”, not only relevant for countries’ health systems but for the entire social and economic development, focusing on equity and community participation, prevention, child and maternal care and appropriate technology, including all components related to development (such as education, employment, housing, agriculture, breeding, industry, public works) and calling for mutual coordinated efforts and cooperation.

PHC was recognized as the best strategy to achieve the goal of health for all.

1979

Less than a year later the Alma-Ata Conference, PHC was recognized as idealistic by governments and international agencies pushing for a more technical approach.

The comprehensive approach was betrayed for a Selective PHC: the spotlight moved from health to single diseases.

WHO, UNICEF, World Bank and UNDP accepted this concept following the now spreading free trade policy. The focus was now on a medical approach to health instead on a development approach: vertical programmes for the control of specific diseases were enforced while community involvement, inter-sector cooperation, economic development, environment and inequities were left out as not relevant for health.

#### *1.4 The Eighties*

Inequity is not consistent to freedom. This has been the leading principle of welfare reforms in western countries starting from the Forties of the last century.

Nevertheless, a different tendency was spreading in the Eighties.

From the preface of *A Caro Prezzo – le disuguaglianze nella salute (Great Cost – inequities in health)*, the second report of the Italian Global Health Watch <sup>(9)</sup>:

Reasons for the Free Trade hegemonic tendency starting in 1979/1980 (years of the landslide victories of M. Thatcher in Great Britain and R. Regan in the United States) are: 1. Market is the

best and more efficient way to allocate resources, both for production and distribution of wealth; 2. Autonomous individuals (producers and consumers) compose society, mainly or entirely driven by economic and material reasons; 3. Welfare state [...] is inclined to mitigate social inequities, interferes with the normal functioning of the market and, where existing, must be debased.

[...] Inequity is the necessary by-product of an efficient economy and it is even “fair”: when someone gets into the market, someone else must get out it.

Therefore, a government willing to rectify “distortions” of the market is not only inefficient but even unfair; R. Regan’s motto was indeed: “government is not the solution to our problem; government is the problem”. [Translation from Italian by the author]

The international oil crisis in the 70s utterly marked the weak political and economic systems of many African and other low-income countries worldwide. In the 80s, The World Bank (WB) replied to this crisis with the so-called *structural adjustment* to finance credit to poor and indebted countries: spending cuts (education and health), privatization, abolition of protection barriers, and depreciation of currencies.

The WB increased its interest in the health sector <sup>(10,11)</sup>: under the *structural adjustment* countries are pushed to adopt fee payment for health services, to privatize health services, to advance private insurances, to enhance decentralization of health care management. As a matter of fact, this led to the collapse of health systems and the worsening of people health status.

1986

On November 21<sup>st</sup>, 1986 the *Ottawa Charter for Health Promotion* was ratified by the First International Conference on Health Promotion <sup>(12)</sup> and co-sponsored by the Canadian Public Health Association, Health and Welfare Canada, and the WHO.

The Charter remarked strongly upon the importance of the Declaration of Alma-Ata, reaffirming the unavoidable influence of policies on health and the urgent need to put health on the political agenda at all levels.

More specifically the Charter affirmed:

- Health is a resource for everyday life, not the objective of living; health

promotion is not just the responsibility of the health sector, but goes beyond healthy life-styles to well being;

- Peace, shelter, education, food, income, a stable eco-system, sustainable resources, social justice, and equity are prerequisites for health;
- Political, economic, social, cultural, environmental, behavioural and biological factors can all favour health or be harmful to it; health promotion action aims at making these conditions favourable through advocacy for health;
- Health promotion action aims at reducing differences in the current health status and ensuring equal opportunities and resources to enable all people to achieve their fullest health potential;
- People cannot achieve their fullest health potential unless they are able to take control of those things, which determine their health;
- Health cannot be ensured by the health sector alone but through the joint action of governments, health and other socio-economic sectors, nongovernmental and voluntary organization, local authorities, industry and the media.

The Charter enhanced Health Promotion Actions as:

- *Build Healthy Public Policy* - Health promotion is not solely health care; it puts health on the agenda of policy makers in all sectors and at all levels, directing them to be aware of the health consequences of their decisions (legislation, fiscal measures, taxation and organizational change) and to accept their responsibilities for health; the aim must be to make the healthier choice the easier choice for policy makers as well;
- *Create Supportive Environments* - The way society organizes work should help create a healthy society; health promotion generates living and working conditions that are safe, stimulating, satisfying and enjoyable;
- *Strengthen Community Actions* - At the heart of health promotion is the empowerment of communities - their ownership and control of their own endeavours and destinies. This requires full and continuous access to

information, learning opportunities for health, as well as funding support;

- *Develop Personal Skills* - Health promotion supports personal and social development through providing information, education for health, and enhancing life skills; enabling people to learn, throughout life, to prepare themselves for all of its stages and to cope with chronic illness and injuries is essential;
- *Reorient Health Services* - The responsibility for health promotion in health services is shared among individuals, community groups, health professionals, health service institutions and governments. The role of the health sector must move increasingly in a health promotion direction, beyond its responsibility for providing clinical and curative services. Reorienting health services also requires stronger attention to health research as well as changes in professional education and training;
- *Moving into the Future* - Health is created and lived by people within the settings of their everyday life; where they learn, work, play and love; health is created by caring for oneself and others, by being able to take decisions and have control over one's life circumstances, and by ensuring that the society one lives in creates conditions that allow the attainment of health by all its members.

The participants in the conference committed themselves also:

- To respond to the health gap within and between societies, and to tackle the inequities in health produced by the rules and practices of these societies;
- To reorient health services and their resources towards the promotion of health; and to share power with other sectors, other disciplines and, most importantly, with people themselves.

### *1.5 The Nineties and the new millennium*

Already in the 80s, WHO budget had shifted from regular member states' contribution to extra budgetary funds. Funds coming from “donors” (high-income countries' governments and international organizations like the WB) were pushing toward the multiplying and strengthening of vertical programmes (those focusing on single disease control and care instead of building up of sustainable basis for health and development).

This tendency endured through the 90s and in the new millennium: in 2007, the 79% of WHO funds was extra budgetary and represented the main obstacle to WHO autonomy while the WB had become its largest donor <sup>(13)</sup>.

In the 90s, WHO leadership was weakening, other strong players (the WB, other UN agencies, banks, private sector, pharmaceutical corporations and non governmental organizations - NGOs) set the pace of health reforms, the official aid was decreasing while the legitimate and delicate mandate to promote and protect health of WHO as a multilateral institution was betrayed.

Many Global Public Private Partnerships (GPPPs) were created, as the Global Alliance on Vaccines and Immunization (GAVI) or the Global Fund to Fight HIV/AIDS, Tuberculosis and Malaria (GFATM), duplicating interventions and fragmenting the global health (for all) effort.

Political, socio-economic and environmental determinants of health were poorly taken into account. Health systems became weaker, especially in low-income countries where the need to break the dependency from aid was of the utmost urgency.

1997

The Second and the Third International Conferences on Health Promotion were held in 1988 and 1991: the spirit and importance of the Alma-Ata Declaration as well as of the *Ottawa Charter* were reaffirmed while focusing on health public policies <sup>(14)</sup> and supportive environment <sup>(15)</sup>.



Eleven years after the Conference in Ottawa, The Fourth International Conference on Health Promotion is held in Jakarta, Indonesia <sup>(16)</sup>. The title of that Conference was *New Players for a New Era - Leading Health Promotion into the 21st Century*. The Conference defined Health Promotion as a key investment: health promotion impacts on the determinants of health so as to create the greatest health gain for people, to contribute significantly to the reduction of inequities in health, to further human rights, and to build social capital. The ultimate goal is to increase health expectancy, and to narrow the gap in health expectancy between countries and groups.

1998

WHO, after the change of the General Director, focused its policy on strategic corners:

- To reduce the burden of disease;
- To reduce the risks to health;
- To create sustainable health systems;
- To develop health policies to combat poverty, underdevelopment and social inequalities <sup>(17,18)</sup>.

Anyway, the current tendency to boost vertical programmes and GPPPs was again accepted by the WHO, which lost much of its authority and power.

2000

The *World Health Report 2000 - Health systems: improving performance* <sup>(19)</sup> stated to comprise “all the organizations institutions and resources that are devoted to producing health actions”. Health actions were defined as “any effort, whether in personal health care, public health services or through inter sector initiatives, whose primary purpose is to improve health”.

Despite this, the WHO recognized the role of GPPPs and vertical programmes and called for private financing <sup>(20)</sup>. Meanwhile, the newborn Commission on

Macroeconomics and Health failed to highlight the role of macroeconomic policies increasing health inequalities worldwide.

In September 2000, the United Nations Millennium Declaration was signed by all 191 UN member states. It committed world leaders to combat poverty, hunger, disease, illiteracy, environmental degradation, and discrimination against women. The United Nations Millennium Development Goals (MDGs) <sup>(21)</sup> are eight goals derived from this Declaration that all member states have agreed to try to achieve by the year 2015.

Specific indicators are assigned to the goals. Each one of the goals is determinant to and dependent from health:

- To eradicate extreme poverty and hunger;
- To achieve universal primary education;
- To promote gender equality and empower women;
- To reduce child mortality;
- To improve maternal health;
- To combat HIV/AIDS, malaria, and other diseases;
- To ensure environmental sustainability;
- To develop a global partnership for development.

Common concern and worries about if the goals would ever be met started to rise. From the Archives of Disease in Childhood, a paper published in 2007 about the current progress of MDGs <sup>(22)</sup>:

The Millennium Development Goal for child survival will not be met by 2015. According to the Countdown analysis, only seven of the 60 countries with the highest burden of under-five mortality in 2004 are on track to achieve MDG 4 [to reduce child mortality]: Bangladesh, Brazil, Egypt, Indonesia, Mexico, Nepal and the Philippines. Across Sub Saharan Africa a 10-fold increase is required in the annual rate of reduction of under five mortality. Recent survey findings from Ethiopia, Tanzania and Malawi suggest that there is new hope of sizeable reductions in child mortality in those countries.

2003

After the publishing of the *World Health Report 2003 - Shaping the Future* <sup>(23)</sup> the idea of justice as missing in health was adopted. The report claimed for strengthening health systems according to PHC principles.

2005

The *Bangkok Charter for Health Promotion in a Globalized World* held on August 11<sup>th</sup>, 2005 focused on health promotion to address the determinants of health in a globalized world <sup>(24)</sup>.

Declaration's commitment was to make health promotion:

- Central to the global development agenda;
- A core responsibility for all governments;
- A key focus of communities and civil society;
- A requirement for good corporate practice.

The same year, the Commission on Social Determinants of Health was established by the WHO to provide evidence on policies improving health by addressing the social condition of people. After 3 years of research, under the guidance of Professor Michael Marmot, in 2008 its Final Report *Closing the gap in a generation: health equity through action on the social determinants of health* was published <sup>(25)</sup>.

Main recommendations of the reports were:

- To improve the conditions of daily life (the circumstances in which people are born, grow, live, work and die);
- To tackle the inequitable distribution of power, money, and resources (the structural drivers of the above conditions of daily life) globally, nationally, and locally;
- To measure the problem, evaluate actions, expand the knowledge, develop a workforce that is trained in the social determinants of health, and raise public awareness about the social determinants of health.

The Report reflected the hope and commitment of more than a part of the health sector, concerned for the global health situation while literature started giving it prominence.

From the Lancet Editorial of August 2008 <sup>(26)</sup>:

The Commission [on Social Determinants of Health] calls for a new global agenda for health improvement and health equity. It advocates an approach to health and human development in which equity is a fundamental objective of reform. Equity matters in its own right, but it also has strong instrumental value—fuelling economic growth in low-income countries, for example. But health equity cannot be delivered by the health sector alone. The response must be across all of government and society. This broader responsibility extends not only to national governments. It affects WHO too.

From the British Medical Journal in 2008 <sup>(27)</sup>:

Many official reports have documented social inequalities in health over the past 170 years, [...] Yet, in contrast to these reports, which subtly (and not so subtly) emphasised the detrimental effects of poor health induced by poverty on economic performance, the commission firmly draws the arrow of causality from impoverished environments to ill health, something that is clear to most of the world's population (if not to some economists).

The ability of this report to make these conclusions rests on its unprecedented broad scope—unlike many other reports that have focused on one country or on groups of countries at similar economic levels, the commission has produced a global picture of economic and social deprivation that makes it impossible not to recognise the importance of economic redistribution, health care, and the direct material consequences of poverty and social inequality across the life course on health.

Once it is acknowledged that poverty, exploitation, oppression, and injustice damage health, the question is clearly what should be done and by whom?

2008

The 2008 World Health Report 2008 came back to PHC with a clear title: *Primary Health Care (Now More Than Ever)* <sup>(28)</sup>. The concern for weak and unsustainable health systems as well as critic global scenarios (for economics, politics and environment) seemed to find the only reliable answer in PHC.

### *1.6 Is any progress possible?*

From this very brief review, something seems clear: health is a board where different sectors have to confront. The best strategy, the *healthiest choice*, the right thing to do is a question which continues to arise decade after decade. Every time it seems the turning point has come but the original, authoritative and comprehensive turning point has already come more than 30 years ago.

From the lecture by Missoni:

A new trend is clearly emerging: health is a fundamental human right and [...] cannot be pursued through health care alone, nor focusing on the control of single diseases. Logic and evidence indicate that it can only be obtained through a much wider and inter-sector outlook. This, together with equity and community participation, prioritising prevention and appropriate technology, was the basis of Primary Health Care: the strategy toward 'Health for All by year 2000' adopted in 1978 in Alma Ata and soon betrayed. Thirty years later old challenges remain and new priorities have emerged. Missed targets have been postponed to 2015, but again, MDGs risk not to be met. Today, as thirty years ago, the major obstacle lays in lack of vision and political will, not of resources. In the spirit of Alma Ata, a systemic approach to health is needed, one promoting human rights and social justice, rather than, once again, one selectively focused on improbable quick-fix solutions for single diseases.

A major risk may occur: questioning a right so long could debase its inner principle?

Surely it is charming the proposal that Paul Krougman makes <sup>(1)</sup> for the United States (to expand the social safety and to reduce inequalities) while remarking the need for a *new New Deal*.

## 2. Primary Health Care: the turning point for health

At the time of Cold War, WHO and UNICEF gathered in Alma Ata, former URSS and currently in Kazakhstan, for the International Conference on Primary Health Care. On September 12<sup>th</sup>, 1978 the *Alma Ata Declaration* was signed and recognized as the leading way to the achievement of the ambitious goal of “Health for All by the year 2000”.

In 1978 vast inequities were spreading among wealthy and poor countries and within countries. The message from Alma Ata echoed worldwide as revolutionary: inadequate and unequal health care was economically, socially and politically unacceptable<sup>(29)</sup>.

The Conference aimed to assess the status of health and health services in the world, to spread PHC, to shape the role of governments and international organizations to achieve PHC<sup>(2)</sup>.

Surely, the Conference came after a long debate and many early examples of integrated and community based health care. A paper by Julio Frenk - former Secretary of Health of Mexico and Dean of the Harvard School of Public Health - published by Lancet, recalls many of these examples, as the Barefoot Doctors experience in People’s Republic of China<sup>(30)</sup>.

### 2.1 *The Declaration*<sup>(8)</sup>

The preamble of the Declaration of Alma Ata points out the urgent need for actions by all governments, all health and development workers, and the world community to protect and promote the health of all the people of the world.

From the Declaration (see Annex 1) some statements about health are made clear:

- Health is reaffirmed as a state of complete physical, mental and social well being, and not merely the absence of disease or infirmity, according to WHO's Constitution <sup>(6)</sup>;
- Health is a fundamental human right;
- Health is a social goal;
- Inequality (between countries and within countries) is politically, socially and economically unacceptable and of common concern to all countries;
- Social and economic sectors are necessary to the attainment of health and the reduction of the gap between countries;
- The protection of health is essential to economic and social development, and contributes to quality of life and world peace.

Two pillars of PHC are recognized in:

- People, having the right and duty to participate in the planning and implementation of their health care;
- Governments, having the responsibility for the health of their people; they must operate by providing adequate health and social measures, attaining a level of health that will permit people to lead a socially and economically productive life and developing a spirit of social justice.

Governments should formulate policies, strategies and plans of action as part of a comprehensive national health system and in coordination with other sectors, mobilizing and using available resources rationally.

All countries should cooperate in a spirit of partnership and service to ensure primary health care for all people: the attainment of health by people in any one country directly concerns and benefits every other country.

Countries should:

- Fuller and better use the world's resources, which are now considerably spent on armaments and military conflicts;
- Perceive a genuine policy of independence, peace, détente and disarmament,

to release additional resources;

- Assure technical cooperation especially with developing countries.

Governments, WHO, UNICEF and other international organizations should support national and international commitment to primary health care.

PHC:

- Is defined as essential health care based on practical, scientifically sound and socially acceptable methods and technology;
- Is made universally accessible to individuals and families in the community through their full participation;
- Is at a cost that the community and country can afford to maintain at every stage of their development in the spirit of self-reliance and self-determination;
- Forms an integral part both of the country's health system, of which it is the central function and main focus, and of the overall social and economic development of the community;
- Is the first level of contact of individuals, the family and community with the national health system bringing health care as close as possible to where people live and work;
- Constitutes the first element of a continuing health care process.

Specifically, PHC:

- Reflects and evolves from the conditions (economic, sociocultural and political) of the country and its communities;
- Applies the relevant results of social, biomedical and health services research and public health experience;
- Addresses the main health problems in the community, providing promotive, preventive, curative and rehabilitative services accordingly;
- Involves all sectors and aspects of national and community development, in particular agriculture, animal husbandry, food, industry, education, housing,



public works, communications and other sectors demanding the coordinated efforts of all those sectors;

- Leads the improvement of comprehensive health care for all, and gives priority to those most in need.

Additionally, PHC relies on:

- Community and individual self-reliance and participation in the planning, organization, operation and control of primary health care, making fullest use of local, national and other available resources;
- Integrated, functional and mutually supportive referral systems;
- Health workers, including physicians, nurses, midwives, auxiliaries and community workers as applicable, as well as traditional practitioners as needed, suitably trained socially and technically, to work as a team.

PHC includes at least:

- Education concerning prevailing health problems and the methods of preventing and controlling them;
- The promotion of food supply and proper nutrition;
- An adequate supply of safe water and basic sanitation;
- Maternal and child health care, including family planning;
- Immunization against the major infectious diseases;
- Prevention and control of locally endemic diseases;
- Appropriate treatment of common diseases and injuries;
- Provision of essential drugs.

## *2.2 PHC in the literature*

Literature has been abundant of papers with regard to PHC since the 80s, first highlighting its apparent idealistic approach and, more recently, recognising its inner relevance.

In *Alma Ata: Rebirth and Revision*, Lancet proposes a series of eight papers on PHC <sup>(31-38)</sup>: it described points of strength and weakness of PHC as well as different projects and settings where it has been put into practice.

PHC is defined as a comprehensive philosophy for development where health not merely descends from biomedical interventions but also from social determinants. Focusing on equity, PHC has the golden-chance to reach the unreached; but it doesn't solely provide them with services but make them active decision-makers: social justice becomes the guidance for health planning.

PHC is not a *how to* manual, but rather a philosophy of holistic health <sup>(31)</sup>.

Figure 1 depicts how wide inter-sector cooperation and community participation can serve alongside with health systems.

Health promotion and community health care can serve for:

- Water, sanitation, and hygiene;
- Infant feeding and growth monitoring;
- School health;
- Food and other public health control measures;
- Dental health;
- Special programme areas (e.g. HIV, tuberculosis, malaria, guinea worm, trachoma, et cetera).

It is of no surprise that dental health (not care) is here given priority, as it will be further discussed later.

Outpatient or outreach services are in need for:

- Family planning, antenatal care, postnatal care;
- Extended programmes of immunisation;
- Nutritional interventions (e.g. vitamin A, iron, iodine, zinc, de-worming);
- HIV prevention activities, voluntary counselling and testing, provision of anti-retrovirals drugs;

- Malaria prevention (e.g. bed-nets) and care.

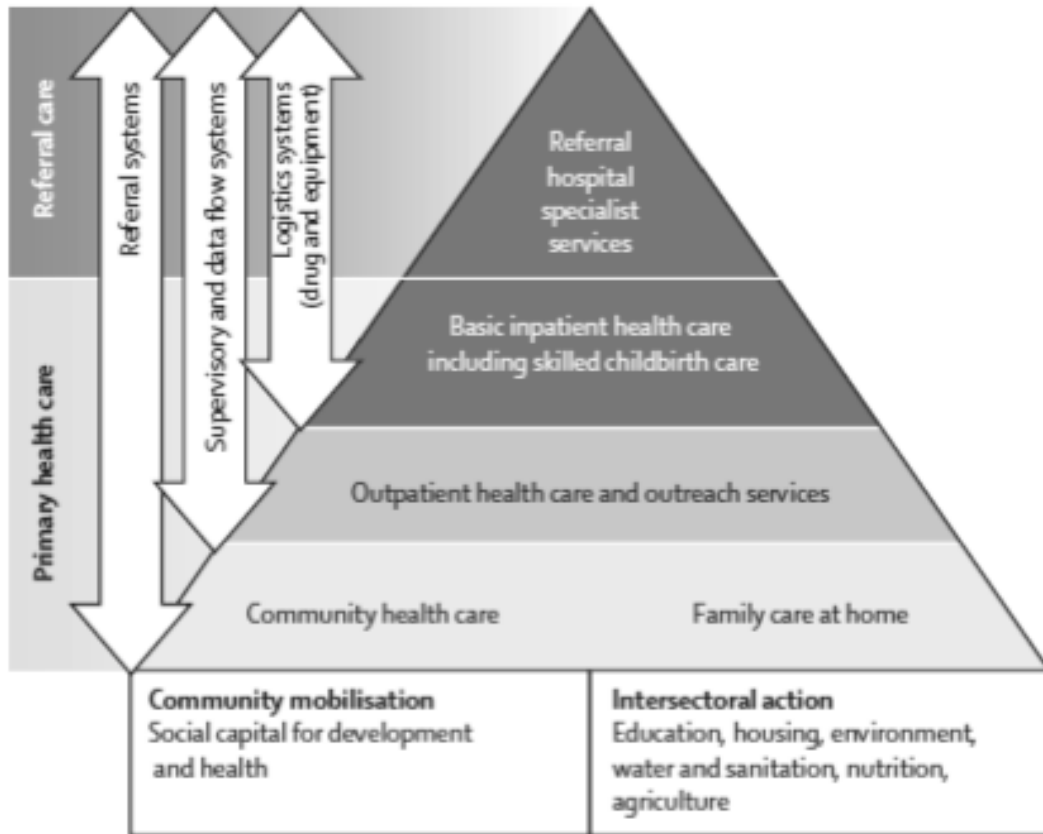


Figure 1 - Main programmes and tasks within the remit of primary health-care workers and community health-care workers. *From Lawn et al., Lancet* <sup>(31)</sup>

Case management and health care can be provided through skilled clinics and referral systems can take care of:

- Childbirth care;
- Essential newborn care and basic care of preterm babies;
- Case management of childhood illness (e.g. diarrhoea, pneumonia, malaria, neonatal sepsis and malnutrition);
- HIV/AIDS, tuberculosis and malaria;
- Management of sexually transmitted infections, adolescent and adult illness,

chronic diseases (e.g. hypertension, diabetes), mental health, eye care.

At the top, health system's tasks are:

- Management and planning;
- Essential drugs supply and logistics;
- Data monitoring, birth registration, audits;
- Transport and referral to hospitals;
- Financing.

Despite all this, the two major pillars of PHC (community participation and inter-sector cooperation) have always been the weakness of the approach: technical elements, alongside to skilled medical care, are simpler to put into practice while a lack of commitment due to poor policy-making limit community participation and inter-sector cooperation.

Shared interests and responsibilities are indeed at the core of development while relating health to the medical sector only is without any doubt short-sighted. Moreover, health sector cannot fail to recognise the fundamental role of non-health interventions <sup>(31,38)</sup>.

Human resources are the key, starting at family level: peer-to-peer support and community health workers are the necessary life net for any intervention and can also help to reduce the burden of high level interventions or hospitalizations <sup>(32)</sup>.

Community participation can also encourage the empowerment of people to gain the necessary information, skills and control of their development. Evidence is at hand that community participation can produce better maternal and child health <sup>(35,36,37)</sup>.

Authors agree that PHC is in need now more than ever, through joint efforts. Underserved communities are present in every country and cannot be forgotten to achieve the *Health for All* goal. Moreover, the changing profile of disease burden (with always increasing prevalence of non-communicable chronic diseases in middle and low-income countries, too) needs balanced interventions: especially in

those countries with a shortage of medical doctors, adequate training is fundamental for community health workers <sup>(32,33)</sup>.

It is crucial to strengthen health systems, which cannot be solely care providers: systems must be tailored to local needs and commodities, starting from relevant and effective strategies together with rigorous evaluation efforts. This is important to gain the necessary evidence - which is usually lacking in the more disadvantaged countries and groups of society <sup>(39)</sup> - to scale-up interventions <sup>(32,38)</sup>. Decision makers must also benefit from updated national and local data through the effort of academic, non-governmental and local organizations <sup>(37)</sup>.

Priority areas where to foster additional evidence on PHC can be <sup>(38)</sup>:

- Communities which can select and support health workers to participate in health-promotion activities and development programmes (e.g. water works and sanitation);
- Health centres, hospitals and practitioners which can provide the necessary training and linkage with the community;
- Health districts which can plan and budget aimed interventions according to local needs and ensure equitable distribution of resources;
- National, state and provincial levels which can lead the necessary integration of different sectors through financing and coordination; can spread the necessary evidence for interventions; can, most of all, remove economic barriers (e.g. user-fees) hampering access for the most fragile groups;
- International levels which can prioritise funding and interventions (according to the burden of disease), support countries, ensure good governance, increase investment in relevant research.

If the truth be told, the goal of *Health for All* has not been reached. Authors ascribe many reasons for this but surely the lack of policies and commitment from the top international agencies and governments has been the leading reasons. However,

PHC is recognised year after year as the key answer and is gaining more attention than in previous decades <sup>(29,30)</sup>.

### *2.3 PHC in the words of Margaret Chan, Director-General of the WHO*

After her appointment as the 7<sup>th</sup> Director-General of the WHO in 2006, Dr Margaret Chan has given much echo to PHC in her speeches. Due to the importance of her role and position, her recognition of the importance of PHC can be hopefully of guidance for international organizations (even the WHO) and governments. The following is a brief resume of her words <sup>(40)</sup>:

- Living conditions and health status do not improve as countries modernize, liberalize their trade and improve their economies;
- The market does not solve social problems but public health does;
- Traditional economic theory points to the need for trade-offs between the goals of equity and efficiency but it is PHC, not trade-off, that increases fairness and efficiency;
- The health-related MDGs will not be reached unless returning to PHC;
- According to decades of experience, PHC is the most efficient, fair and cost-effective way to organize a health system;
- PHC is a people-centred approach to health that makes prevention as important as cure;
- PHC-oriented health systems produces greater efficiency and fairness in health care;
- PHC can tackle poor nutrition, substandard housing, the lack of literacy or the shortage of water and sanitation nowadays flogging the world.

By presenting the *World Health Report 2008 – Primary Health Care (Now More Than Ever)*, Dr Chan highlighted how in matters of health the world is nowadays out of balance as never before.

The Report reaffirms the PHC principle of equity. Dr Chan wrote <sup>(40)</sup>:

People should not be denied access to life-saving and health-promoting interventions for unfair reasons, including those with economic or social causes. [...] Equity in health is of life-and-death importance.

The Reports identifies four reforms necessary to refocus health systems towards the goal of health for all.

These are <sup>(28)</sup>:

- Universal coverage to improve health equity;
- Service delivery reforms to make health systems people-centred;
- Leadership reforms to make health authorities more reliable;
- Public policy reforms to promote and protect the health of communities.

All these speeches and so much commitment are surely remarkable; by the way, history tells that too many words have not been commuted into practice while international organizations have been wasting and losing their authority.

#### *2.4 The lesson of History and the tale of Cinderella*

As previously discussed, the hope rising from Alta Ata has been quickly arrested. Selective PHC in 1979 first distorted the comprehensive approach by focusing on single illnesses. Vertical programmes enhanced a medical approach to health; funding agencies, governments and professionals put their trust in an illusion but naturally failed to build up the structures necessary for sustainable development <sup>(41,42)</sup>.

Additionally, the new roles of market spreading in the 80s debased the welfare system by “regulating” health, education and social security <sup>(2)</sup>. This occurred especially in fragile and poor countries and threatened fundamental welfare principles worldwide.

Surely PHC has been betrayed. Despite this PHC remains the corner stone of health: it responds to determinants of health and provides a realistic and ethic answer to health inequities and disease burden.

Looking at health systems worldwide, a specific sector of health has been often forgotten, left to it self, even seen as not “proper” part of health, and that is oral health.

Maybe for its history, maybe for its specific technique, with rare exceptions oral health seems to be of different nature, something only for those involved, something to be addressed after “the important matters”.

Even in some of those countries where universal care is not questioned nor an unmet goal but a common good, oral health is not regulated, the prerogative of a few; worst of all it is accepted that the market rules it.

Different training, different personnel, different professional registers segregate oral from general health in many cases.

But, like Cinderella in her tale, oral health is just a part of the bigger “family” of health, no more and no less important than other disciplines.

It contributes to general health, descends from it and responds to the same health determinants.

Surely the Declaration of Alma Ata does not refer to oral health, as it does not to mental diseases or heart surgery. The Declaration is an approach to health; and it is to oral health, too.

Before analysing further how PHC fits in oral health it is necessary to describe the oral status worldwide, which will be the aim of the next chapter.



### 3. Depicting oral health

Literature is plentiful of texts about oral health. Such abundance is mainly relative to surgical techniques, which have become extraordinarily natty.

Nevertheless, this progress is risky: the microscopic detail can blur the macroscopic view. Once again, this makes it difficult to achieve the goal to find the root causes of disease (and maybe to find the good answer to disease).

A useful “tool” with which to look at oral health beneath its outer layer is surely *The Oral Health Atlas*, which FDI World Dental Federation published at the end of 2009<sup>(43)</sup>.

Its cover immediately helps to set the subject: *The Oral Health Atlas - Mapping a neglected global health issue*.

It is worth to notice the expression *global health*, which is an argument widely discussed nowadays.

A paper published by Lancet in 2008 calls for the adoption of a common definition of global health<sup>(44)</sup>. Authors wonder how global health should be considered: for example if as a goal (an healthy world) or a notion (the current health of people worldwide).

By the way, global health relates to the global epidemiological status, which is the indispensable tool for recognising, addressing and maybe finding a solution to the health burden, inequities in health and to address health determinants; also, to confront different countries and different communities within countries<sup>(45)</sup>. Moreover, the large debate about it reflects the rising awareness of health as a shared duty and interest.

The Oral Health Atlas reports about the current situation in oral health, the challenges being faced nowadays and depicts possible and different scenarios for the future. Due to its extensive, precise and updated analysis of the literature, it will be the main reference for this chapter.

### *3.1 Oral health and general well being*

The importance of oral health is often neglected. On the other hand, to rise the importance of oral health as a specific concern is a risky way to the problem: again, oral health needs to be addressed as a part of general health, with no sectarian approach, with the same attention that is put in any medical discipline.

From the WHO we site: “oral health is a state of being free from chronic mouth and facial pain, oral and throat cancer, oral sores, birth defects such as cleft lip and palate, periodontal (gum) disease, tooth decay and tooth loss, and other diseases and disorders that affect the oral cavity” <sup>(46)</sup>. It surely is an extensive definition, well describing how oral health is a prerequisite of that “state of complete physical, mental and social well being” from the WHO Constitution <sup>(6)</sup>.

Oral health is highly related to general health and is essential to general well being and a good quality of life.

The craniofacial complex provides for main functions linked with the whole human body.

These functions are mainly swallowing, speaking and chewing, but also breast-feeding, drinking, smelling, breathing, vomiting, postural regulation, expression of feelings and sex-linked activities <sup>(47)</sup>.

Unhealthy oral conditions may lead to serious consequences, both biological and psychological. Moreover, most physical and psychosomatic diseases have their seat in the mouth. Therefore, good oral health may influence the quality of life and how serious could be its decay.

Among others, HIV/AIDS, leukaemia and tuberculosis manifest their signs in the mouth; periodontal health is affected by diabetes or vitamin C deficiency; drug abuse, bulimia and xerostomia are associated with dental decays; tetanus infection can lead to lockjaw and psychological problems can result in temporomandibular disorders <sup>(43)</sup>.

On the other hand, oral infections are associated with heart disease, pneumonia, infective arthritis, pre-term and low-birth-weight babies; moreover, tooth loss (both at old age and childhood) impairs chewing, speaking, social relations <sup>(43)</sup>.

Among others, evidence is at hand for untreated and severe dental decays in early childhood as a cause for low body weight, quality of life and failure to thrive <sup>(48)</sup>.

Again, David Werner's words can help to summarize and focus on this: "the health of the teeth and gums is related to the health of the whole person, just as the well being of a person is related to the health of the entire community" <sup>(49)</sup>.

### *3.2 Behind the single disease*

Dentistry now has a wide knowledge of these relationships, which, however, still need to be further investigated and taken into consideration. By the way, there is something that is forgotten: it is not recognized, not taught and maybe it (shamefully) does not matter.

The analysis of the burden of oral diseases has to be carried out at two different levels:

Firstly, the individual dealing with how much she/he pays in terms of pain, discomfort, money, loss of work or school time due to oral diseases. Especially in low-income countries, services and access to oral care are discontinuous or even absent; in this setting people affected by dental pain or bearing the burden of serious and life-related oral pathologies pay high costs for their disease through loss of work days and wasting their money on treatments that often do not resolve their conditions but only postpone it. This is increasingly common in high-income countries for the most disadvantaged groups of society.

Secondly, there are communities dealing with the economic and social burden of oral diseases. Where present, health systems face the rising, enormous cost of care for oral pathology, which is a preventable set of diseases; additionally, the

community must also take into account the consequences of the loss of millions of school and work hours *per* year for governments <sup>(23)</sup>.

Dentistry is a long way from recognising the social aspect of disease and its inner and deep inequities existing among and within countries.

Again, we need to step back and first recognise which are the determinants of oral health.

### *3.3 What makes good oral health?*

The WHO Global Oral Health Programme is integrated into the overall chronic disease prevention and control framework of the Department of Chronic Diseases and Health Promotion <sup>(46)</sup>. The strategic objectives of the Department are:

- To raise awareness about global epidemics of chronic diseases;
- To create healthy environments, especially for poor and disadvantaged populations;
- To slow and to reverse trends in common chronic disease risk factors such as unhealthy diet and physical inactivity;
- To prevent premature deaths and avoidable disability due to major chronic diseases.

It is far acknowledged that oral health risk factors are the same as those for other severe and chronic conditions as described in the Common Risk Factor Approach (CRFA) by Sheihman and Watt <sup>(50,51)</sup>.

Authors show how dental caries, periodontal diseases and dental trauma share the same risk factors of many chronic diseases such as obesity, diabetes, cancer, cardiovascular and respiratory diseases, mental illness, and skin diseases:

- Diet impacts obesity, diabetes, cancer, cardiovascular diseases and dental caries;

- Smoking does on diabetes, cancer, cardiovascular and respiratory diseases and periodontal diseases;
- Alcohol on cancer, cardiovascular diseases, mental illness and dental trauma;
- Stress on diabetes, cardiovascular diseases and periodontal diseases;
- Hygiene on skin and periodontal diseases.

Moreover, while the number of deaths resulting from communicable conditions is expected to decline, the number of deaths occurring from non-communicable conditions is expected to rise in the next decades<sup>(43)</sup>.

It will be important to remember this later on, when possible strategies for oral health will be pointed out.

In *Socio-behavioural Risk Factors in dental caries – international perspectives*<sup>(52)</sup>, Poul Eric Petersen, leader of the Global Oral Health Programme at WHO, analyses the relationship between risk factors and dental caries and reaffirms the existence of a social gradient between dental caries and socio-economic status in different health systems worldwide.

In the same paper he describes a model from the *World Oral Health Report, 2003*<sup>(23,53)</sup> (figure 2).

In this model, oral health services (their preventive or curative approach, their location, their yes-or-not PHC approach) - if and when available - affect people use of services (demand for care, access, frequency of use) and behavioural risk (oral hygiene practice and sugar consumption), alongside education, employment, income, lifestyle, social network and environment (water works, sanitation, hygiene, food availability).

In the end, oral health status and quality of life are the result of access to services and behavioural risk.

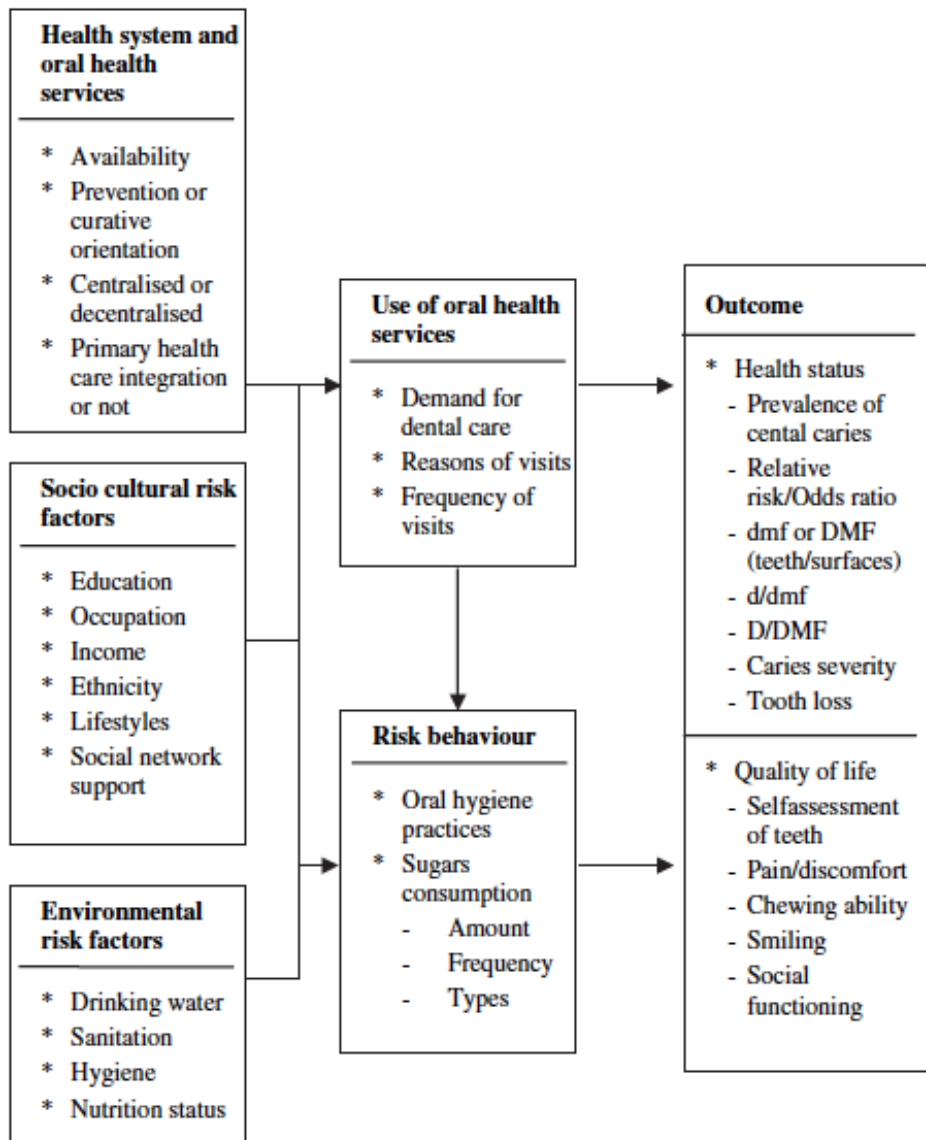


Figure 2 – Oral health outcomes and risk factors. *From the World Oral Health report 2003, WHO*

### 3.4 Inequalities and burden

By investigating the global burden of oral disease, it is impossible not to remark upon many deep inequities (alongside a huge burden of disease).

The Oral Health Atlas reports the following <sup>(43)</sup>:

- It is clear how oral diseases impact on individuals, communities, society, health systems and the economy but no data is at hand to describe the

economic impact of oral diseases;

- WHO estimates that oral diseases are the fourth most expensive diseases to treat;
- If available, the costs of treating the dental decay of children alone would be greater than the current and total health care budget of many low- and middle-income nations <sup>(54)</sup>.

The following is a summary of this picture, which is alarmingly increasing and many different (and often scattered) fragments compose the global picture.

#### *3.4.1 Access to care*

Worldwide, oral health services are limited due to a lack of available resources; moreover, patients cannot generally afford them, which - when available - are often private. Oral care is only realistic within urban areas while rural, poor and deprived population groups lack access to even basic emergency care <sup>(43)</sup>. As a matter of fact, a service recognized to provide for a right (oral health) is nowadays globally missing.

Seventy per cent of the world population have no access to oral health services <sup>(55)</sup>.

Almost half of dental decays occurring in high-income countries receive no treatment while only 2% in low-income countries does (referring to data about children aged 11–14 years from 1991 to 2004); at the same time, only 20% of decays of children aged 4-9 years old have treatment in high-income countries; none in low-income countries <sup>(43,56,57)</sup>.

This is for sure a matter of access, which not only means presence of services but also, professional training, personnel orientation toward preventive or curative care, availability of services, distance from service along with community programmes.

Dental decay remains mostly untreated worldwide.

In sub-Saharan Africa, the availability and accessibility of oral health services are seriously constrained and the provision of essential oral care is limited. Reports

from the region show a very low utilization of oral health care services, while visits to dental-care facilities are mostly undertaken for symptomatic reasons.

For example, the proportion of people who have obtained oral health care is alarmingly low in Ouagadougou, Burkina Faso, and self-medication appears to be an important alternative source of care for adult city-dwellers<sup>(58)</sup>.

Among wealthy nations, Italy surely has not such a heavy burden of disease; by the way, the country continues to exclude the majority of the population by access to care. In 2005, the Italian National Institute for Statistics (ISTAT – *Istituto Nazionale di Statistica*) conducted a research among citizens: only the 39.7% of the population declared to have accessed a dental service in the previous year (87.5% of those were private). Among high-educated care seekers the percentage grew to 49.4% but fell down to 26.4% for those with a primary level of education<sup>(59)</sup>.

Only one year before that survey, only 44% of US citizens received dental care at the average cost of 560 US\$<sup>(43)</sup>.

### 3.4.2 Socio-economic status

The Decayed, Missing and Filled Teeth (DMFT) Index describes caries experience, scoring decayed teeth in the mouth (D), those extracted due to caries (M) and filled ones (F). The Care Index describes the F component of the DMFT Index.

The Gross National Product (GNP) of a country and the Care Index follow a linear association; the Care Index is about zero in many low-income countries and above 70% in France, Japan or Norway<sup>(43,56,57)</sup>.

In a recent study by Prof. Petersen, oral health-related behaviours (dental visits, tobacco use and sugary diet) among adolescents in China were found directly associated with the socioeconomic status of parents, school performance and peer relationships<sup>(60)</sup>.

Among 12-year-old schoolchildren from Baghdad, Iraq, after the end of the United Nations' economic sanctions, increased sugar consumption was associated with



being a boy, having mothers with low education, living in a low socio-economic area <sup>(61)</sup>.

More than 80% of the world's population live on less than 2 US dollars a day while the cost of a simple tooth extraction can be between 2 and 100 US dollars <sup>(43)</sup>.

Male Brazilian teenagers living in families with a low educational level presented poor dental health in comparison with other social classes, while mother's education was predictive for dental caries in young adults <sup>(62)</sup>.

Truth to be told, in high and middle-income countries, oral health status clearly relates to poverty and social exclusion <sup>(63)</sup>, but it should be more properly said worldwide.

### *3.4.3 Fluoride*

Globally, less than 1 billion people have access to fluoride, with only 368 millions using fluoride toothpaste <sup>(43)</sup>.

In a far-seeing study by Prof. Robert Yee, the global affordability of fluoride toothpaste as been described as the proportion of daily household expenditure per year <sup>(64)</sup>:

While in the UK for the poorest 30% of the population only 0.037 days of household expenditure is needed to purchase the annual average dosage (182.5 g) of the lowest cost toothpaste, 10.75 days are needed in Kenya. The proportion of annual household expenditure ranged from 0.02% in the UK to 4% in Zambia to buy the annual average amount of lowest cost toothpaste per head [...].

World experts at a conference on "Oral Health through Fluoride for China and Southeast Asia" on September 18–19, 2007, in Beijing, China, have confirmed that: "fluoride toothpaste remains the most widespread and significant form of prevention of and protection against tooth decay used worldwide. It is also the most rigorously evaluated vehicle for fluoride use" <sup>(65)</sup>. In view of the current extremely inequitable use of fluoride throughout countries and regions, all efforts to make fluoride and fluoride toothpaste affordable and accessible must be intensified. As a first step to addressing the issue of affordability of fluoride toothpaste in the poorer countries in-depth country

studies should be undertaken to analyze the price of toothpaste in the context of the country economies.

#### *3.4.4 Diet*

Sugar consumption is the leading dietary behaviour for dental decay; on average a US citizen drinks 336 litres of soft-drinks per year (the most famous Cola contains almost 7 tea-spoons of sugar per 300 ml) while the daily consumption of sugar in the Democratic Republic of Congo is on average less than 1 tea-spoon per person (19 in the United States) <sup>(43)</sup>; there is evidence for the association between the amount and frequency of free sugars intake and dental caries while dental erosion is also associated with dietary acids, a major source of which is soft drinks <sup>(66)</sup>.

Confectionery industry is nowadays one of the leading sectors of the food industry and it is predicted to bill for 107 billion US dollars in 2010 worldwide <sup>(43)</sup>.

#### *3.4.5 Tobacco*

Tobacco consumption is responsible for 100 million people worldwide in the 20<sup>th</sup> century while nowadays there are about 1.4 billion smokers in the world; it is strongly associated with mouth and throat cancer and is responsible for up to half of all periodontal diseases; surprisingly, toothpaste containing tobacco is produced and used in India <sup>(43)</sup>.

#### *3.4.6 Oral disease*

Dental caries and periodontal disease are preventable and common diseases affecting the large majority of people worldwide. Both in low- and high-income countries dental caries affect 60-90% of schoolchildren and almost the totality of adults while the prevalence of periodontal disease and the rate of edentulousness are very high worldwide for the elderly <sup>(23,43)</sup>.

In the United States 2.4 and 1.6 millions hours of work and school were respectively lost due to oral disease in 1996; one person out of 4 refers to have suffered from dental pain every year in the UK; on average, 85% of 1-grade

Filipino school children suffer from dental abscess, fistulae, ulcer of gum and soft tissues due to dental caries and pulp exposure; 59% of Tanzanian adults reported oral pain during 2008 <sup>(43)</sup>.

In the last 20 years of the past century, DMFT rate unmodified worldwide, while halving in developed countries <sup>(23,43,57)</sup>.

The reason for all this can be found in inappropriate and unavailable preventive strategies and services. Meanwhile, caries can be prevented through evidence based and long experienced practices: fluoride exposure (with a focus on fluoride toothpaste), pit and fissure sealants, control of sugar consumption and availability (where in excess) <sup>(43)</sup>.

From *Changing oral health profiles of children in Central and Eastern Europe - Challenges for the 21st century*, by Prof. Petersen <sup>(67)</sup>:

Over the past 20 years, a marked decline in the prevalence of oral disease has been observed in several Western industrialised countries. In the adult population, fewer adults are now edentulous and more maintain their functional dentition as measured by having at least 20 natural teeth present. In children, improved oral health is seen in the systematic decline in dental caries and a continually growing number of caries free individuals. This is ascribed to changing life-styles and living conditions, a more sensible approach to sugar consumption, improved oral hygiene practices, use of fluorides in toothpaste, fluoride mouthrinsing or topical application of fluorides, and systematic school-based preventive programmes.

Such positive trends of lower dental caries experience in children is shown also for certain Eastern European countries where school oral health programmes were established and maintained up to recent time. For example, this is the case for Slovenia and Hungary. However, the general pattern is that the prevalence rate of dental caries in children has remained high in most of Central and Eastern Europe.

Additionally:

- Eighty per cent of adults worldwide have gingivitis. Between 5% and 20% of people have severe gum disease and deep gingival pockets <sup>(43)</sup>;

- Incidence of oral cancer ranges from one to 10 cases per 100 000 in most countries <sup>(68)</sup> with more than 400,000 cases of oral cancer diagnosed worldwide <sup>(43)</sup>;
- Noma is a rapidly spreading gangrene that starts in the mouth and disfigures the face, sometimes within days, consuming both soft tissue and bone <sup>(43)</sup>; it occurs in a situation of malnutrition, lack of basic hygiene, immunodeficiency, and general deprivation; it is a preventable and non communicable disease strongly (only) dependent on socio-economic determinants of health; the WHO stated an incidence of 140,000 per year with a prevalence of 770,000 deaths in 1997 <sup>(69)</sup>.

#### 3.4.7 Workforce <sup>(43,70,71)</sup>

In western countries such as Germany or the UK, the dentist/population ration is about 1/1,000, while it can as low as 1/50,000 in middle and low-income countries. In sub-Saharan Africa that ratio can be 1/100,000 or less, with a very few dentists working only in urban areas, when they have not left the country.

On average the ratio dentist/population is 5,875 worldwide; Croatia has the highest (1/568) while Ethiopia the lowest (1/1,278,446); fifteen out of the 16 dentists working in Eritrea are settled in the capital city; at the same time, the ratio is 1/300,000 in rural India but 1/27,000 in Indian cities.

It is worth remarking on the spreading debate about *non-dentist* personnel involved in oral care; beside dental hygienists in many countries a wide range of health workers with high or low technical specialization provides oral care. Many voices claim that only high specialized professionals as the ones enabled to serve as dental professionals. By the way, as it will be further discussed, there is not a simple solution to this issue and human resources are not always the best answer to the problem.

### 3.5 Summarising the global picture of oral health

Considering all these data, it may be difficult to summarise the global burden of oral disease. The DALY Index (disability-adjusted life year) is “a measure of overall disease burden, expressed as the number of years lost due to ill-health, disability or early death”<sup>(73)</sup>.

The global burden of oral disease, according to the DALY Index, is similar to that of tuberculosis or malaria<sup>(73)</sup>.

Here the paradox of oral health lays: a serious concern that is neglected at the same time.

Determinants of health are a complex of causes and inner responsibilities; different aspects influence each other: education, health care, income, employment, housing, family and life style. And surely politics lay behind all these.

That is true for oral health, too. Oral health is connected to general health (so much that it is risky to keep on distinguish them) while they are sharing the same determinants (figure 3).

Recognising this is the key to address oral health: oral health is a puzzle make by politics, development, research, ethics and equity. It can be only accepted like this.



Figure 3 – Oral health and general well being

#### 4. How Primary health Care can serve for oral health

From the Oral Health Atlas <sup>(43)</sup>:

Because oral health and general health are related, oral care and prevention of oral disease must be an integral part of any health system. Oral health is a human right and requires appropriate provision for everyone. This goal is yet to be achieved and will remain a challenge for decades to come. Through the Global Goals for Oral Health by the Year 2000 many countries have proved that health targets can be reached, if priorities and political support follow population needs.

In 1981, the *Global Goals for Oral Health by the Year 2000* were launched by the WHO and FDI, aiming to reach a global DMFT value less than 3 at 12 years age worldwide. The goal was missed and, in 2003, new ones were agreed for 2020 <sup>(74)</sup>:

The FDI and the WHO established the first Global Oral Health Goals jointly in 1981 to be achieved by year 2000. A review of these goals [those to be achieved by year 2000], carried out just prior to the end of this period, established that they had been useful and, for many populations, had been achieved or exceeded. However, for a significant proportion of the world's population, they remain only a remote aspiration.

##### 4.1 Quoting oral health politics

In 1982 the Declaration on Oral Health in Deprived Communities was presented in Berlin. In *The Berlin Declaration on Oral Health and Oral Health Services*, Prof. Aubrey Sheiham remarks a few concepts embodied in the Declaration itself <sup>(75)</sup>:

The strategies outlined in the Berlin Oral Health Declaration should help redress the imbalance in oral health between the deprived and other citizens. The principles of natural justice should dominate the discussions. They are based on equity, on balancing the scales between right and wrong, between what is fair and what is unfair. Equity in health implies that ideally everyone should have a fair opportunity to attain their full potential and, more pragmatically, that no one should be disadvantaged from achieving this potential, if it can be avoided. By definition, inequity means injustice. Despite efforts in the past decade to make health systems more equitable, in the poorer

countries and communities things are getting worse in terms of people's health and access to health care.

Sheiham highlight the fundamental role of epidemiology and the need for indicators to “measure social, economic and health impacts: social-dental indicators are more relevant measures of needs and should reflect pain, discomfort, function and aesthetics as well as clinical indicators of dental health such as caries, bleeding gums and pocketing number position of teeth. Other impact measures include loss of sleep, work loss and opportunity costs”.

He claims for two principles of PHC to be pillars for any oral health programme, community participation and multi-sector cooperation and integration:

The community should be involved in setting goals that are stated in terms of oral health, oral diseases, health promotion, equity, training and personnel and health service [...].

An important element in achieving equity in oral health and oral health services is the success of the multisectoral approach in securing community development. So that efforts do not become mere palliatives reinforcing the unjust structures that perpetuate poor health services, health should be viewed as interrelated with the problems of unemployment, high prices and inadequate housing. Prevention should be based on the principles of Health Promotion: re-orienting oral health services, creating supportive environment, building healthy public policy, supporting community action, developing coping skills.

FDI World Dental Federation is a membership organisation composed of more than 200 National Dental Associations and specialist groups, altogether representing more than one million dentists worldwide.

One of the missions of the FDI is "to promote optimal oral and general health for all peoples" <sup>(76)</sup>.

In April 2003, the Ferney Voltaire Declaration was adopted at the workshop on Global Oral Health Planning.

It was the time to reaffirm that "oral health is an integral part of general health and subject to the same determinants".

The Declaration remarked upon the deep inequities in oral health and oral care access in the world and called for:

- Improving living and working conditions;
- Enabling people to adopt healthier lifestyles;
- Encouraging communities to participate in every stage of the policy planning process;
- Enabling all people to access an appropriate locally determined programme of basic oral health care that includes: relief of pain, promotion of oral health and the management of oral diseases and conditions.

One year later, the Planning conference for oral health in the African region, organized by the FDI World Dental Federation and co-sponsored by the WHO Oral Health Programme, proposed the *Nairobi Declaration on Oral Health in Africa* <sup>(77)</sup>.

Participants at the Conference enhanced their commitment to:

- Support affordable preventive strategies and services;
- Make policies enabling all people to access an appropriate locally determined programme of essential oral health care that includes pain relief, oral disease control and promotion of oral health;
- Integrate oral health care in PHC programmes in an environment that is free from the transmission of infectious disease.

Again, in 2005 the International Association for Dental Research (IADR), the WHO, the European Association of Dental Public Health (EADPH) and the British Association for the Study of Community Dentistry (BASCD) organized the 8<sup>th</sup> *World Congress on Preventive Dentistry* in Liverpool, UK.

The heavy burden of oral diseases was globally and extensively described; then, in recognition that oral diseases are preventable, participants from 43 countries claimed for relevant public health programmes aimed to <sup>(78)</sup>:

- Ensure that the population has access to clean water, proper sanitation facilities, a healthy diet and good nutrition;
- Ensure appropriate and affordable fluoride programmes for the prevention



- of tooth decay;
- Provide evidence-based programmes for the promotion of healthy lifestyles and the reduction of modifiable risk factors common to oral and general chronic diseases;
  - Use schools as a platform for the promotion of health, quality of life and disease prevention in children and young people, involving families and communities;
  - Ensure access to primary oral health care with emphasis on prevention and health promotion;
  - Strengthen promotion of oral health for the growing numbers of older people, aiming at improving their quality of life;
  - Formulate policies for oral health as an integral part of national health programmes;
  - Support public health research and specifically consider the recommendations of the WHO which recommends 10% of a total health promotion programme budget be devoted to programme evaluation;
  - Establish health information systems that evaluate oral health and programme implementation, support the development of the evidence base in health promotion and disease prevention through research and support the international dissemination of research findings.

In 2005 the WHO highlighted priority guidelines to be followed in order to improve oral health programmes. Also, it referred to the “integration of oral health into national and community health programmes based on oral health, general health and quality of life interrelationship” <sup>(79)</sup>. In May 2007 the WHO World Health Assembly <sup>(80)</sup> declared that “the economic burden of oral disease is predicted to grow rapidly worldwide, particularly in disadvantaged and poor populations, unless oral preventive programmes are implemented” and that there is the need to strengthen oral health programmes at every level, achieving collaboration with the most authoritative organizations like WHO Collaborating Centres (WHOCC), NGOs and other UN organizations. Moreover, the Assembly urged to include oral

health within preventive and curative strategies for both chronic and communicable diseases as well as those for maternal and child health.

#### *4.2 Oral health in practice*

Addressing global health politics is not simple for sure but have all these politics achieved their goals?

By reading them, PHC is found to be the benchmark for everyone: inter-sector cooperation, focusing on prevention, on sustainable technologies, on the most fragile groups of society.

But, as a matter of fact, oral health is still poorly integrated into PHC.

In many countries (but it could be said worldwide) dental personnel and oral health policy makers are still more oriented towards the curative than towards the community approach, private practice has a leading role and a huge part of the population has no access to dental services.

At the same time, public traditional curative services represent a huge economic burden for health systems draining 5-10% of public health expenditure <sup>(68,81)</sup>.

Oral diseases are preventable but treatments have always been the answer. Prevention has been seen as a dentist/dental hygienist *versus* patient relation; moreover, when it has been introduced as a public health measure it has focused on educating to certain behaviour.

Nevertheless, dental education is not the key since it leads to knowledge but is incapable to modify behaviours. Again, behaviours respond to socio-economic and environmental determinants that cannot be underestimated <sup>(82,83)</sup>.

Discussing this is useful to introduce an effective example of oral health integration into PHC: the Filipino governmental school health programme, Fit for School <sup>(84,85)</sup>.

In a country where dental pain is the main reason for school absenteeism <sup>(86)</sup> and 66% of pre-school children have intestinal infections <sup>(87)</sup>, education and health departments work together to run a preventive programme for school children.

Inspired by the *Focusing Resources on Effective School Health (FRESH) Framework* <sup>(88)</sup>, which proposes school health programs that go far beyond the traditional concept of health education, the programme focuses on primary prevention and consists in simple evidence-based interventions:

- Daily supervised hand washing with soap;
- Daily supervised tooth brushing with fluoride toothpaste;
- Bi-annual de-worming by supervised ingestion of 1 anti-worm tablet.

The programme has been put into practice in 27 provinces across the Philippines and almost 1 million children were participating in 2009.

It is giving promising and interesting results, so much that in December 2009 it was given an award at the United Nations international day for South-South Cooperation, organized by the United Nations Development Programme (UNDP), the WB and the WHO, for its innovative approach to improve child health using the existing structure of the school system.

The point is that PHC is not a tool available for oral health, among other disciplines. PHC is simply an approach that is possible to follow or not. More than possible it is necessary and even urgent to definitively embrace PHC.

In January 2009, Lancet published the editorial *Oral health: prevention is key* <sup>(89)</sup> to remind how the curative approach for oral health (the “drill and fill” one, which is still taught in almost every university in the world) will never be the realistic answer to the problem:

Oral health is a neglected area of global health and has traditionally registered low on the radar of national policy makers. The reasons for this situation are complex and varied [...].

In some cultures, oral health is neglected because teeth are seen as expendable. Dentists have also taken little interest in advocacy to promote good oral health, preferring to treat rather than prevent oral diseases.

And, because poor oral health affects morbidity more than mortality, governments have viewed oral conditions as less important than other, more life-threatening diseases.

Yet, globally, the burden of major oral diseases and conditions is high [...].

Training more dentists and building dental clinics - the western curative model of care - is costly and unrealistic in most low-income and middle-income countries. Prevention of oral disease is therefore key, largely possible, and should be a routine part of other health professionals' work [...].

Preventing oral disease is important and achievable. Evidence-based, simple, and cost-effective preventive approaches exist, but they need to be rigorously promoted and implemented.

Professionally, health workers, including physicians, nurses, paediatricians, and pharmacists can all deliver prevention messages about the use of fluoride and the risk factors for oral disease.

Politically, commitment is needed to integrate oral disease prevention into programmes to prevent chronic diseases and into public-health systems.

Good oral health should be everybody's business

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### **Part III - The UNRWA case**

*The eyes that the rockets have opened in Dahiya's buildings will, for a long time,  
remain eyes with a dreadful look, which poets will never dare to encounter.*

*They will never know what to do with a broken rib of concrete,  
how to see a fallen wing of hard cement,  
how to contemplate those volumes of stone stacked over one another.*

- Abbas Beydoun, *A Possible Poem on Dahiya, Lebanon Lebanon*, 2006

*The real failure lies not in an inability to express oneself clearly,  
but in the underlying logic with which years of hardship  
and horror have made us intimately familiar.*

- Hassan Daoud, *They Destroy and We Build, Lebanon Lebanon*, 2006

## 1. Preliminary considerations

Part I and II of this thesis aimed to collocate oral health in the overall frame of general health as a human right; to summarize the major public health politics in the recent history; to explain the spirit of PHC and to give a glance of the global oral health picture. Since the overall objective of this paper is to define a global PHC approach to oral health, it is now time to give a practical example of thrsis, which will allow to drain general conclusions and recommendations.

In May 2008, the Director of the United Nation Relief and Work Agency for Palestine Refugees in the Near-East (UNRWA) requested Cooperazione Odontoiatrica Internazionale - COI (International Dental Cooperation), an Italian NGO, to make an evaluation of UNRWA Oral Health Services in Lebanon, Jordan and Syrian Arabic Republic. One year later, COI NGO was requested again to conduct a follow-up evaluation, this time limited to the Lebanese field. Both interventions were aimed to ease the reorientation of services toward prevention and produced specific recommendations for the UNRWA Department of Health.

Part III of this thesis descends from those evaluations and relative reports. The data reported here are as in the original reports; nevertheless, original official reports are confidential and cannot be entirely divulged here.

Main source for the general description of the history and current condition of Palestine Refugees are UNRWA official reports and other public documents.

### *1.1 Palestine Refugees today*<sup>(1)</sup>

As a consequence of the Arab-Israeli conflict, in 1948 several hundred thousands of Palestine inhabitants were forced to flee from their homes and lands.

Of the 4.7 million Palestine refugees in the Near East today, about 1.4 million Palestine refugees live in 58 recognized refugee camps in Jordan, Lebanon, Syrian Arab Republic, the West Bank and Gaza Strip (Fields).

West Bank and Gaza Strip Fields are generally recognized as Occupied Palestine Territories (oPt).

Palestine refugees are vulnerable groups of people displaced in different areas (different host countries) and in and out camps.

A camp is a plot of land where refugees are recognized as living by the host country; they do not own the land and the camp is managed and policed by host authorities.

Generally, living conditions for Palestine Refugees inside the camps are poor due to the fragile socio-economical conditions and to a lack of infrastructures such as roads and sewerage. Moreover, the fourth generation of refugees is still living in the camps today, resulting in overcrowding and critical life conditions.

Palestine Refugees' conditions differ greatly from one Field to another depending on the current situation of the host country and its policies:

- In the Jordan Field all refugees have Jordanian citizenship (except for 120,000 refugees who moved from The Gaza Strip after 1967 as a consequence of Israeli occupation) while in the Lebanon Field refugees have almost no social and civil rights nor access to governmental health and education facilities and they are not allowed to practice many professions (e.g. they are prohibited from practise health related professions).
- In the Jordan Field less then one fifth of refugees live inside camps;
- Lebanese camps face several problems such as unsuitable infrastructure, overcrowding, poverty and high rates of unemployment;
- In Syrian Arab Republic Field refugees have access to governmental services like health facilities and schools;

- The worst situations are to be found in The West Bank and The Gaza Strip Fields. In The West Bank refugees have the highest unemployment rate and life is poor due to the closure imposed by Israeli authorities.
- In The Gaza Strip Field 22.42% of the entire Palestine refugee population (representing  $\frac{3}{4}$  of the people in the area) lives in 360 km<sup>2</sup>.

### *1.2 United Nation Relief and Work Agency for Palestine Refugees in the Near East (UNRWA) <sup>(1)</sup>*

The United Nations Relief and Work Agency for Palestine Refugees in the Near East (UNRWA) was established to assist those refugees.

Initially planned as a temporary UN Agency, its mandate has been renewed and it is still active today since a political solution for refugees has not yet been achieved.

Together with its relief and work programmes, the Agency has been providing refugees with education, healthcare, social services and emergency aid needs over the last 60 years.

UNRWA's definition of Palestine Refugee is "a person whose normal place of residence was Palestine between June 1946 and May 1948, who lost both their home and means of livelihood as a result of the 1948 Arab-Israeli conflict".

From 1950 to 2007 the number of registered refugees has increased from 914,000 to about 4.7 millions and it is predicted to grow.

UNRWA's responsibility inside the camps lies in the provision and management of services. UNRWA's facilities, such as schools and health centres are both inside and outside the camps for registered refugees living in the area.

UNRWA runs different programmes over the 5 Field for poverty alleviation, youth education, women empowerment, microfinance, camp infrastructure and improvement.



Mar Elias Camp, Beirut, Lebanon

Education is a key factor of UNRWA's activities. With free access to elementary and preparatory classes and the same curricula as the host countries, UNRWA educational programme aims to achieve the same opportunities for refugees to access higher education and employment.



## 2. The evaluation of UNRWA oral health services

In 2008, UNRWA Health Programme <sup>(2)</sup> mainly serves 66% of the registered refugee population all over the 5 Fields. Population growth, increasing vulnerability of people due to restrictions in areas such as The West Bank and the worsening of socio-economic conditions have swollen the demand for health care and treatments; the rising cost of medicines is also a primary concern for the Health Programme today.

Moreover, host countries do not seem to promote inclusive strategies for refugees in their health systems.

UNRWA Health Programme is free of charge for Palestine Refugees. With a main average of daily consultations *per* doctor of 96 Agency-wide and 9.5 million of medical consultations in 2007, service overcrowding represents a main challenge for UNRWA.

Among Palestine Refugees the number of under 18 year-old children represents 38.3% of the entire population while women of reproductive age (15-49 years) make up 22%. Infant mortality rate is 22‰ live births and child mortality rate is 24.4‰.

UNRWA Health Programme has a community-based approach following Primary Health Care principles. Four programmes are now ongoing.

The *Curative Medical Care Services Programme* aims to reduce disability and mortality for chronic and acute illness. Its activities include patient medical care, issuing medicines, laboratory investigations, radiology services, oral health services, physical rehabilitation. One hundred and twenty-eight primary health care facilities integrate their work with health protection and promotion activities.

The *Health Protection and Promotion Programme* deals women and children's well being and its approach includes pre-natal, natal and post-natal care, family planning and infant and child health. Moreover, school services, nutritional

surveillance, mental health, sexually transmitted disease prevention, cervical and breast cancer screening as for hereditary anaemia strengthen this approach.

The *Disease Prevention and Control Programme* provides immunization coverage for infective disease. In 2007 it reached 98.7% of infants aged 12 months. The programme aims to control poliomyelitis, neonatal tetanus, measles and tuberculosis. As part of the PHC activities the programme provides control for non-communicable diseases such as diabetes mellitus, hypertension and cardiovascular diseases.

The *Environmental Health Programme* aims to reduce the risk for pathologies arising from poor environmental conditions and carries out sanitation and waste management systems in the camps. These services are sometimes provided with the collaboration of local authorities.

The main effort of this programme is made in Lebanon, West Bank and Gaza Strip due to the poor condition of these Fields.

### *2.1 The evaluation - Materials*

Evaluating a programme means to assess the needs of the served population, implemented strategies and undertaken actions, its tendency and results to better define future strategies <sup>(3)</sup>. It is agreed on by each involved party (donors, responsible staff, stakeholders, evaluation team) and follows previously stated Terms of Reference (TOR): the background of the party commissioning the evaluation, its requirements and expectations, the standards of the evaluation, the design of the evaluation, the roles and responsibilities of the Evaluation Team (ET), and the goal of the evaluation.

### *2.1.1 Evaluation Team (ET)*

The ET was composed by two Dental Surgeons (DS) from COI NGO and one Paediatrician, consultant of the WHO Collaborating Centre of Milan for Epidemiology and Community Dentistry.

### *2.1.2 Evaluation Background*

The evaluation was prepared according to the following main sources of information:

- United Nations Relief and Work Agency For Palestine Refugees in the Near East (UNRWA), Annual Report of the Department of Health 2007
- Meeting of the Senior Dental Surgeons, Summary record, Head Quarter, Amman, Jordan, August 2007
- Technical Instructions on the Provision of Oral Health Services. No. HD/MC/01/2003. Revision No. 1/2008
- UNRWA Medium Term Plan, A better future for Palestinian Refugees 2005-2009. UNRWA Headquarters, Gaza, 2005
- UNRWA web site, [www.un.org/unrwa/](http://www.un.org/unrwa/) (*consulted on April 2008*)

The ET preliminarily analyzed and reviewed those materials in order to better understand current UNRWA Oral Health Services and set the evaluation methodology.

The main findings of this review were:

- UNRWA Oral Health Services have the objective of protecting, preserving and promoting the oral health of the registered Palestine Refugees in the five Fields of intervention;
- Oral Health Services are included in the Curative Medical Care Services Programme at the Head Quarter; there is one Senior Dental Surgeon (SDS) for each Field that is directly supervised by the Head Quarter reviewing working conditions and coordinating activities and services for local Dental Surgeons (DS);

- The growing demand for oral care and dental consultations by the refugee population led UNRWA to increase oral health services in 2007 with the result of having now 101 fixed and 10 mobile dental clinics Agency-wide and a few dental clinics shifted to full-time activity. All dental clinics are performing the widest range of dental procedures including Root Canal Treatments (RCT);
- Other major achievements are the upgrading of available equipment, the establishment of new DS posts, periodic meetings for training and annual service evaluation; more importantly, the Crown Down technique for RCT, wireless led light curing units, glass bead sterilizers are likely to be introduced;
- Main challenges for UNRWA services are budget limitations, the high turnover of practical Nurses such as the absence of Dental Assistants and Dental Hygienists and a proper work environment (e.g. water purification systems); additionally, movement limitations both for people and goods are threatening the current service in oPt;
- Special attention is paid to dental supplies and tools for conservative and endodontic practice;
- Every dental procedure is assigned a workload unit value; dental key performance indicators are average productivity in workload units/hour for each DS (target 50WLUs/hr), average daily dental consultation for DS (target 25) and percentage of restorative procedures to total treatment procedures;
- The number of dental consultations was 737,601 in 2007 in the 5 Fields (7% increment with respect to 2006) and the main workload was 38 consultations *per day/DS*;
- In 2008 Technical Instructions on the Provision of Oral Health Services were updated to better define objectives and strategies; their objective is to prevent, detect and treat dental and periodontal pathologies focusing on certain target groups such as pregnant women and school children; a special emphasis is given to school activities both for prevention and screenings;

- Fixed dental clinics carry out screening of registered pregnant women and health educational activities in schools. School children within reach of the clinic are screened at school entrance and at 9 years of age. Further periodic screening are made for school children aged 12 and 15;
- The data of the annual school children screenings are reported to be used to calculate DMFT index;
- In Technical Instructions DMFT data collection is then recommended every 5 years on a larger scale;
- Mobile dental clinics aim to provide community oral health services for those who do not live in reach of fixed facilities;
- Dental procedures are clearly standardized both for basic treatments (sealants, scaling and fillings) and high level treatments (e.g. RCT);
- Cross Infection Control and Radiation Hazards Control are taken into account;
- These activities are coordinated and the guidelines are updated by the Head Laboratory and Medical Services staff with SDSs Agency-wide;
- Daily registers, dental clinic cards, ante-natal records, school health records and daily journal of work are provided;
- Instructions for evaluation of the services on an annual basis are stated;
- UNRWA Oral Health Services are free of charge for registered Palestine Refugees. Since the demand for oral care is increasing and the costs of the service are rising, oral pathology definitely represent a big challenge for UNRWA Health Programme.

### *2.1.3 Evaluation Goal*

The goal of the evaluation was to assess UNRWA Oral Health Services policies, strategies and activities considering relevance, effectiveness, efficiency, impact and sustainability (evaluation criteria).

- Relevance represents how the programme responds to priorities, needs and policies of the target beneficiaries;

- Effectiveness is the measure of the how results achieve the programme purpose while efficiency measures the quality, quantity and time of results in terms of costs;
- Impact concerns the changes both positive and negative, expected and unexpected carried out by the programme;
- Sustainability, finally, describes how the benefits of the activity are predicted to continue after donor funding and if the activity itself enhances a permanent change.



Beddawi Camp, Trypolis, Lebanon

## *2.2 The Evaluation - Methods*

To achieve the evaluation goal, ET focused on the Oral Health Service orientation toward community and ongoing preventive actions, the interrelation between UNRWA Health Protection and Promotion Programme and Oral Health Service,

DS' daily activities, work-load and their most frequent reported problems, such as work organization and technical/clinical aspects.

### *2.2.1 Evaluation Setting*

The evaluation was conducted from the 18<sup>th</sup> to the 27<sup>th</sup> of May, 2008 in Jordan, Lebanon and Syria Fields (3 days each) visiting Health Centre Dental Clinics/Mobile Dental Clinics in the camps (*as following*):

- Jordan Field (18<sup>th</sup> – 20<sup>th</sup> May): South Baq'a Health Centre, Jarash Health Centre, Suf Health Centre and Mobile Dental Clinic at Taibeh Primary School for Males;
- Lebanon Field (21<sup>st</sup> -23<sup>rd</sup> May): Burj Barajneh Health Centre, Mar Elias Health Centre, Saida Polyclinic, Mobile Dental Clinic at Sakhra School in Saida and Beddawi Health Centre;
- Syria Field (25<sup>th</sup> – 27<sup>th</sup> May): Qabr Essit Health Centre, Khan Dannoun Health Centre, Palestine Health Centre, Al-Jalil Health Centre and Mobile Dental Clinic at Yarmouk Camp.

The Evaluation team was accompanied and facilitated by Mr. Ahmad Al Natour (Head Laboratory & Medical Diagnostics Services and coordinator of Dental Services, Head Quarter, Amman) in Jordan and Lebanon Fields, by Dr Stefania Pace-Shanklin (Health Policy & Planning Officer, Head Quarter, Amman) in Syria Field and by Field Senior Dental Surgeons: Dr Amjad Ma'touq (Jordan), Dr Zaki Al-Saleh (Lebanon) and Dr Mohammed Salameh (Syrian Arab Republic).

The ET conducted preliminary meetings with UNRWA Health Department staff, Field Health Program Chiefs and Health Centre Senior Medical Officers.

Semi-structured interviews with Senior Dental Surgeons, Dental Surgeons, Dental Assistants, Dental Nurses and Dental Hygienists were conducted using a specific checklist (Annex 2).

Main topics of the interviews are:

- General context - analyzing the area and the population profile, education system, environmental conditions, access and security, other health facilities, fluoride availability;
- Current services - type, access, enrolled personnel, patients' request;
- Dental practice - daily work-load, technical supplies, sterilization process, cross-infection control, provided treatments, service preventive/curative orientation;
- Strategies - oral health preventive programmes, interrelation with ante/post-natal health services and schools;
- DS and SDS were required to address their main needs and daily problems and to provide proposals to improve UNRWA Oral Health Services.

Further meetings were held with Health Protection and Promotion Programme staff and schools' Managers where possible.

### *2.2.2 Evaluation Report*

After the evaluation mission in the Fields the ET debriefed at the UNRWA Department of Health Head Quarter in Amman, Jordan. Each member of the Headquarter was present. The ET highlighted the main recorded findings and focused on the primary health care approach for oral health. Terms for the handover of the evaluation report were agreed.

The evaluation report was written from June to July 2007 and was later considered by UNRWA Health Department staff.

### *2.3 The evaluation - Results*

During the evaluation, the ET mostly focused on 4 main topics:

- The preventive approach of UNRWA Oral Health Service;
- The priorities of the service;



- Cross infection control measures;
- Epidemiological research procedures.

Aiming to analyze UNRWA evaluation findings according to PHC, this thesis will take into account specifically UNRWA Oral Health Services preventive approach and priorities.

### *2.3.1 Preventive Approach*

UNRWA Health Programme is mainly focused on maternal and child health prevention.

One of the main activities for midwives, nurses and doctors is educating mothers to preserve and enhance the health and well being of their children. Unfortunately, oral health is not part of the Health Protection and Promotion Programme yet.

Among UNRWA professionals the importance of oral prevention is widely recognized and the advisability of reinforcing oral health through collaboration with other health components of the health centre is being considered (i.e. midwives, ante- and post-natal care nurses, general doctors, paediatricians).

Unfortunately, such linkage from pregnancy to school entrance is weak due to the high rate of women of reproductive age and nursing mothers and the high workload for Health Centres.

During that period the opportunities to prevent diseases of temporary teeth and to develop proper oral health behaviour are insufficient, so that prevention misses its early potential and fundamental steps.

Oral health education is not yet part of the ante- and post-natal health education such as breastfeeding and nutrition, while the community oral health preventive culture is reported to be scarce.

The first opportunity for oral health education is during children's first year of school within DS screening activities (at 6 years age).

A preschool oral health preventive programme and screening for Early Childhood Caries (ECC) from birth to 6 years age have not yet been carried out.

Pregnancy is also a valuable occasion to enhance oral health education. Even though pregnant women are screened for oral health, the chance to set up a proper fluoride exposure is not considered (e.g. recommending the use of fluoride tablets).

A community exposure to fluoride is hampered by the lack of proper facilities. No water fluoridation is implemented and reliable data on fluoride concentration in the water available in the camps are not at hand.

At the same time, family income in the camps is reported to be too low to afford fluoride toothpaste or tablets.

UNRWA health and nutrition school activities are reported to be sound and effective.

DSs visit school children in 1<sup>st</sup> grade and carry out education sessions for oral health. Nevertheless, the high number of children makes it very difficult for this activity to be integrated into school programs.

Unfortunately, schools have problems in promoting and managing fluoride mouth-rinsing or tooth-brushing during school time.

Moreover, unhealthy and cariogenic food and drinks are available in school canteens despite health technical instructions.

First graders are all screened for oral disease and cavities in the school and referred to dental clinics for treatments (either the mobile clinic outside the school for the ongoing day and the closest health centre). According to DSs, only 20-30% of the referred children actually go to the health centre afterwards and the majority of decayed teeth remain untreated.

The choice of sealant materials is oriented towards resin-based products. The advisability of using other products like glass-ionomer (GI) materials, has not been

considered nor verified yet. Some DSs question the effectiveness of sealants and some of them report a lack of performance for GI.

The ET reported three different approaches for sealants: in Jordan, it is performed only for high-risk screened children; in Lebanon, for all first graders; and in Syria, they are not performed at all due to a lack of resources.

### *2.3.2 Service Priorities*

The huge request for treatments and the consequent heavy workload lead UNRWA Oral Health Services to provide for people needing curative treatment, and restorative dentistry represents the majority of procedures (fillings and RCTs).

Moreover, DSs reported to have rarely attended courses in community dentistry and the most frequent topic for their continuing education is restorative dentistry.

By responding to the high demand for curative treatments, UNRWA Oral Health Services mainly benefit people with urgent needs and they have not had a sufficient effect on the whole community yet.

The reported daily workload average was of 32 consultations *per* DS in 2007. Given this data, the huge request for treatments and the consequent high workload result to drain service resources for primary prevention (e.g. sealants), although its importance is widely recognized by UNRWA dentists.

Therefore, the curative approach alone cannot effectively reduce oral disease prevalence and Palestine Refugees oral disease rates are predicted to grow.

### *2.4 The Lebanese follow-up*

The UNRWA Oral Health Services Follow-up for the Lebanon Field was conducted between June and July 2009 by two members of the previous ET. It was requested by Health Department Head Quarter in Amman and the Lebanese Office in Beirut. It was intended to produce a strategy for action to be implemented in the Lebanese field.

### 2.4.1 Situation analysis

The follow-up was not conducted on the field; aimed to rationalise current services it focused on available data. A significant part of the undertaken analysis was about economic relevance of interventions and budget allocation: this data is specifically confidential and is not reported here.

Background for this follow-up were:

- The current UNRWA Oral Health Services in Lebanon Field (table 1);
- The evaluation of UNRWA Oral Health Services conducted in 2008;
- The TORs of the present Follow-Up (table 2).

Oral Health Services – Lebanon Field, 2008		
Facilities		
<i>Fixed</i>	<i>Mobile dental units</i>	
19	4	
Personnel <sup>a</sup>		
<i>Full time DSs</i>	<i>Part time DSs</i>	<i>Ratio DS/pop<sup>b</sup></i>
12	5	1/17,062
Dental procedures		
<i>Kind</i>	<i>Number</i>	<i>% of dental workload</i>
Extractions	17,897	24.8
Fillings	30,016	32.3
RCT	5,327	10.9
Sealants	2,048	1.8
Scaling	6,630	8.6
Screening <sup>c</sup>	16,438	5.3
Others	39,593	16.3
Total	117,949	100.0

Table 1 - UNRWA Oral Health Services in Lebanon Field, 2008

a: with the addition of 1 dental hygienist; b: active population of 247,402 registered at the clinics; c: pregnant women, nursing mothers and school children

Terms of Reference of the Lebanese follow-up, 2009
Follow-up on the evaluation of oral health services conducted in May 2008
Advise on the need for re-orientation of the oral health programme towards prevention
Study the workload at each dental clinic and advise on possible re-organization
Review the organization of dental clinics in Lebanon Field and advise on possible re-distribution

Table 2 – TORs of the Lebanese follow-up, 2009

#### 2.4.2 Results

UNRWA efforts towards the maintenance of its public health system together with its commitment to Primary Health Care (PHC) are both very important and valuable resources to meet the goal of good health and general well being for Palestine Refugees.

A sector of UNRWA Health Program dedicated to dental care and oral health promotion is essential for Palestine Refugees living in Lebanon. The reasons are:

- The very high prevalence of oral pathology, especially among children;
- The difficult access to alternative dental care providers;
- The very high cost of dental care if outsourced;
- The strong request for dental care from refugees.

Current Oral Health Services are inspired to PHC philosophy. Basic oral care is provided and also preventive activities for some target groups.

Services in Lebanon Field comprise of both curative and preventive aspects. Through a network of 19 fixed dental clinics (of the 29 fixed primary health care facilities) and 4 mobile dental units (MDUs) oral urgent treatments, primary/secondary preventive and basic curative procedures are provided (117,949 in 2008).

Fixed dental clinics avoid high-level procedures such as orthodontics, implantation, dentures and periodontal surgery. MDUs supply both curative and preventive

treatments for schoolchildren at school time and serve the refugee population in the gatherings during school holidays.

Oral health screening is provided for pregnant women, nursing mothers and schoolchildren.

Current services are already oriented toward PCH but preventive strategies and linkage with other health sectors should be reinforced and would greatly benefit both oral and general health.

Oral health for Palestine refugees living in the camps is a serious problem that needs to be carefully addressed and planned. The reasons why it is so relevant are many, but the most important is that dental decay highly affects children and young people (28.3% of the population) and it is the most common pathology for children entering school.

### 3. UNRWA Oral Health Services - Discussion

With the Global Oral Health Programme, WHO priority action areas for the improvement of oral health worldwide are <sup>(4)</sup>:

- Effective use of fluoride (drinking-water, salt, or milk, or topical use of fluoride such as affordable fluoride toothpaste);
- Healthy diet and nutrition (lower consumption of sugars and increased consumption of fruits);
- Control of tobacco and alcohol consumption (prevention of oral-cavity cancer and oral pre-cancer);
- Oral health of children and youth through Health Promoting Schools (aiming at developing healthy lifestyles and self-care practices in children);
- Oral health improvement amongst the elderly (through integrated disease prevention and emphasis on age-friendly primary health care);
- Oral health, general health and quality of life;
- Oral health systems (building of capacity in oral-health systems oriented to PHC, ranging from prevention, early diagnosis and intervention to provision of treatment and rehabilitation, and the management of oral health problems of the population according to needs and to resources available – focus on specially trained primary health-care workers in those countries with critical shortages of oral-health personnel);
- HIV/AIDS and oral health (early diagnosis, prevention and treatment);
- Oral health information systems, evidence for oral health policy and formulation of goals (focusing on the surveillance of oral health and risk factors);
- Research for oral health (aimed at bridging gaps in research between low-middle- and high-income countries) and translation of knowledge about oral-health promotion and disease prevention into public-health action programmes.

From the WHO web site <sup>(5)</sup>:

Given the extent of the problem, oral diseases are major public health problems. Their impact on individuals and communities, as a result of pain and suffering, impairment of function and reduced quality of life, is considerable. Moreover, traditional treatment of oral disease is extremely costly, the fourth most expensive disease to treat in most industrialized countries.

Traditional treatments are ineffective: during the last 40 years, fillings accounted for only 3% of the reduction in tooth decay in 12-year-olds in industrialised countries. The significant decrease for dental decays was determined by the introduction of fluoride toothpaste and the general socio-economic development <sup>(6,7)</sup>.

In order to meet the needs of those who suffer more from oral diseases (the most fragile groups of society) prevention is the only feasible and effective path. Unfortunately, worldwide oral health is often focused on the individual approach instead of on the community one. Moreover, oral health is still seen as expendable and oral disease is naturally accepted in the course of life. Patients' perception is influenced by the general curative approach and they boost it in return with a high demand for more and more high-level treatments.

On a series of papers published by Community Dental Health in 2004 authors reported how parents' perception of oral pathology could determine their children's oral health status, how dental personnel attitude could orient health systems through community or curative approach and how socio-economic and ethnic diversity could influence oral hygiene and diet <sup>(8,9,10,11)</sup>.

UNRWA Health Programme is community oriented and PHC is widely recognized as a leading principle to better achieve the programme goals and to produce the highest result for Palestine Refugees health. It has a community-oriented approach, which tends to integrate all aspects of health, looking for people participation and



for a responsible and high commitment of the whole health staff to improve Palestine Refugees health and quality of life.

ET and UNRWA Health Department staff agreed on the necessity to reorient Oral Health Services towards a community approach and to include it into PHC.

Oral health represents a relevant challenge for UNRWA Health Department due to the difficulty of organizing services both for cure and prevention, the management of technical aspects, the high costs of the service, the rising demand for treatments among refugees and the high prevalence of oral pathologies especially among children.

So, ET's commitment has been to highlight points of strength of the service (especially the high commitment of oral health staff) and to support it with some proposals to better use all the potentialities already present.

### *3.1 Evaluation Criteria*

The analysis of the evaluation criteria has been carried out as follows.

**Relevance:** UNRWA oral health program is utterly relevant to individuals with dental diseases. It properly responds to their need for treatment. However, from the community perspective, the program is not relevant since the community preventive goal is not achieved.

**Effectiveness:** the program is effective in terms of providing treatment but it is not so in terms of promoting oral health for the community.

**Efficiency:** services at UNRWA are efficient if compared to the cost of the same service in host countries.

The cost of oral health services provided by UNRWA during 2007 (including treatments, staff, consumable supplies and equipment maintenance) was US\$ 3.527

million. Outsourcing equivalent services through host countries health systems would have cost US\$ 13.301 million (source: UNRWA Health Department, Amman, Jordan, 2007). The cost at UNRWA continued to be far below public rates. This means that UNRWA oral health services activity is more efficient for the Agency than referring patients to external services in host countries, which would lead to an additional cost.

Impact: even though the importance of prevention is widely recognized among UNRWA staff, preventive actions start too late, are not homogeneous and so cannot result in a significant decrease of dental pathologies.

Sustainability: without setting and leading proper oral preventive measures, treatment demand and pathology indexes are predicted to grow hence becoming unsustainable for UNRWA.

### *3.2 Preventive Approach*

Dental decay, the most common oral disease, as been seen as an example of so-called “behavioural” diseases by focusing on healthy habits as personal responsibility for decades. Surely, nutrition, hygiene, fluoride products alongside with professional interventions (e.g. sealants) are relevant to prevent decay but the above level of determinants cannot be easily forgotten. Socio-economic conditions and health systems orientation surely represent the root cause of caries (figure 4).

Untreated caries can lead to severe consequences such as pain, fever, abscess, local chronic infections, fistulae, and to an increased consumption of antibiotic and painkillers. Moreover, there is a relationship between untreated caries and other chronic conditions like diabetes and cardiovascular diseases. Finally, poor oral health badly affects growth and school attendance.

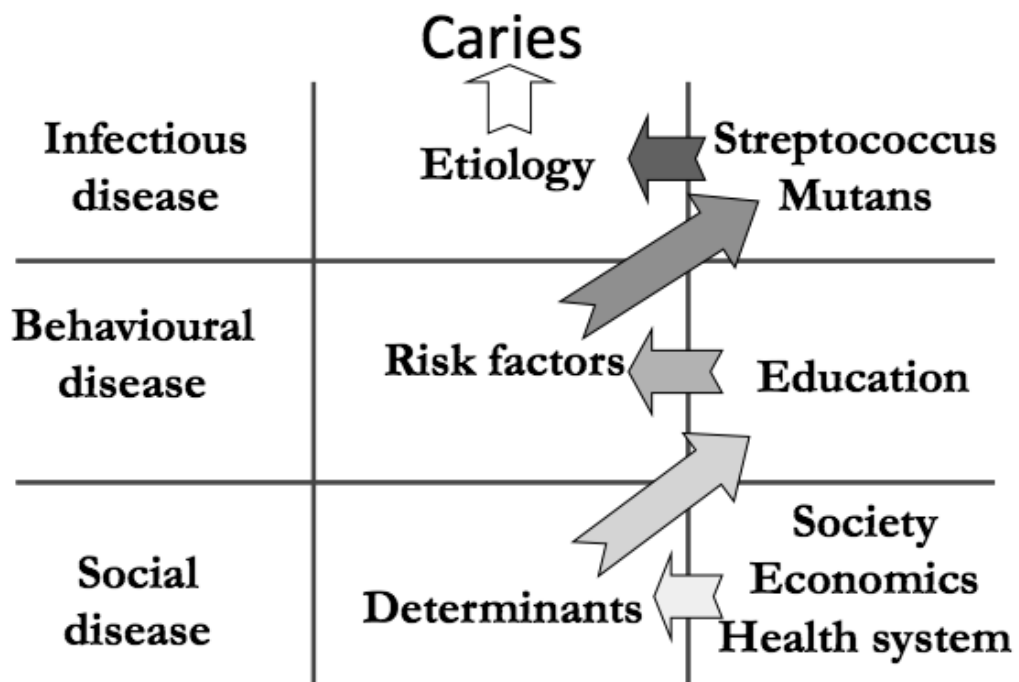


Figure 4 – Aetiology, risk factors and determinants of dental decay

As recommended by many authors and policy makers, prevention is the key of success when addressing oral pathologies in a defined community.

### 3.2.1 Nutrition and hygiene

From the WHO web site:

Dental diseases impact considerably on self-esteem and quality of life and are expensive to treat. Nutrition affects the teeth during development and malnutrition may exacerbate periodontal and oral infectious diseases. However, the most significant effect of nutrition on teeth is the local action of diet in the mouth on the development of dental caries and enamel erosion. Dental erosion is increasing and is associated with dietary acids, a major source of which is soft drinks <sup>(12)</sup>.

The association between amount and frequency of sugar intake and dental decay is widely recognized and many studies both *in vitro* and *in vivo* have reported how demineralization and re-mineralization process occurs.

WHO highlighted that health authorities and policy makers of those countries with high sugar consumption should promote oral health programmes recommending a sugar intake of no more than 10% of energy intake and no more than 4 times *per* day of sugar consumption <sup>(12)</sup>.

Early Childhood Caries are a severe and common condition, affecting children up to three years. The bad habit of sleeping with the baby-bottle containing sweet drinks or to suck a pacifier covered with honey or sugar leads to severe decay of temporary teeth causing pain, abscess, fistula, chewing inability, and high need for treatments early on.

With the exception of dental floss, dental hygiene starts from an early age with toothbrush and toothpaste. Children must be allowed to a correct brushing technique as soon as possible to remove plaque avoiding dental decays and periodontal diseases. Brushing twice a day with fluoride toothpaste is the most effective measure in preventing dental decays <sup>(7)</sup>.

School-time is the major occasion to implement tooth-brushing programmes reaching children from all social levels.

Nutrition and hygiene can be effective only educating the community. Midwives together with other maternal and child health staff have the “golden chance” to focus on oral health prevention completing their educational activity starting from pregnancy.

Starting prevention as soon as the baby is born, or better during pregnancy represents a challenge for a public health system inspired by PHC because it needs integration with other health sectors like Maternal and Child Health (MCH) and schools, and also involving non dental staff. Moreover, MCH staff is already and naturally oriented toward prevention, so it can play a key-role in oral health.

Growth and vaccination screenings, from birth to 3 years, are both good and inexpensive opportunities to strongly motivate mothers to consider their children’s oral health. And this is also a good opportunity to establish a communication

network between families and health staff using community potentialities that have not already been used.

This is very important considering that UNRWA immunization programme covers 99% of registered Palestine children.

Schoolchildren education strengthens mothers' education (teachers, canteens, pamphlets, etc.). After which, educated mothers (peer to peer), mass media and the whole community can complete the educational process. This is the only effective basis for a sustainable development.

### *3.2.2 Fluoride*

Fluoride is recognized as one of the 50 essential drugs by WHO. Much research highlights the relationship between fluoride exposure, dental decays and enamel demineralization and re-mineralization and many reviews have highlighted the evidence of that relation <sup>(13-16)</sup>.

Fluoride is today considered as the most effective preventive measure for dental decays <sup>(7)</sup>.

Many more measures are at hand to assure people the correct fluoride exposure both achieving a better result in terms of dental re-mineralization and avoiding dental and general fluorosis.

In addition to measures of community exposure (water, salt and milk fluoridation), there are self-applied measures including fluoride toothpaste and rinses, as well as professionally applied or prescribed varnish, gel and tablets <sup>(7)</sup>.

In "Effective use of fluorides for the prevention of dental caries in the 21st century: the WHO approach", Prof. Petersen reported results of many systematic reviews on fluoride <sup>(17)</sup>:

- Water fluoridation reduces the prevalence of dental caries (% with dmft /DMFT > 0) by 15% and in absolute terms by 2.2 dmft/DMFT;
- Fluoride toothpastes and mouth rinses reduce the DMFS 3-year increment by 24–26%;

- There is no credible evidence that water fluoridation is associated with any adverse health effects;
- At certain concentrations of fluoride, water fluoridation is associated with an increased risk of unaesthetic dental fluorosis although further analysis suggested that the risk might be substantially greater in naturally fluoridated areas and less in artificially fluoridated areas;
- There is a paucity of research into any possible adverse effects of fluoride toothpastes and rinses.

Toothpaste is recognized as the most effective way to deliver fluoride <sup>(7)</sup>. Many authors have claimed the evidence of its effectiveness. Marinho in 2003 reported a 24% reduction of decay in permanent teeth for children from 6 to 16 years age (Cochrane review) <sup>(18)</sup>.

UNRWA Health Programme and Palestine Refugee profile are suitable and in need of community exposure to fluoride. In some camps, UNRWA manages waterworks and water fluoridation feasibility should be verified. The high health surveillance for pregnant women and nursing mothers could be a good opportunity to advise and provide fluoride tablets and promote oral health education. Finally, schools should implement mouth-rinsing or tooth-brushing programmes with fluoride toothpaste (e.g. available in large-sized dispensers).

### 3.2.3 Sealant

Sealant is a physical barrier to plaque. It must involve all the first permanent molars (6-7 years) and the second molars (12-13 years) as soon as possible after their complete eruption to properly achieve its preventive effect.

National programs worldwide have reported high results in decay prevention with sealants. From a public health point of view sealants are recommended for the whole target population as a primary preventive measure (as well as vaccine).

Different materials can be used: resin-based materials and GI materials. Literature reports that there is no evidence of different level of effectiveness between resin-

based and GI sealant material in preventing dentine lesion development in pits and fissures over time <sup>(19)</sup>.

Traditional resin based sealant have been widely studied and their effectiveness has been clearly evidenced <sup>(20)</sup>.

It should be mentioned however that GI materials require a wet tooth surface and that are always addicted with fluoride (so to re-mineralize minimal decays). On the other hand, resin-based materials need a completely dry tooth surface for their correct application and their application procedure is more complex (rubber dam use, etching, light curing lamp, electricity, sometimes special dental burns and hand pieces and the better compliance of the patient).

It s worth to point out that the single resin material is usually cheaper than the GI one worldwide, while the resin based material procedure is more expensive due to the required equipment.

Moreover, the GI material can be used both for sealing and filling small cavities <sup>(21)</sup>; it always releases fluoride that is able to heal the early lesions. Finally, GI can be performed by dental therapist or other trained personnel in health centres and even in schools.

This technique, therefore, meets the principles of PHC: prevention (through secondary prevention), appropriate technology, affordable treatment and equitable distribution of services.

From a community point of view GI materials are the best cost-effective choice for sealants and their positive effect on tooth tissues is evidence based.

Considering UNRWA setting, sealants can be properly performed both at school and at the dental clinic.

The correct time for sealants should take into account the eruption of the first molar at 5 to 7 years age; the procedure should be standardized and children from different school grades should be included.

Since many ways to prevent oral decays exist, the better choice would be education and correct fluoride exposure together with sealants for every erupted molar.

Anyway, the more suitable preventive measure for a stated setting should always take into account product market availability, affordability and strategy cost-effectiveness.

### *3.3 Service Priorities*

Oral health is today an unfulfilled need for most people worldwide especially for those belonging to the most disadvantaged groups of society both in low- and high-income countries. The burden of oral disease is growing due to a lack of proper community oral health programmes. The most authoritative organizations around the world are claiming the urgent need to change policies and strategies for oral health while oral pathology still remains a serious concern for health systems.

Oral pathology is the 4<sup>th</sup> most expensive disease to treat in many countries; for this reason priorities should be taken into account when resources are scarce or missing.

The Basic Package for Oral Care (BPOC)<sup>(21,22)</sup> is an approach that has been studied by the Department of Global Oral Health in Nijmegen, the Netherlands, to meet the main oral health needs of people, especially those from the more disadvantaged groups of society.

It emphasizes that the first and more urgent need for people oral health is the resolution of pain. So, the first protocol of the package is Oral Urgent Treatment (OUT): teeth extraction in safe conditions and with a simple kit of instruments, essential drugs, and referring complicated cases to hospital or high-level clinics.

The second step, in case of more available resources, is Affordable Fluoride Toothpaste (AFT): to provide fluoride toothpaste at a cost that people can afford (this is an advocacy level more than a clinical one).

The third and “highest” step is Atraumatic Restorative Treatment (ART): fillings with high viscosity GI materials requiring hand instruments, no need of electricity or plumbed water and almost no need of anaesthesia. With the same material and



with the simplest technique, sealant can be applied, too (with an average cost of 0.50 US dollar per filling or sealant).

Many studies have been conducted about ART. The caries preventive effect of ART sealants using high-viscosity glass-ionomer was found to be higher than that of sealants resin-based<sup>(23,24)</sup>.

Survival rates of ART restorations using high-viscosity glass-ionomers in primary and permanent posterior teeth are high (especially for one surface caries) and do not differ significantly from comparable traditional restorations using amalgam nor from traditional restorations using composite and compomer<sup>(25-29)</sup>.

Outside the package, the local application of a varnish with a high amount of fluoride (Silver Diamine Fluoride, SDF) should be considered. Its effectiveness and sustainability on early lesions is proven even if in some countries it is not available<sup>(30-32)</sup>.

This approach is community oriented and by implementing it many teeth would be extracted instead of having high-level treatments (e.g. RCT). This is the only way in which everybody could receive essential care.

UNRWA dental staff are largely aware of the importance of providing the population with quality services both for treatment and prevention, nevertheless undertaken preventive actions start too late for Palestine Refugees and are unequal thus not producing a significant decrease of dental pathology

High-level treatment improvements, such as RCT, produce healthier teeth for individuals, but have no effect on the community oral health indicators of disease.

Without harmonizing and rationalizing priorities, costs and resources, the need for treatment is predicted to grow. For example, the time required to perform a single RCT - following international standard procedures (e.g. use of rubber dam) – is the same for ten sealants or a similar number of basic simple fillings. Moreover, by allocating more resources for simple fillings and sealants the future need for RCT will decrease.

PHC “aims to provide basic curative and preventive care for all at a cost that the country and community can afford” <sup>(33)</sup>. Unfortunately, basic oral care is rarely included in this system and dentistry's traditional orientation towards individual care rather than a community approach together with its inherent technical - rather than social and behavioural – character are prevalent <sup>(21)</sup>.

As reported in the BPOC Manual, “the philosophy of conventional dentistry must change to one of low-technology treatment, control and prevention to meet the perceived oral health needs and treatment demands of the community” <sup>(21)</sup>.

There is the need for a radical change in dentistry educating a new generation of dentists according to community health principles.

Following PHC approach, oral health services can be more effective and more sustainable in terms of costs, time and required skills and they can bring a benefit to the whole community instead of individuals.

UNRWA Oral Health Services are suitable for PHC principles. Integrating oral care within UNRWA general health community approach can have a real impact on the oral pathology burden of Palestine Refugees, fulfilling their need for cures and achieving the most effective preventive goal for the future. Since UNRWA Oral Health Services have both fixed and mobile running clinics, the most important curative and preventive goal can be simply achieved by reorienting priorities and using the existing resources of the Health Protection and Promotion Programme.

### *3.4 The Lebanese follow-up*

The follow-up aimed to formulate a strategy to operate Oral Health Services on the long term toward prevention and to provide basic oral care for Palestine Refugees.

There is the need for a minimum standard of clinics on the ground having a reasonable ratio dentist/population.

At the same time, Dental Surgeons can dedicate their work to address the need for cures; their efforts is to provide oral urgent treatments and secondary prevention to stop the evolution of untreated caries while primary prevention can be carried out by not dental staff outside fixed dental clinics. A suboptimal ratio dentist/population leads to difficulties to have access to dental facilities in Lebanon. Moreover, the actual preventive strategy can be completed so as not to miss fundamental steps, to reduce the burden of diseases and to achieve a better oral status. In fact, as resulted from 2008 Evaluation, prevention starts too late and the prevalence of children needing treatment at school entrance is dramatically high, being the first represented pathology.

Educational activities can effectively switch from “delivery of knowledge” to “change of habits” (e.g. having children tooth-brushing at school instead of giving oral hygiene lectures).

Data collection of fluoride concentration in available sources of water is essential all over the Field.

#### 4. UNRWA Oral health Services - Recommendations

The evaluation and the follow-up were carried out in the Jordan, Lebanon and Syrian Arab Republic Fields. The proposed recommendations could not be suitable for or applicable to the whole UNRWA area of intervention.

Social, environmental and economic differences for Palestine Refugees between the host countries and within the Fields should be considered to better orient the service priorities and setting.

##### *4.1 Recommendations of the UNRWA Oral Health Service evaluation*

Following the findings and the evaluation criteria analysis, ET formulated recommendations to assist an upgrading process towards oral disease prevention and work organization, so as to rationalize costs and reduce personnel stress.

Recommendations are discussed according to the order of the evaluation findings.

Preventive approach:

- Include oral health education in already existing networks between Health Protection and Promotion staff and families. In this way, it would be easier to promote fluoride use, caries prevention and proper nutrition or nutritional practices. Mothers could then pass the information on through peer-to-peer communication;
- Produce appropriate educational materials to use in health centres, such as posters and videos to be shown in waiting rooms;
- Enforce technical instructions for food to be sold in canteens and discourage unhealthy food in school;
- Revise the strategy for sealants application according to the time of eruption, materials and procedures. Apply sealants at school entrance and at 2<sup>nd</sup> grade for those children with late teeth eruption. Use GI instead of resins-based materials (with no need for a dry setting nor rubber gum) in

order to simplify procedures and reduce costs. Refer school 1<sup>st</sup> graders directly to Dental Clinics for sealants or treatments as part of the new medical examination;

- Check and record fluoride water concentration in camps where water fluoridation is possible;
- Create a campaign for fluoride toothpaste brushing during school time, which could offset the non affordability of toothpaste for families;
- Introduce screening of 3 year old children for ECC to be carried out by Health Protection and Promotion staff.

Service priorities:

- Revise treatment priorities to allocate more resources to community dentistry;
- Rationalising priorities towards RCT;
- Provide the dental staff (especially SDS) with training and links to scientific community dentistry publications.

#### *4.2 Recommendations of the Lebanese follow-up*

Recommendations were formulated to mainly ensure:

- Essential curative provision (oral urgent treatments and secondary prevention);
- Community fluoride exposure for topic prevention.

Distribution of the services on the field and workforce:

- Maintain the current number of fixed dental clinics in the camps.

Treatment priorities for fixed dental clinics:

- Provide basic curative treatments as oral urgent treatments (pain relief, pulpotomy, medical treatments, extractions and referral) for all;

- Provide secondary preventive treatments (those aimed to avoid unnecessary extractions, functional impairment, discomfort and disability, social inequality and, finally, social exclusion);
- Provide RCTs in selected cases and in Dental Surgeon's judgement.

#### MCH services:

- Include oral health prevention within MCH activities;
- Promote oral health education (hygiene and nutrition) and enclose oral health within already existing pamphlets;
- Educate women to avoid sugary baby bottle habit (focus on Early Childhood Caries) and to properly attend infants' oral hygiene;
- Screen toddlers for early tooth decays and refer to fixed dental clinics;
- Make MCH staff responsible for the referral of pregnant women, nursing mothers, preconception care women to fixed dental clinics;

#### School Health:

- Implement and manage (in cooperation with school staff) a fluoride tooth brushing programme for children up to 12 yrs age;
- Screening (simplified approach) of children and referral to fixed dental clinics (under school responsibility).

#### Preliminary activities:

- Train on community dentistry and related topics both dental and not dental involved staff;
- Implement an information campaign to influence care seeking behaviours (discourage demand for drugs and follow scheduled appointments) and to ease changes in access according to priorities;
- Make Head Quarter and Field staff advocate for oral health promotion and guidance.

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## **Part IV - General discussion and conclusion**

*Will you simply remain where every second is worth the same without asking why?*

*Will you keep to be chosen or are you finally going to choose?*

- Fabrizio de Andrè, *Storia di un impiegato*, 1973

[Translation from Italian by the author]

## 1. Why does toothache occur?

Part III of this thesis reported about the evaluation and the subsequent follow-up of UNRWA oral health services.

It has been intended as a pretext to give a practical relevance to parts I and II and to highlight that certain principles are in fact related to oral health, too (despite many papers and speeches).

Dental professionals are not often used to concepts like rationalization, cost-effectiveness or relevance of interventions; by the way, public health deals with wide prospective, decisions, priorities and inner ethics and responsibilities.

Approaching community dentistry with the mindset of the clinician may be misleading, frustrating and, most of all, dangerous. But teeth do not exhaust oral health and a public health approach must exist alongside sound and updated clinics.

### *1.1 Behind UNRWA Oral Health services*

Addressing Palestine refugees health issues in the frame of health determinants is paradigmatic: surely it is important to consider life style and health behaviours and then social and community networks; it is also relevant to discuss health strategies and programmes implemented (cost-effectiveness and impact of different interventions) but it would be a huge mistake to forget the overall context.

Palestine Refugees have no recognition, no governmental asset nor international representation; UNRWA gives a minimum answer to this, the answer of that supranational organization (UN) that is charged by all those states still refusing to recognize the rights of these people.

Therefore, Palestinians live a tremendous hardship, which hampers any sustainable development.

What can be the health condition of a population living without any recognition?

Apart from misleading media information, echoes and testimonies from The West Bank and The Gaza Strip can perfectly describe living conditions of Refugees

yesterday and tomorrow: insecurity, oppression, lack of basic and fundamental means for a living, violation of human rights; everything under the hypocritical watch of western countries.

Even far from that feeble spotlight, Refugees from other countries are far from being secure: among others, it is possible to mention the bombing of Nhar el-Bared camp in the north of Lebanon in the summer of 2006.

What can be the health of these people? It is wrong to think that those facing critical condition such as bombing or embargo cancel other problems: diabetes is a mortal threat if no drug can enter the camp along with other medical supplies, childbirth is a bet when rockets are falling, even a simple and “innocuous” tooth abscess is a problem when there is no one able to pull it out within the gates of the camp.

UNRWA efforts towards the maintenance of its public health system together with its commitment to PHC are both very important and valuable resources in meeting the goal of good health and general well being for Palestine Refugees.

It is true that no sustainable achievement will ever be achieved while the international community does not take a clear and definitive resolution to give back to Palestine Refugees their right to exist.

At the same time, UNRWA has a golden chance, the chance to be a model for development at the eyes of many countries in the wide world.

Paradoxically, UNRWA can be the sole actor managing all the divisions of a welfare state, embodying education, health, employment, housing, infrastructures and so on. Hence, UNRWA can bypass the inner problem of many governments: the inter sector cooperation.

Actually, UNRWA programmes are well integrated with each other and PHC principles inspire many of its strategies and programmes.

By strengthening the linkage of oral health service with general health and education and by rationalising its curative oral service, UNRWA has the asset to provide something that is unique worldwide, a fair and sustainable oral health service.

Realists can say this is utopian but they would take the risk to be hypocrite, again.

## *1.2 The answer of traditional oral health services*

If talking about health determinants sounds theoretical more than practical to most people, health determinants in dentistry are definitely unfashionable.

Surely dentistry is something to talk about (it is often under the spotlight of the private market with many initiatives and much publicity) but it seems like the public health sector does not care of dentistry and the only allowed to manage it are privates; university focuses on a curative approach to oral health and neglects community dentistry; moreover, public health stipulates agreements with the private sector here and there, with no attention to the real determinants to access.

At the same time, demand for care is unsatisfied while it is predicted to grow everywhere and especially among those with poor or no access to care.

Surely it is not like this everywhere, but many countries face this situation (with no distinction among low- middle or high-income ones).

The point is that dentistry, whoever is going to pay for it, it is never a good deal; dentistry costs and governments have not the resources; so, they often decide not to include it into their service-packages.

The result is a service that has achieved marvellous levels of technical quality but only for a few people and it fails dramatically when trying to provide care for people apart from their socio-economic background.

Moreover, this current kind of service cannot affect the burden of disease, anyway.

The private sector stands on the one-to-one approach, with no chance to have any effect on the population (especially for preventive measures). Prevention in public health deals with numbers, people and the whole community. The private sector is incapable of doing this and can only invest those few accessing with its hyper-curative approach.

Moreover, a “victim blaming” approach is easily ongoing in dentistry: none or weak community preventive strategies are set up but patients are continuously reminded that tooth decay occurs because they have not flossed nor brushed enough.

In the end, this model leaves the community neglected, especially its more fragile groups: childhood, elderly, chronic affected patients.

Among others, a solution like this has been often announced: more dentists and more cures.

The point is that cures are not the solution of the problem (while they are maybe the cause).

The point is that curative dentistry (the western traditional approach to dentistry) that is taught at university, practiced in clinics everywhere (most of which are private) and often exported to many low-income countries (with tens of dental chairs sailing the sea) is over, anachronistic, surpassed and radically incapable to respond to people health needs.

It is maybe too much to say that this kind of dentistry is the cause of the current high burden of oral disease but it surely contributes to maintain it, to have such a burden of toothaches.

Is this the only way to approach the problem? Surely, it is not. The answer is political, first of all.

As Lancet reports in its editorial <sup>(1)</sup>, only prevention can respond to this; only a Primary Oral Health Care approach.

## 2. Mending pieces

Despite many efforts, health is not a right nowadays; it is not seen as a right by many while it is taught, commercialized and outsourced as an ordinary good.

But it is not possible to commercialize a right without deforming its inner nature.

A private model does not fit for rights (every kind of right): an economic barrier will at least always be present. The consequence will be the burden of unsatisfied rights.

The definitive answer to this cannot be charity or no-profit sector even; notwithstanding Ronald Regan and the free-market theory, government is the only realistic solution to the problem.

### *2.1 The social and political science*

Oral health relates to everyone, from any background and within any setting.

Like Economics does not refer to the geometrical world but to the real one, medicine cannot leave aside people, dealing with human beings.

It is a matter of needs and responses. The curative approach, mainly represented by the private sector, leads to a concept of “good oral health” far from reality: it leads to advertisement and models of white teeth and fresh breath. But this is miles away from real needs and, moreover, this is the cause of disguising oral health as something superfluous, aesthetic and commercial.

Other responses are needed.

In the words of Rudolf Virchow, medicine is a social science (and there is huge evidence for this) while politics is nothing but medicine on a large scale <sup>(2)</sup>. Politics can actually determine choices and it is a dangerous mistake to put medicine far away from politics: physicians have the chance to influence decision making; moreover it is vital they do this, while keeping their eyes fixed on real people.

About dentistry, real people are not patients in the clinics: dentistry can be effectively and primarily practiced within schools, nursing homes, council houses, refugee camps, factories, prisons, simply within the community.

Figure 5 is a practical explanation of health determinants affecting the health status of a Tanzanian child with diarrhoea. Many conditions relates to the child, his family, local infrastructures and local service result in his bad health status. The country is a very poor one, with low life expectancy and small public health expenditure.

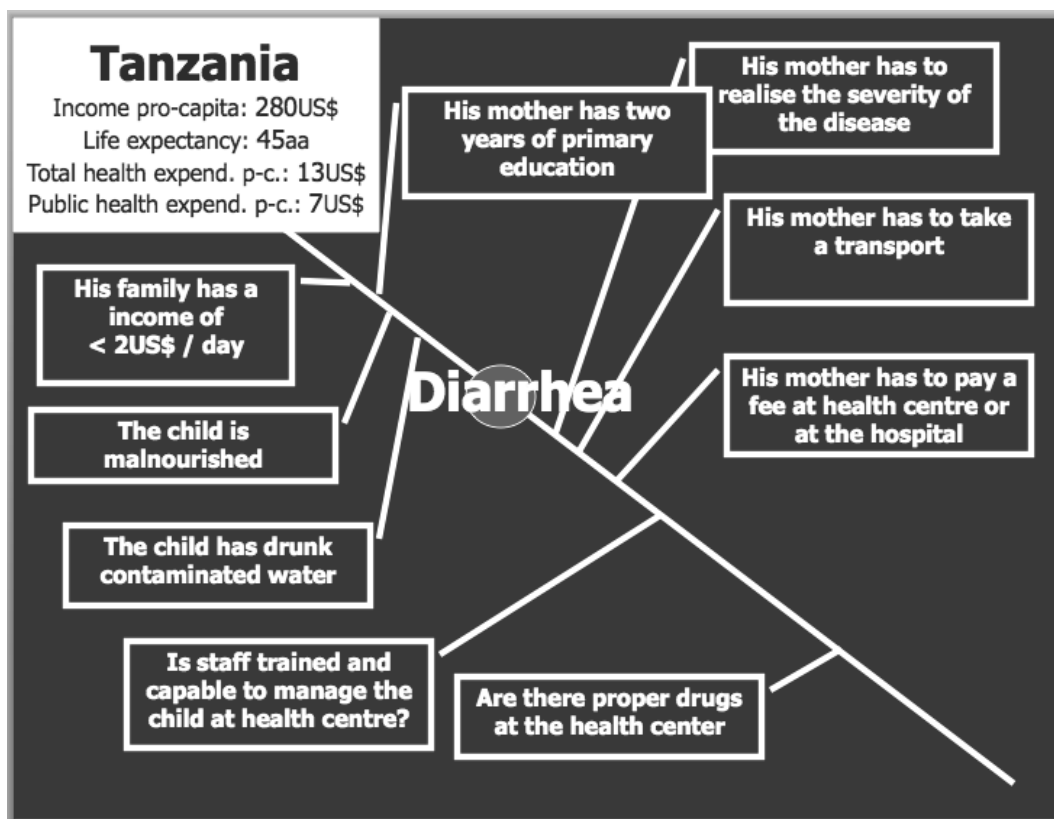


Figure 5 - Health determinants: an explanation. From: *I determinanti della salute. ppt. presentation by Prof. G Maciocco. Corso di Perfezionamento in Medicina Tropicale e Cooperazione Sanitaria. Firenze, 2006.*

Following the same model, figure 6 describes the outcome of childhood caries.



The logic is similar: cultural, environmental, educational and social conditions may determine the occurrence of caries and outcomes (along with the current service).

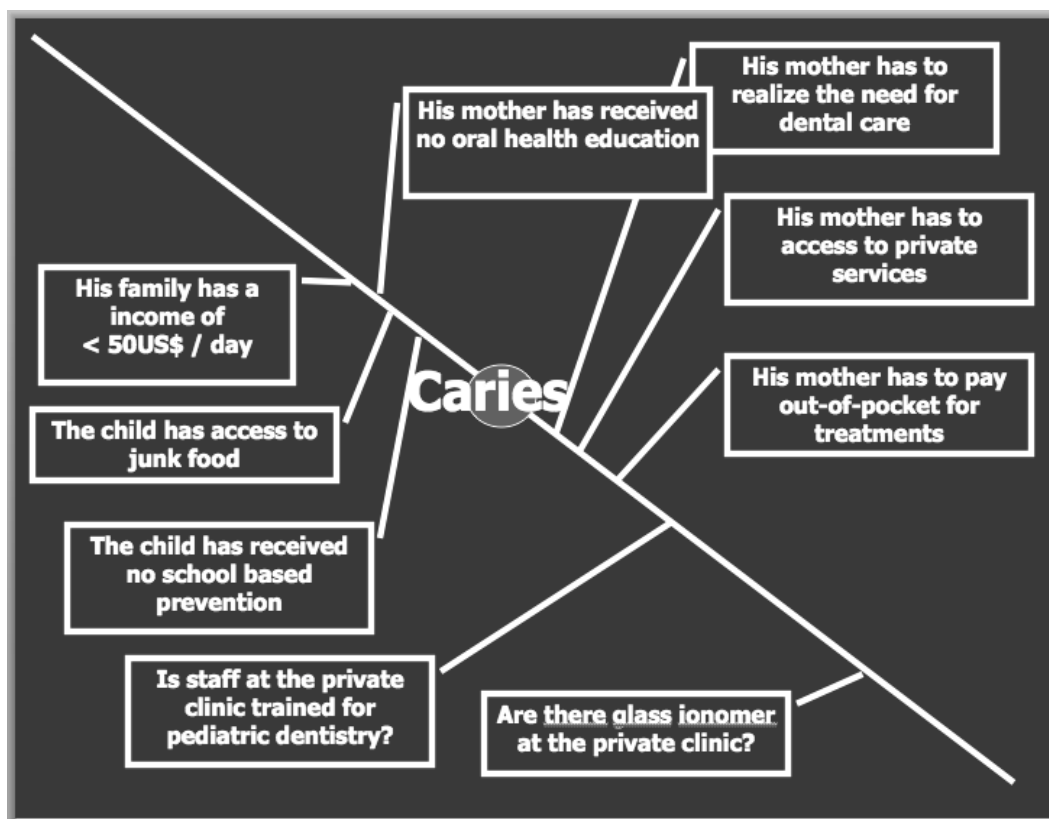


Figure 6 – Oral health determinants: an explanation

The point is that the second picture relates to Italy, a western industrialized country, with a per capita income of 28,970 US\$, a life expectancy of about 80, a total public health expenditure of 2,623 US\$ per person (surely not on public dentistry). What does this mean? That politics actually affect health (among others) and what can be done is only a matter of choices. This last picture depicts an oral health setting that is incapable of making an impact on oral disease, with no clear rule of dental education, practice and public services.

Many authors agree on community health, common risk factor approach and focus on determinants as the main pillars of a preventive medicine capable to improve epidemiological indexes of health.

Dental literature recognize the same risk factors and determinants of general health; surely, many efforts need to be undertaken but it is vital not to miss the chance to set up a proper strategy, without repeating mistakes from the past: no need for hyper technology but realistic epidemiological tools, no need for dental chairs in the middle of nowhere but simple packages of care at any latitude, no need for charity to take on people's needs but sustainable and relevant public health services.

Dental research is fundamental: it must give the inescapable evidence to let politics to address people health needs with relevant and equitable choices.

First of all dental practice should be keen on looking for the primary and real causes of diseases; this should not frighten nor be seen as an outrage to the personnel medical status: this is the responsibility of dentistry. Dentists are not repairmen; they are guardians of the human and social well being. Dentists are not businessmen and they share an inner responsibility for the oral health status of people <sup>(3)</sup>.

But this is not understood nor acknowledged.

The point is that all this relates to health and must concern health staff: because it is also their responsibility. Until health staffs consider their job as a matter of disease-recovery, only a minimum part of their duty will be exhausted.

## *2.2 The possible answer*

As brilliantly summarized in the preface of the Oral Health Atlas <sup>(4)</sup>:

The good news is that nearly all oral diseases are preventable and most are also treatable. Unlike our colleagues in other fields of health, we are lucky enough to have both the knowledge and the tools to significantly improve oral health worldwide, drastically improving both the quality of life and economic productivity of nations.

Dentistry is lucky indeed. It has got specific tools to sum up to the fundamental PHC approach.

PHC has been betrayed (people have been, in facts), and its goal has not been reached for oral health, too. PHC is the more realistic approach to oral health while the traditional curative western approach has completely failed its goal of better oral health. Moreover, PHC is the only sustainable response to people's demand for care since it is the one starting from people's needs (with a bottom-up approach).

Before proposing and exporting a disastrous oral health approach elsewhere, western models and systems need to be rethought, first.

In dentistry, PHC means to debase the burden of disease apart from whoever is going to pay for. It is a matter of choices, of course.

The choice will be at two different levels:

- Policy makers must decide to act and take note, from now on, that not doing this is a matter of ignorance or bad faith; there are no other ways out;
- People must stand up for their rights and be able to know about and make decisions on their health.

Secondly, the choice of what:

- Preventive strategies with no compromises;
- Curative strategies and priorities for an oral health service open to all;
- Adequate and sound training for dental and medical staff;
- Relevant epidemiological research.

Preventive strategies with no compromises means to reduce the real burden of disease while making the entire curative intervention realistic. The reason for prevention is a matter of sustainability: without it any other intervention would be a failure. Treatments alone are unrealistic, expensive and incapable to lower the burden of disease.

Imagine tap water overflowing a sink and washing the floor (figure 7); if the

problem is too much water on the floor what could be the realistic solution? To mop up the floor and to keep the water running? It would be unrealistic and expensive unless turning off the tap before (or trying to, at least). The tap is prevention, cloths are cures.

Surely, the service must provide for treatments of those in need. But whenever a policy maker thinks that is enough, that system will collapse and that model will fail under the burden the unmet preventive goal.



Figure 7 – An explanation for prevention. *From: Burkitt DP. Don't just mop the floor; turn the tap off. McCarrison Society Newsletter; 1989.*

Prevention is the key to address oral health. Effective prevention needs integration with other health sectors like Maternal and Child Health, family and schools, involving non-dental staff also.

Schools can become the venue where healthy behaviours are learnt as preventive actions are undertaken. Educational activities can switch from “delivery of knowledge” to “change of habits”.

Fluoride tooth brushing can be undertaken at school, which could offset the non-affordability of toothpaste for families (i.e. daily tooth brushing at school with a 1,000 – 1,500 ppm fluoride toothpaste up to 12 years of age).

Proper school settings (washing facilities) need to be at place also for general health good practices (e.g. hand washing).

Curative services must address the needs of the most fragile groups, first. No distinction, or economic barriers must hamper access to care. Enough personnel must be recruited according to available resources, who then can be allocated to evidence based basic interventions.

The point is that the most advanced prosthetic or the most complicated root canal treatment are meaningless if they are not for all; of course they will be never (resources are non infinite) and therefore they should be seen as memories of a failed and past approach to oral health.

Curative and preventive activities need to be well balanced in order to be effective and sustainable. The traditional western approach is too much skewed toward treatments to be realistic and relevant for people oral health needs.

Sufficient resources must be allocated for community dentistry.

Basic curative treatments need to be provided to all as well as the ratio dental worker/population needs to be realistic.

In order of priorities:

- Oral urgent treatments (pain relief, medical treatments, extractions and referral of complicated cases where possible);
- Secondary preventive treatments (those aimed to avoid unnecessary extractions, functional impairment, discomfort and disability, social inequality and, finally, social exclusion) such as scaling and simple fillings (especially for children, pregnant women, nursing mothers and chronic patients).

The strategy given by the Basic Package for Oral Care and endorsed by the World Health Organization <sup>(5)</sup> is realistic in almost every setting worldwide since there is neither a fair nor equal oral health setting nowadays.

The participation of all different professionals is essential (paediatricians, nurses, dentists, health workers, teachers and other social staff). All these need to be trained and coordinated to work together.

Training for dental and medical staff must be a priority; everything starts from here. Moreover, dental and general medical staff needs to be integrated not segregated. Different courses at university and even separate professional registers are dangerous signals of a short-sighted oral health model.

Dentistry is in need for general practitioners and vice versa.

Dental students must be educated to understand that being a doctor means to stand up on behalf of those in need (the poorest groups of society - those who cannot pay for treatments -, according to Epidemiology). This concept goes far behind from practice and skills. Whenever a dentist takes care of the only ones who can pay for treatment, he becomes a dealer for his clients. Being a doctor means to rethink this and stand with those who are in need. Being a doctor does not relate to private practice.

Mainly, it is not the fault of practitioners if things have been like this for so long (they have been trained to be dealers) but it should be a matter of pride not to be like this any longer.

Dentists, dental hygienists and other dental health workers must be oriented toward community dentistry and, far from many high-sounding speeches and commitments in official meetings, all the medical class must stand for action within and outside the institutions they represent.

Finally, there is research. Dentistry is not used so much to distinguish between relevant and not relevant research (the caries burden of a population versus the case

study of a new endodontic technique), between realistic and unrealistic research (a new community oral health index versus aesthetic veneers resilience), between sound and unsound research (glass ionomer sealant performance versus correlations between occlusion to posture).

But dentistry is within the global paradox of health research: few resources toward the large majority of disease.

The point is that many countries (including Italy) still lack a national oral health survey on dental caries. What kind of dentistry is possible to plan without this information? How can economic and logistic barriers be debased without knowing the socio-economic burden of disease? How can interventions can be equal and available without knowing who is in need?

Maybe it is already late to keep raising these questions. Maybe it is time to respond to this one: is all this about ethics or scientific evidence? Surprisingly, it happens to be that fairness and scientific evidence coincide in dentistry.

Is this maybe idealistic?

And what is on the other hand? Free market and private practice? Unsustainable technology? Corporatism?

Surely there is not a single receipt for all: here is an example, oral health in sub-Saharan Africa faces many more problems than the Italian oral health service. But what is the difference between the shortage of dentists and having dentists treating only a small percentage of the population? The global problem lays in the approach to oral health. The overall answer is choice.

What is the right choice to make is not simple but it is clear enough. In the words of Paul Krugman, it is again a *new New Deal*, by reducing inequities and expanding public expenditure <sup>(6)</sup>. A social problem needs a social answer for sure.

When Christ will judge me, I know for sure that he will ask me this question, within which all other questions are included: how have you multiplied, in favour of your brothers, the public and private

talents which I entrusted to you? – and I could not excuse myself about my inefficient action with the scientific reasons of the economic system based on a group of pretended unbreakable laws <sup>(7)</sup> [G. La Pira – Translation from Italian by the Author].



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## **Annexes**

### Annex 1

#### **Alma Ata declaration**

*Source: World Health Organization. WHO, Health topics, Primary Health Care, the Declaration of Alma-Ata [Internet]. 2010 [cited 2010 August 23]. Available from: [http://www.who.int/topics/primary\\_health\\_care/en/](http://www.who.int/topics/primary_health_care/en/)*

**Declaration of Alma-Ata  
International Conference on Primary Health Care, Alma-Ata  
USSR, 6-12 September 1978**

The International Conference on Primary Health Care, meeting in Alma-Ata this twelfth day of September in the year Nineteen hundred and seventy-eight, expressing the need for urgent action by all governments, all health and development workers, and the world community to protect and promote the health of all the people of the world, hereby makes the following

#### Declaration

##### **I**

The Conference strongly reaffirms that health, which is a state of complete physical, mental and social well being, and not merely the absence of disease or infirmity, is a fundamental human right and that the attainment of the highest possible level of health is a most important world-wide social goal whose realization requires the action of many other social and economic sectors in addition to the health sector.

##### **II**

The existing gross inequality in the health status of the people particularly between developed and developing countries as well as within countries is politically, socially and economically unacceptable and is, therefore, of common concern to all countries.

##### **III**

Economic and social development, based on a New International Economic Order, is of basic importance to the fullest attainment of health for all and to the reduction of the gap between the health status of the developing and developed countries. The promotion and protection of the health of the people is essential to sustained economic and social development and contributes to a better quality of life and to world peace.

##### **IV**

The people have the right and duty to participate individually and collectively in the planning and

implementation of their health care.

## **V**

Governments have a responsibility for the health of their people which can be fulfilled only by the provision of adequate health and social measures. A main social target of governments, international organizations and the whole world community in the coming decades should be the attainment by all peoples of the world by the year 2000 of a level of health that will permit them to lead a socially and economically productive life.

Primary health care is the key to attaining this target as part of development in the spirit of social justice.

## **VI**

Primary health care is essential health care based on practical, scientifically sound and socially acceptable methods and technology made universally accessible to individuals and families in the community through their full participation and at a cost that the community and country can afford to maintain at every stage of their development in the spirit of self-reliance and self-determination. It forms an integral part both of the country's health system, of which it is the central function and main focus, and of the overall social and economic development of the community. It is the first level of contact of individuals, the family and community with the national health system bringing health care as close as possible to where people live and work, and constitutes the first element of a continuing health care process.

## **VII**

Primary health care:

1. reflects and evolves from the economic conditions and sociocultural and political characteristics of the country and its communities and is based on the application of the relevant results of social, biomedical and health services research and public health experience;
2. addresses the main health problems in the community, providing promotive, preventive, curative and rehabilitative services accordingly;
3. includes at least: education concerning prevailing health problems and the methods of preventing and controlling them; promotion of food supply and proper nutrition; an adequate supply of safe water and basic sanitation; maternal and child health care, including family planning; immunization against the major infectious diseases; prevention and control of locally endemic diseases; appropriate treatment of common diseases and injuries; and provision of essential drugs;
4. involves, in addition to the health sector, all related sectors and aspects of national and community development, in particular agriculture, animal husbandry, food, industry, education, housing, public works, communications and other sectors; and demands the coordinated efforts of all those sectors;
5. requires and promotes maximum community and individual self-reliance and participation in the planning, organization, operation and control of primary health care, making fullest use of local,

national and other available resources; and to this end develops through appropriate education the ability of communities to participate;

6. should be sustained by integrated, functional and mutually supportive referral systems, leading to the progressive improvement of comprehensive health care for all, and giving priority to those most in need;

7. relies, at local and referral levels, on health workers, including physicians, nurses, midwives, auxiliaries and community workers as applicable, as well as traditional practitioners as needed, suitably trained socially and technically to work as a health team and to respond to the expressed health needs of the community.

### **VIII**

All governments should formulate national policies, strategies and plans of action to launch and sustain primary health care as part of a comprehensive national health system and in coordination with other sectors. To this end, it will be necessary to exercise political will, to mobilize the country's resources and to use available external resources rationally.

### **IX**

All countries should cooperate in a spirit of partnership and service to ensure primary health care for all people since the attainment of health by people in any one country directly concerns and benefits every other country. In this context the joint WHO/UNICEF report on primary health care constitutes a solid basis for the further development and operation of primary health care throughout the world.

### **X**

An acceptable level of health for all the people of the world by the year 2000 can be attained through a fuller and better use of the world's resources, a considerable part of which is now spent on armaments and military conflicts. A genuine policy of independence, peace, détente and disarmament could and should release additional resources that could well be devoted to peaceful aims and in particular to the acceleration of social and economic development of which primary health care, as an essential part, should be allotted its proper share.

The International Conference on Primary Health Care calls for urgent and effective national and international action to develop and implement primary health care throughout the world and particularly in developing countries in a spirit of technical cooperation and in keeping with a New International Economic Order. It urges governments, WHO and UNICEF, and other international organizations, as well as multilateral and bilateral agencies, nongovernmental organizations, funding agencies, all health workers and the whole world community to support national and international commitment to primary health care and to channel increased technical and financial support to it, particularly in developing countries. The Conference calls on all the aforementioned to collaborate in introducing, developing and maintaining primary health care in accordance with the spirit and

content of this Declaration.

## Annex 2

### The Evaluation Team form

<b>Evaluation Form</b> Date: May , 2008 Presents:
<b>1 – General Contest</b>
1.1 Country
1.2 Place/Camp
1.3 Area (rural, urban)
1.4 Population profile (displacement, resettlement, return)/Population Numbers
1.5 Local administration/Protection
1.6 Access (practicability)
1.7 Assistance (existing health care facilities, immunisation activities, existing health information system)
1.8 Food security and nutrition (below 5 yrs old)/Main foods and main sources/Access and availability
1.9 Water supply and environmental sanitation [Fluoride concentration]
1.10 Education (% enrolled children, % population literacy)/Work
1.11 Non-food items [fluoride toothpaste use, availability and costs]
<b>2 – Current service</b>
2.1 Typology of service (hospital, health centre, dental clinic, mobile dental team)
2.2 Dental personnel (n° of dental surgeon, nurse, other health staff)
2.3 Access (patients n°, waiting list, travelling distance, patients/day, fees)
2.4 Patients (required cares, carried out cares – kinds and number) Dental hygiene, paedodontics, conservative dentistry, surgery, prosthetics – oral health education
2.5 Presence of a daily activities schedule
<b>3 – Dental practice</b>
3.1 Work load
3.2 Dental chair (n°, use, problems, electricity, windows), Sterilisation (type, process, personnel), Cross Infection Control (instruments and consumables)
3.3 Paedodontics treatments (materials)
3.4 Conservative treatments (materials)
3.5 Equipment setting, problems and needs
3.6 Practice evaluation (service orientation/individual or community approach)
<b>4 - Strategies</b>
4.1 Fluoride use (yes/not)
4.2 Oral health education and promotion (what)
4.3 Oral health preventive programmes (what)
4.4 Chance to join work with schools, women health facilities, elders)
4.5 Higher risk groups identification
4.6 Proposal (local staff)

## List of abbreviations

AFT	Affordable Fluoride Toothpaste
ART	Atraumatic Restorative Treatment
BASCD	British Association for the Study of Community Dentistry
BPOC	Basic Package for Oral Care
COI	Cooperazione Odontoiatrica Internazionale
CRFA	Common Risk Factor Approach
DALY	Disability-adjusted life year
DMFT/dmft	Decayed Missing Filled Teeth
DS	Dental Surgeon
EADPH	European Association of Dental Public Health
ECC	Early Childhood Caries
ET	Evaluation Team
FDI	World Dental Federation
FRESH	Focusing Resources on Effective School Health
GAVI	Global Alliance on Vaccines and Immunization
GFATM	Global Fund to fight HIV/AIDS, Tuberculosis and Malaria
GI	Glass Ionomer
GPN	Gross National Product
GPPPs	Global Public Private Partnerships
HIV/AIDS	Human Immunodeficiency Virus/Acquired Immune Deficiency Syndrome
IADR	International Association for Dental Research
ISTAT	Istituto Nazionale di Statistica
MCH	Maternal and Child Health
MD	Medical Doctor
MDGs	Millennium Development Goals
MDU	Mobile Dental Unit
NGO	Non Governmental Organization
OUT	Oral Urgent Treatment
oPt	Occupied Palestine Territories
PHC	Primary Health Care
RCT	Root Canal Treatment
SDS	Senior Dental Surgeon
TORs	Terms of Reference
UK	United Kingdom
UN	United Nations
UNDP	United Nations Development Programme
UNICEF	United Nations Children's Fund
UNRWA	United Nations Relief and Work Agency
URSS	Union of Soviet Socialist Republics
USA	United States of America
WB	World Bank
WHO	World Health Organization
WHOCC	World Health Organization Collaborating Centre

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