



SOCIAL MEDICINE

Edited by

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Management of Information Systems Projects in Transition to Knowledge

Management

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CONTENTS

Preface	9
1 INTRODUCTION TO SOCIAL MEDICINE (<i>Michaela Kostíčová</i>)	10
1.1 What is Social Medicine?	10
1.2 History of Social Medicine	11
1.3 Health and disease	13
1.3.1 Health and disease concepts	14
1.3.2 Determinants of health and disease	17
1.3.3 Classification of diseases	19
1.3.4 Health and quality of life	20
2 SOCIOLOGY (<i>Silvia Capíková</i>)	24
2.1. The nature and object of sociology	24
2.1.1 Paradigm and theory in sociology	25
2.1.2 Structure of sociology	26
2.2. Sociological research	27
2.2.1 Basic steps in sociological research	27
2.2.2 Research methods in sociology	28
2.3. Sociology of health and illness or medical sociology?	29
2.4. Social groups	29
2.4.1 Types of social groups	30
2.5. Community	31
2.5.1 Community and health	32
2.6. Family	33
2.6.1 Types of family	33
2.6.2 Forms of marriage	34
2.6.3 Kinship structure within the family	35
2.6.4 Family's social functions	35
2.6.5 Fundamental family roles of its members	36
2.6.6 Family and social support	37
2.6.7 Resilience and family	38
2.6.8 Family hierarchy: Inequality and power within family relations	38
2.6.9 Domestic violence	40
2.7. Social stratification	40
2.7.1 Basis of stratification	41
2.7.2 Social status	41
2.7.3 Typology of stratification systems and social mobility	42
2.7.4 Social class or social strata?	43
2.7.5 Implications of stratification for health	45
2.7.6 Racial inequalities	48
2.8. The life course	50

2.8.1 Age	51
2.8.2 The life course perspective	52
2.8.3 Life course and social class	53
2.8.4 Life course perspective in the study of population health	54
2.8.5 The life course health development framework	55
2.9. Culture	60
2.9.1 Core culture and subcultures	62
2.9.2 Culture and health	63
2.9.3 Anomie	63
2.10 Trust	64
2.11. Social change	67
2.11.1 Sources of social change	67
2.11.2 Modernity and Postmodernity	68
2.11.3 Globalization	68
3 SOCIAL DETERMINANTS OF HEALTH AND DISEASE	
(<i>Michaela Kostičová</i>)	72
3.1 The history of social determinants of health	73
3.2 Models of social determinants of health	74
3.2.1 The Dahlgren and Whitehead health determinants model	74
3.2.2 WHO Commission on Social Determinants of Health framework	78
3.3 Social determinants and health inequities	80
3.3.1 Mechanisms to social inequities in health	81
3.3.2 Socioeconomic and political context of health inequities	83
3.3.3 Social determinants and health inequities between and within countries	85
3.4 Recommendations on social determinants of health inequities in Europe	89
4 MEASURING THE HEALTH OF THE POPULATION	
(<i>Michaela Kostičová</i>)	93
4.1 Health information system	93
4.2 Demography	96
4.2.1 Demographic data	96
4.2.2 Demographic static	99
4.2.3 Population changes – demographic dynamics	101
4.2.4 Demographic trends and their implications for health and health care ..	111
4.3 Measures of population health	113
4.3.1 Life expectancy	113
4.3.2 Summary measures of population health – HALE, DALYs	114
4.3.3 Quality of life and health-related quality of life measures	122
4.3.4 Human development index	124
5 HEALTH POLICY (<i>Darina Sedláková</i>)	129
5.1 Health in foreign policy	130
5.2 Health policy and public health	131
5.3 Governance for health	133
5.4 Establishing health policy in a global society (<i>Leonard Levy, Anthony Silvagni,</i> <i>Cecilia Rokusek</i>)	135

6	HEALTH SYSTEMS (<i>Michaela Kostičová</i>)	143
6.1	Health financing	144
6.1.1	Fiscal and health expenditure context	144
6.1.2	Health financing functions	146
6.2	Typology of health systems	150
6.2.1	The national health service (Beveridge model)	150
6.2.2	The social health insurance model (Bismarckian model)	151
6.2.3	The national health insurance model	151
6.2.4	Private health system	151
6.3	Health system in Slovakia	153
7	COORDINATION/INTERGRATION OF HEALTH SERVICES DELIVERY (<i>Darina Sedláková</i>)	157
7.1	Aims and benefits of CIHSD	159
7.2	CIHSD in practice	159
7.3	Improving health outcomes through the CIHSD	160
8	QUALITY IN HEALTH CARE (<i>Michaela Kostičová</i>)	163
8.1	Definitions of quality of health care	163
8.2	Dimensions of quality of health care	164
8.3	Quality management in health care	166
8.3.1	Quality measurement in health care	166
8.3.2	Quality assurance and quality improvement in health care	168
8.4	External models of quality management in health services	168
8.4.1	ISO model - ISO 9000 standards	168
8.4.2	EFQM Excellence Model	169
8.4.3	Accreditation	170
9	EXAMPLE PUBLIC HEALTH STRATEGY – STRATEGY TO COMBAT TUBERCULOSIS (<i>Ivan Solovič</i>)	173
9.1	Global level	173
9.2	Regional level	178
9.3	National level	179
9.4	Local level	180



PREFACE

The social medicine as a scientific and interdisciplinary branch of medicine dealing with the health of the population in broader social context is the concern of all health professionals. This textbook is a study guide and makes no attempt to be a comprehensive description of social medicine. It was written to provide a framework for understanding this complex field. Our goal is to introduce students to the 'social medicine perspective', to provide them the holistic picture as well as to introduce them to the many specialized aspects of social medicine and to allow the students to start to place their practice within the wider social context of health, and determinants of health, of the community in which they work. The chapters cover topics which we hope will enable this goal to be achieved. Though the textbook is primarily written for undergraduate students of Master of Public Health program, it would be of use to medical students and postgraduate students as well.

The textbook is divided into 9 chapters. The first chapter deals with the history of social medicine and its scope and focuses on the concepts of health and disease, their relation to quality of life and determinants of health. The second chapter "Sociology" provides an overview of the basic terminology, concepts, principles and methods of the discipline in relation to the health of individuals and communities. The social determinants as the causes of health inequalities are discussed in the third chapter. The fourth chapter deals with the demography as the basis for the assessment of the health status of the population and special attention is also paid to the most commonly used objective as well as subjective measures of the population health. The way how health care is managed, organized and financed also influences the health of the population. The chapters five and six focus on health policy, health financing and health systems and their role in shaping the health of the population. Organization and management of health services is discussed in the seventh and eighth chapter with the focus on quality management and coordination and integration of health services. The last chapter is an example of public health strategy for how to combat the current global public health threat - the tuberculosis - on the global, regional, national and local levels.

Michaela Kostičová

1 INTRODUCTION TO SOCIAL MEDICINE

Michaela Kostičová

1.1 What is Social Medicine?

Social medicine is a scientific, interdisciplinary branch of medicine that studies the health of the population and the system of health care in broader social context (Figure 1.1). **Social medicine contributes to understanding the determinants of health and how best to apply that knowledge to improve the health of the population.**

Social medicine as part of public health is orientated towards health problems of population groups, their characteristics and determinants and the possibility of their control. The scientific and methodological base of social medicine is primarily epidemiology together with biostatistics as well as social psychology, sociology, law, economy, managerial sciences, philosophy and history.

Social medicine is based on three fundamental questions:

1. What is the health of the population?
2. Why is it so?
3. How to improve health?

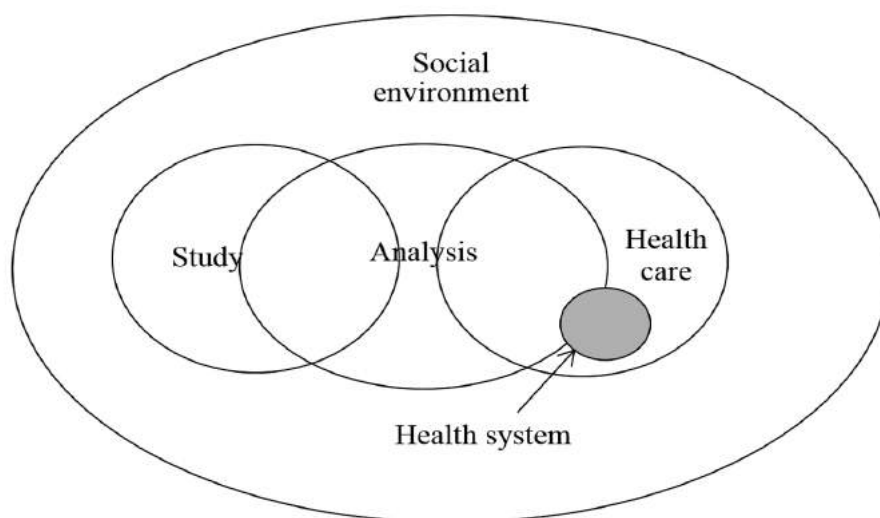


Figure 1.1 Study and analysis of health status in relation to health care and health system in broader social environment context

Source: Holčík, 2005

Social environment is as important as the physical and biological environment in relation to health and disease. The effect of social environment on health is clearly reflected in the differences in the health of the populations between and within countries. In view of the variety of the factors involved, it may be more appropriate to use the term **psychosocioeconomic environment**. This environment is unique to man and includes cultural values, customs, habits, beliefs, attitudes, morals, religion, education, income, occupation, standard of living, community life and the social and political organizations.

The aims of social medicine are:

- To study man as a social being in relation to his total environment (social and physical);
- To pay particular attention to those forces in the socioeconomic sphere that directly or indirectly affect individual and population health.

Over time the term “social medicine” took on varied meanings as it was adapted to different societies and diverse social conditions. Nonetheless, certain common **principles**, which were formulated in the nineteenth century by R. Virchow and his colleagues, underlie the term:

1. Social and economic conditions profoundly impact health, disease, and the practice of medicine.
2. The health of the population is a matter of social concern.
3. Society should promote health through both individual and social means.

As was published by Sidney and Emily Kark, two physicians who practised social medicine in the first community health-oriented center in South Africa established in 1940, “Social medicine is interested in the health of people in relation to their behaviour in social groups and as such is concerned with care of the individual patient as a member of a family and of other significant groups in his daily life. It is also concerned with the health of these groups as such and with that of the whole community as a community”.

The task of teaching social medicine is to build a set of concepts and skills for the students that will enable them to ask the right questions and to tackle the health problems of the population they serve. But physicians cannot practice social medicine alone, they must be part of a collaborating team drawn from a broad range of health professionals and community groups. Professor W. Hobson in his article “What is social medicine?” published in the British Medical Journal in 1949 said and it is also true today: “In the teaching of medicine the accumulation of facts has been pursued, to the neglect of the study of man in his environment. The humanism of medicine is often lost in a welter of technical detail. Social medicine is a branch of medicine which provides a connecting link with the wider humanities. Its philosophy should permeate all branches of medicine, for its implications cannot be divorced from any branch of medical learning”.

1.2 History of Social Medicine

Only in the eighteenth century, largely through the fundamental work of German physician and hygienist **Johann Peter Frank** (1745-1821), widespread attention was finally paid to the influence that poor lifestyle and social conditions exerted on health. Frank called “poverty the mother of disease.” He described in the nine-volumes book a complete system of “medical policy”, a forerunner of “public health”.

The systematic study of the relationships between society, disease, and medicine began in the nineteenth century. Poor working conditions, periodic economic slumps, unemployment, lack of housing, and poverty and destitution all created an environ-

ment that had a significant impact upon people's health. This study – and the forms of medical practice derived from it – became known as “social medicine”.

The beginning of the history of social medicine is connected mainly with the names of German and French physicians. During the revolutionary years of 1847 and 1848, the French doctor and orthopaedist **Jules Guérin** (1860-1910) published a series of articles in the medical journal called **Medicine sociale** describing the link between social and health conditions and was the first to use the term social medicine.

The founder of social medicine is considered to be **Rudolf Virchow** (1821-1902), one of the great pathologists of the nineteenth century, most notably contributing to the understanding of disease at the cellular level. He was also keenly aware of the social origins of illness. In 1848, while working as a staff physician at the Royal Charité Hospital in Berlin, he investigated an outbreak of typhus in the Prussian province of Upper Silesia. Virchow identified social factors, such as poverty and the lack of education and democracy, as key elements in the development of the epidemic. The experience led him to the concept of “artificial epidemics” arising in periods of social disruption. Virchow also wrote these often quoted sentences: “Medicine is a social science and politics nothing but medicine on a grand scale.” And, “If medicine is really to accomplish its great task, it must intervene in political and social life.”

Virchow's understanding of the social origins of illness comprised the source of the broad scope that he defined for public health and the medical scientist. Virchow also envisioned the creation of a “public health service”, an integrated system of publicly owned and operated health care facilities, staffed by health workers who were employed by the state.

In the late nineteenth century the striking advances made in pathology and microbiology made social factors seem less germane in the aetiology of disease. In European countries, with the defeat of political socialism in 1848, the interest in social medicine also declined and was generally considered to be not relevant in the prevailing political climate. Nevertheless, after the turn of the century, due to the increasing dissatisfaction with the health care, particularly of the underprivileged segment of the population, more writers pointed at the social conditions as the cause. In Germany, **Alfred Grotjahn** (1869-1931), a general practitioner in the worker's district of Berlin, was very influential in the preparation for the social changes that took place with the revolution of 1918. His book on “Social Pathology” emphasized the aetiological relationship between social condition and disease, and it advanced, even beyond the borders of Germany, the understanding and acceptance of social medicine as relevant for the practice of medicine. The results of his studies formed the basis for a new scientific branch which was first termed **Social Pathology** and **Social Hygiene** and later **Social Medicine**.

The interwar years witnessed a wide variety of **international developments in social medicine as an academic discipline**. Within international health organizations in the interwar years, supporters of social medicine as an academic discipline tried to undermine any exclusive focus on clinical medicine and pushed towards much broader social agendas. From the time of its establishment, the governing committee of the **League of Nations Health Organization** (later World Health Organization) prioritized the development of social medicine. The international social medicine movement before the Second World War aimed to create a new social role for medicine in order to grapple with the epidemiological transition, from infectious to chronic diseases, created by economic and social developments in the twentieth century. The interdisciplinary program between medicine and social science would provide medicine with the intellectual skills needed to analyze the social causes of health and illness.

It is important to mention that also **Latin America**, during the twentieth century, developed one of the most active centers of social medicine. Two of its most prominent

members – **Salvador Allende and Che Guevara** – are known primarily for their political engagement. In the 1930s, Allende, a public health physician, served as Chilean minister of health. He produced an analysis of the social origins of disease and suffering in Chile. Che Guevara, an Argentinian physician, joined Fidel Castro's insurrection in Cuba, eventually becoming minister of the economy in the revolutionary government. Echoing Virchow, Che saw politics as medicine on a grand scale. Latin American social medicine developed a rich body of theoretical and practical work examining the relationship between health and society. It emphasizes praxis: developing a close relationship between theory and practice. Practitioners have been involved with community organizations, unions, and political movements; many others fell victim to political repression.

In the United States, a broad concept of social medicine was also developed, however the term was not adopted by American medical schools because of the conservative views of the medical profession.

After World War II, a strong movement for social medicine developed in the **United Kingdom**. The relation between **health inequities and social conditions** began to be the matter of investigation in the 1980s and several studies, mainly **Black report and Whitehall study**, from that period are considered to be the milestones in the history of social determination of health. They pointed out that social position in society is an important determinant of social inequities in health – the higher the social position, the better the health – and that this social gradient runs right across society. In the late 1990s the social determinants and health equity were embraced as explicit **policy concerns** and we will focus on this topic in Chapter 3.

1.3 Health and disease

The aim of social medicine is to improve the health of the population by understanding and influencing the determinants of health. To meet this goal, it is important not only to identify determinants of health, but also to analyze their effectiveness and to know the relation between them and the way they are influencing the health. If we want to study the determinants of health and causes of diseases, we should answer several important questions:

1. What is health and what is not health?
2. Is the responsibility for health the matter of individual or society?
3. How to deal with determinants beyond the competence of health system?
4. How to improve the health and quality of life of the population?

The key to the answers is the definition of health and understanding of health and disease concepts. How we think about health and disease lies at the very core of medical practice, reflections on bioethics, and the formation of health care policies. How one understands these concepts bears on how one understands justice in health care and the proper allocation of health resources.

Despite the pressing need for a universal concept of health and diseases across disciplines (e.g. philosophy, sociology, anthropology, psychology, biology, medicine), no single account has been agreed upon to address adequately the many practical and theoretical difficulties associated with it. The following two schools of thought with respect to the concept of health have emerged:

1. **Health as a natural concept**
2. **Health as a normative concept**

Naturalists deny that values are part of the concept of health, on the grounds that health essentially involves only the functional activities of organisms and their parts. In

contrast, normativists argue that the concept of health is value-laden and health is ultimately tethered to diagnosis and treatment of patients within a cultural/social context.

In this chapter, as well as in the whole book, we will defend the normative concept of health by emphasizing the social determination of health. Nevertheless, for the epidemiological purposes in public health we are applying mainly the natural concept of health and disease, as for the measurement and analysis of the health of the population we need to define exact health indicators, representing mainly the outcomes of ill health – physical, mental and functional disorders, defined and categorized according to internationally accepted classification systems, which we will introduce also in this chapter. The measures of population health will be discussed in Chapter 4. We have considered it important also to focus on the concept of quality of life as it is closely related to the concept of health and disease and the assessment of quality of life of patients is becoming an important part of health interventions.

1.3.1 Health and disease concepts

When we think about health, we tend to think about it in purely physical or biological terms. However, health is also a major social issue due to the fact that many of the causes of illness are directly affected by social factors. The social aspect of health is also a part of the World Health Organization (WHO 1948) definition of health: **Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity.** Nevertheless, this definition has been criticized in its philosophical manifestation on the grounds that it expresses hope for a reality free of obstacles, an ideal situation unrelated to the life of any human being. There is no such thing as perfect health, and disturbances are part of life. What is healthy in a given condition may not be in another; movement is a basic condition for adjusting to new situations. 30 years later, the Alma-Ata Declaration (1978) stated that **health is a basic human right**, and that governments are responsible to assure that right for their citizens and to develop appropriate strategies to fulfill this promise. In 1986 the WHO Ottawa Charter for Health Promotion defined **health as the ability of individual or groups:**

- **to identify and to realize aspirations,**
- **to satisfy needs, and**
- **to change or cope with the environment.**

We can assume that: Health is a resource for everyday life, not the objective for living; it is a positive concept emphasizing social and personal resources as well as physical capabilities.

In relation to health and disease concepts, we need to distinguish between the feeling of being healthy or ill – **subjective experience**, and the scientific concept of disease – **objective criteria**. For **illness**, what is expressed is suffering. Meanwhile, disease means living with a diagnosis mediated through a set of interventions by the health system. Table 1.1 provides the differences in meaning between the terms illness and disease.

Table 1.1 The concept of illness and disease

Illness	Disease
Subjective experience	Objective scientific concept
Suffering	Disease diagnosis
Primary intuition	Medical intervention
Need	Demand

Source: Czeresnia, Soares, 2010

We can define **disease** as an objective, ascertainable set of symptoms creating a settled clinical entity – diagnosis, classified according to international standard diagnostic classification (ICD) presented at the end of this chapter.

In the context of negative health we use also term **disability** – the umbrella term for impairments, activity limitations and participation restrictions. International classification of functioning and disability (ICF) classifies functioning and disability associated with health conditions.

The criteria for disease are:

- Manifestation: symptomatology
- Type: organic, functional, psycho-social
- Dynamism: acute, chronic
- Development: latent – asymptomatic, unapparent, subclinical; manifest – apparent
- Prognosis: good (favourable), unchangeable, unfavourable (bad)

As we have already mentioned, there are many concepts of health and diseases reflecting views of different disciplines on this issue and we think that aspects of health and disease have to be considered in a broader social concept. Here we will introduce the concepts of health and disease worked out by Austrian sociologist JM. Pelikan.

Health and disease are broad and complex umbrella concepts, under which the actual and future existence, functioning and experiencing of human beings can be addressed. Within the concepts, two dimensions can be distinguished:

- the degree of positive (well-) or negative (mal-)functioning (or disablement), and
- the degree of positive (well-feeling) or negative (mal-feeling) self-experiencing of human being.

Health itself cannot apply only to outcomes, but also to structures and processes of a human being. **Health development as an integral part of human life, is defined as the ongoing process of (re)producing health through autopoietic self regulation in a given socio-ecological environment.** The ongoing processes of health development can be observed, analysed and intentionally influenced from at least two different but complementary perspectives:

1. **Pathogenesis** analyses how risk factors of individuals and their environment lead to **ill health** (illness, disease, disability).
2. **Salutogenesis** examines how resources in human life support development towards **positive health** (objective fitness, subjective well-being, optimal functioning, meaningful life and positive quality of life).

In real life, salutogenesis and pathogenesis are simultaneous, complementary and interacting real life processes. Human beings have to (re)produce their health continuously in time, making use of resources to maintain their identity against risk factors. Health is also the output of actual living and input into future living, so current health status determines future health.

Health and disease do co-exist with each other, and it does not make much sense to treat (positive) health and disease as opposites. **Health and disease should be seen as the extreme poles of a continuum of different mixtures of positive health and disease**, with optimal positive health without any disease at one end, and minimal positive health with a maximum of illness at the other (Figure 1.2).

(Positive) health and illness (disease) do co-exist, but not independently from each other in time: good positive health is a precondition to control and fight illness (disease), and illness (disease) has the potential to reduce positive health in the future. Health and disease are two ends of the continuous spectrum whose intensity can be measured on a scale. On the continuum between health and illness (disease), there are a series of qualitatively distinct states from good health through many transitional con-

ditions to full ill health culminating in death. This concept allows not only to measure illness by degrees, but also to gradate the level of health.

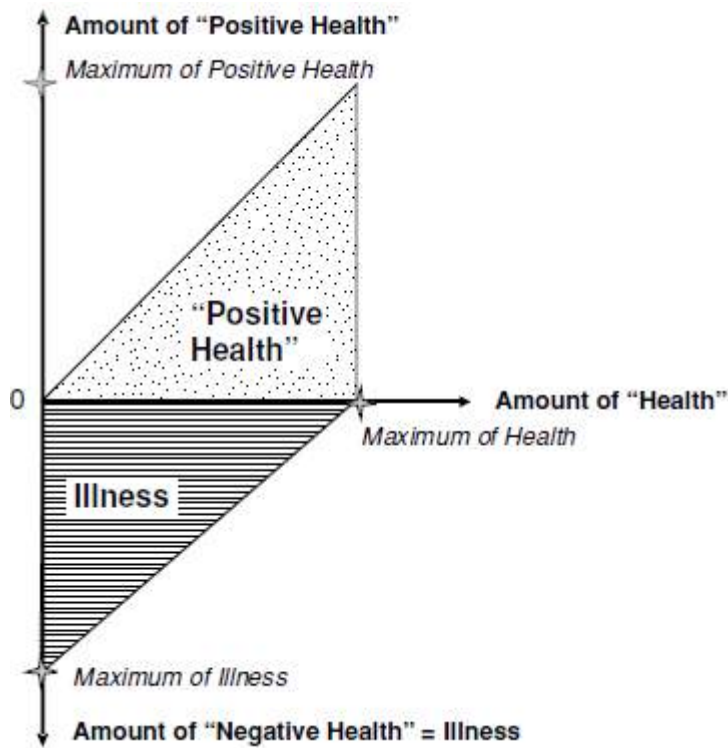


Figure 1.2 Schematic representation of positive and negative health jointly constituting a health continuum.

Source: Pelikan, 2007

For practical reasons it is important to examine positive health and illness independently, and be aware that there are different specific determinants of positive health, mainly resources, and of illnesses, mainly risk-factors. Therefore health and illness can be influenced directly and independently, but by processes of interaction they will also have indirect effects on each other. Positive health can be maintained, and ill health improved, by four principal strategies (Table 1.2):

1. Disease treatment
2. Disease prevention
3. Health protection
4. Health promotion

Table 1.2 Principal strategies to maintain and improve human health

Oriented at	Positive health	Ill health
Maintaining health	Health protection	Disease prevention
Improving health	Health promotion	Disease Treatment

Source: Pelikan, 2007

One of the major issues in public health is where to place the emphasis and, thus, where to intervene to improve and maintain health. Is it at the individual level, or at the environmental level? This issue is at the heart of public health practice. So to apply the above-mentioned strategies effectively, we have to identify the determinants of health and analyze the ways how they are influencing each other and affecting the health of individuals and communities.

1.3.2 Determinants of health and disease

Whether people are healthy or not, is determined by their circumstances and environment. The word 'determinant' is used to refer to any factor, whether an event, characteristic, or other definable entity, that brings about, or contributes to a change in health. The determinants of health can be positive health factors, protective factors, or risk factors.

Positive health factors. These contribute to the maintenance of health. Fundamental positive health factors are, for example, economic security, adequate housing and food security. Control over life outcomes and enjoying good relationships in the home and other emotionally rewarding social relationships are also important positive health factors.

Protective factors. These are factors that eliminate the risk of, or facilitate resistance to, disease. The classical example is immunization against a variety of infectious diseases. Psychosocial factors, such as social support and a sense of purpose and direction in life, are also increasingly recognized as factors that protect health. Healthy diets are also considered to be protective.

Risk factors or risk conditions. These cause health problems and diseases that are potentially preventable. These risk factors or risk conditions can be social or economic or can be associated with specific environmental or lifestyle-related health hazards, such as polluted air and smoking.

In practice, making the distinction between these categories of determinants may be difficult at times. As the focus is typically on risk factors, it is useful to try to identify positive and protective factors.

It is generally accepted that the **determinants of health include**

- the physical environment—natural and built;
- the social environment;
- individual behaviour;
- human biology; and
- health system.

The determinants of health do not act independently of each other. They are interconnected and the concepts of ecology in public health provide the framework for understanding how to model their interconnectedness. In general, every **ecological model** explaining the development of health (or poor health) contains:

- A set of **distal determinants** related to the environment – physical and/or social, and
- A set of **proximal determinants** related to the individual – primarily behavioural.

The ecological models developed since the 1960s in response to the increased importance of chronic diseases made a significant departure from classic models used for infectious disease control and prevention. From a historical perspective, several models and theories of health and disease and health determinants have been adopted reflecting the scientific progress of specific disciplines as well as their different approaches and also political and cultural context of each historical period.

Miasma theory

Until the nineteenth century, the predominant idea was that of disease as an imbalance or disharmony between individuals and their environment. From the time of Hippocrates and Galen, diseases were thought to be due to humours and miasma or emanations from the environment. The miasma theory, while without basis in fact, was acted on in the early to mid-nineteenth century with practical measures to improve sanitation, housing and social conditions, with successful results.

Germ theory

The competing germ theory developed by pioneering epidemiologists (Panum, Snow, and Budd), scientists (Pasteur, Cohn, and Koch), and practitioners (Lister and Semmelweiss) led to the science of bacteriology and a revolution in practical public health measures. The combined application of these two theories has been the basis of classic public health, with enormous benefits coming in the control of infectious diseases.

Host-agent-environment paradigm (epidemiological triad)

In this approach a harmful agent comes through a sympathetic environment into contact with a susceptible host, causing a specific disease. This idea dominated public health thinking until the mid-twentieth century.

Behavioural model

Beginning in the 1960s, the models explaining health status became increasingly limited to the behavioural – proximal – determinants of health, which placed the focus of public health interventions on changing individuals rather than their context. The emphasis on health promotion, however, increasingly emphasized public health initiatives at the individual behaviour level, rather than the environmental level.

Ecological model

The ecological approach to public health developed in the 1960s views **individuals as embedded in a physical and social environment which they both influence and are influenced by**. Within the ecological model, both the individual and the context are potential sites of public health interventions. In 1986, the First International Conference on Health Promotion produced the Ottawa Charter, which helped reorient policy, programs, and practices away from proximal risk factors. The shift that followed was to the more distal risk factors. These also influence health, either through the proximal risk factors or by operating directly on human biology over time, but they are less likely than proximal risk factors to be under the control of the individual at risk. In that time, **in the 1980s, population health approach emerged that focused on the distal social environment** – power, wealth, and status – as the root cause of health problems.

The population health perspective is leading to more complex public health models that integrate distal and proximal determinants of health to predict disease, disability, and premature death. **Health behaviours are viewed as patterned by the social environment, not “free-standing”, and social determinants are the causes of health inequities**. The most commonly used model of health determinants analyzing the pathways through which they operate is **the Dahlgren and Whitehead health determinants model**. As this model is emphasizing the role of social determinants in shaping the health of individuals, we will explain it in Chapter 3 “Social determinants of health and disease.” To understand this model and the whole chapter it is necessary first to explain the basic sociological terms, concepts and theories related to health, and we will do this in Chapter 2, “Sociology”.

1.3.3 Classification of diseases

There are many different diseases. In order to understand the disease patterns and to monitor the health status of a population, one needs to have a unique classification system so that the results can be displayed and reported in a systematic way. Agreeing on how to classify diseases at a regional, national, and international level enables comparing results and merging such information into larger-scale statistics.

Multiple classification systems of diseases have been created. Classification of diseases by anatomic sites or body system was initiated by William Farr at the Second International Statistic Congress in Paris in 1855. After World War I, the League of Nations supervised revisions of **the International Classification of Diseases (ICD)**, and since the 1948 sixth revision, the ICD has been updated at about 10-year intervals by the **World Health Organization**. The **tenth revision of the International Classification of Diseases (ICD-10)** came for many subcategories with coding to indicate precise disease and procedure groups. ICD-10 was endorsed by the Forty-third World Health Assembly in May 1990 and came into use in WHO Member States in 1994.

The ICD is the international standard diagnostic classification for all general epidemiological and many health management purposes and clinical use. ICD is used to:

- Classify diseases and other health problems recorded on many types of health and vital records including death certificates and health records – basis for mortality and morbidity statistics.
- Analyze the general health situation of population groups – monitoring of the incidence and prevalence of diseases and other health problems in relation to other variables.

Every disease or morbid condition in ICD must have a well-defined place in the list of categories. Consequently, throughout the classification, there will be residual categories for other and miscellaneous conditions that cannot be allocated to the more specific categories.

The “core” classification of ICD-10 is the three-character code, which is the mandatory level of coding in international reporting to the WHO mortality database and for general international comparisons. The four-character subcategories, while not mandatory for reporting at the international level, are recommended for many purposes and form an integral part of the ICD. In place of the purely numeric coding system of previous revisions, **the 10th revision of ICD uses an alphanumeric code with a letter in the first position and a number in the second, third and fourth positions.** The fourth character follows a decimal point. Possible code numbers therefore range from A00.0 to Z99.9 The letter U is not used. **The classification is divided into 21 chapters.** The first character of the ICD code is a letter, and each letter is associated with a particular chapter:

- Chapters I to XVII relate to diseases and other morbid conditions (e.g. I10 Hypertension, K74 Cirrhosis of liver, J18.1 Lobar pneumonia, C56 Malignant neoplasm of ovary).
- Chapter XVIII covers symptoms, signs and abnormal clinical and laboratory findings not classified elsewhere.
- Chapter XIX relates to injuries, poisoning and certain other consequences of external causes.
- Chapter XX – External causes of morbidity and mortality.
- Chapter XXI – Factors explaining the reason for contact with health care services of a person not currently sick.

The concept of a “family” of disease and health-related classifications

Although the ICD is suitable for many different applications, it does not always allow the inclusion of sufficient detail for some specialties, and sometimes information on different attributes of the classified conditions may be needed. It was felt that the main ICD (the three- and four-character classification), covered by the three volumes of ICD-10, could not incorporate all this additional information, so the idea arose of a “family” of disease and health-related classifications. The various members of the family of classifications are:

- **Reference Classifications** – these cover the main parameters of health systems: International Classification of Diseases (ICD); International Classification of Functioning, Disability and Health (ICF); International Classification of Health Interventions.
- **Derived Classifications** – speciality-based adaptations: International Classification of Diseases for Oncology, Neurology, Dentistry and Stomatology, Mental and Behavioural Disorders; International Classification of Functioning, Disability and Health: Children and Youth Version.
- **Related Classifications** – these partially refer to reference classifications: International Classification of Primary Care; of External Causes of Injury; The Anatomical, Therapeutic, Chemical Classification System with Defined Daily Doses; ISO 9999 Technical Aids for Persons with Disabilities.

1.3.4 Health and quality of life

The concept of health and disease is closely related to the concept of quality of life. Contemporary society shows a shift from the perception of health as the ultimate goal to viewing it as a means of ensuring the quality of life. How to achieve the quality of life is becoming the crucial question within the context of affluence and increasing longevity, attracting experts from different fields including medicine.

Quality of life is a broad multidimensional concept that incorporates all aspects of an individual's life with health as its important domain. There are several concepts of quality of life reflecting the different approaches of many disciplines studying this problem, mainly social and health sciences. **WHO defines quality of life as an individual's perception of their position in life** within the context of the culture and value systems in which they live and in relation to their goals, expectations, cultural norms and concerns. It is a broad ranging concept affected in a complex way by the person's physical health, psychological state, level of independence, social relationships, personal beliefs and their relationship to salient features of their environment. The concept of quality of life includes both objective and subjective dimension. Objective dimension is about the fulfillment of needs related to social and material conditions of life and to physical health. Subjective dimension is related to emotional aspects and to overall life satisfaction. Quality of life has also been defined as the degree to which a person accomplishes their life goals. Another view is that quality of life is a vague and ethereal entity, something that many people talk about, but which nobody very clearly knows what to do about.

The concept of quality of life is related to the concept of well-being, but we have to stress that they differ. Quality of life includes subjective evaluations of both positive and negative aspects of life, while **well-being usually is connected with the positive aspects of a person's life** such as positive emotions and **life satisfaction**. However, a strict distinction between the concepts of quality of life, well-being and life satisfaction is difficult to draw. Positive evaluations of a person's life can include the presence of positive emotions in daily activities, participation in society, satisfying relationships,

and overall life satisfaction. These attributes are commonly referred to as well-being and are associated with numerous benefits related to health, work, family, and economics. For example, positive emotions and evaluations of life are associated with decreased risk of disease, illness, and injury; better immune functioning; speedier recovery; and increased longevity. People with high levels of well-being are more productive at work and are more likely to contribute to their communities. In contrast health-related factors are assumed to be important variables that influence global satisfaction with life and well-being. Surprisingly, evidence suggests that life satisfaction is influenced by disease severity only to a limited extent, and life dissatisfaction is associated mainly with other psychological, social and demographic factors such as being unmarried, having mental disorders, functional disability, impaired social network and demographic factors such as age and gender.

When quality of life is considered within the context of health and disease, it is commonly referred to as **health-related quality of life (HRQOL)** to distinguish it from other domains of quality of life such as environment, family, and work. HRQOL is the extent to which one's usual or expected physical, emotional, and social well-being is affected by a medical condition or its treatment. The HRQOL measurement therefore attempts to capture QOL relative to one's health and illness (Figure 1.3).



Figure 1.3. Quality of life.

Source: Khanna D, Tsevat J, 2007. Adapted from Ware JE Jr, Dewey J, 2000

HRQOL, as a subjective health status, is patient based, but focuses more on the impact of a perceived health state on the ability to live a fulfilling life. HRQOL refers to the social, emotional and physical well-being of patients following treatment and as the impact of disease and treatment on disability and daily functioning. It is a double-sided concept, incorporating positive as well as negative aspects of well-being and life, and it is multi-dimensional, incorporating social, psychological and physical health. It is also, ultimately, a personal and a dynamic concept given that, as health status deteriorates, perspectives on life, roles, relationships and experiences change. It also includes some assessment of the patient's level of satisfaction with treatment, outcome and health status and with future prospects. It is distinct from the quality of life as a whole, which would also include adequacy of housing, income and perceptions of immediate environment.

The focus on individual's own views of their quality of life and well-being provides a new perspective on disease. Assessing the quality of life of patients is an important component of health interventions. The concept of quality of life and HRQOL also has an important role in identifying problems related to population health and in the planning of national and international health policy programmes. The measures of quality of life and HRQOL and their implications for clinical practice and public health will be discussed in Chapter 4.

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2 SOCIOLOGY

Silvia Capíková

This part of the textbook provides introduction to sociology and its basic concepts, which have particular relevance for the study of health and illness. The focus is on macro-level structures. Deeper understanding requires further study, at least of the literature referenced.

Human life is situated in **social environment** – in various social units such as families, social groups and networks, organizations, neighbourhoods, local and also virtual communities, where people share values, attitudes, opinions and prejudices, produce and reproduce social norms, and spontaneously learn behavioural patterns and interaction models.

Sociology is the scientific study of social life, using specific research methods and techniques that go beyond common sense explanations and questioning all that is taken as common. Historically a critical discipline, sociology describes and analyses social behaviour to unravel the social forces that shape people's lives. From this perspective the paths of our lives are not just determined by individual will or even individual effort. Sociologists try to identify the social processes and structures that both enable and constrain individuals to behave in certain ways, including social class, religion, gender, ethnicity. They are interested in how people communicate and create meaning and understanding (e.g. of disability), but also in questions of power and inequality. Various social processes like social conflict, interaction, socialization, domination, subordination, urbanization are studied, too. Sociologists develop theories and concepts to describe and explain social life and so engage in numerous different forms of empirical investigation, using a number of research tools to gather and analyze data about social life and/or to test and develop theories. Sources such as official statistics, historical documents, observations, survey research are used to help develop reliable information on how society operates.

2.1. The nature and object of sociology

The term sociology literally means the science of society and was introduced by French philosopher August Comte (1798-1857). However, the discipline was more firmly established by such 19th century thinkers as Emile Durkheim, Herbert Spencer, Harriet Martineau, Karl Marx, Max Weber, Ferdinand Toennies, T. G. Masaryk, Vilfredo Pareto, Lester Ward. Sociology as an academic discipline arose in the first half of the 20th century as a special science dedicated to unravel the fundamental laws governing the societal phenomena and human social relationship. Early sociologists, like proponents of natural sciences, set out to identify the “laws” of social behaviour. They believed that behaviour was not random or governed by external forces but involved identifiable

patterns that could be linked to social characteristics. Though people have much in common as biological beings, there are many differences in their beliefs and actions that can be explained by social forces. As pointed out by Thomas, for example different forms of illness behaviour can be found in different parts of the world, but also within one town.

Society and any social group is more than the sum of its parts. By being a part of a nation, a social group, or a crowd, something new and different arises that transcends the characteristics of the individual. Rules and expectations evolve from the interaction of individuals. Studies documented that individuals as part of a group (e.g. peer teenage group) behave differently and do things that would never have been even occurred to them as individuals. Would any reasonable person embark on a potentially dangerous crash diet, or piercing, if it were not for the influence of the social group?

Individual society members have a limited ability to influence the nature of society. As R. K. Thomas pointed out, people are born into a game that is already underway and have limited influence over the rules, however, there can occur an occasional revolutionary who makes a major impact on society, e.g. Martin Luther, Martin Luther King, K. Marx.

2.1.1 Paradigm and theory in sociology

An important feature of sociology is the large number of theories about the organization and working of society, rather than a unified approach. Sociologists are well aware that knowledge of the social world is characterized by probability. Sociological theories play an important role in drawing attention to different aspects of society and helping to explain or give meaning to observations. Within the science of sociology, paradigms and theories should be distinguished.

The idea of **paradigm**, introduced by Thomas Kuhn, enables systemization of scientific knowledge. There is a variety of definitions about what scientific paradigm is. **Paradigm** can be simply defined as a broader theoretical and methodological approach to the study of the social world, clustering theoretical and methodological concepts and knowledge. Paradigms contribute to certain codification and unification of procedures in partial and global researches, as well as point out the need of empirical and theoretical investigation of certain problems.

A theory is a statement or series of statements that uses concepts to explain social facts (problems, behaviours or processes). For example, sociologists are not particularly interested in why any one individual commits suicide, but they are more concerned with why people in general take their own lives. Sociologists thus develop theories that offer a general explanation of some type of behaviour.

Besides general theories of society, there are many **middle-range theories** – that is, theories that provide explanation of a particular social process or phenomena such as globalization, socialization, anomie, profession.

General theories of society try to answer 2 basic questions: 1. how is society possible and 2. what to focus on in research if we want to know how the society is, or the true picture of reality. In general, there are 3 main approaches we can call paradigms within sociology that differ from each other in answering the above questions.

Past and contemporary theories of society (e.g. rational choice theory, feminist sociology or ethnomethodology) can be clustered within these paradigms:

1) **The structural functionalist paradigm** (SF) is a framework for building a theory that sees society as a complex system the parts of which work together to promote solidarity and stability. This paradigm emphasizes social structures involving relatively stable patterns of human behaviour. All social patterns (from a single handshake to mat-

rimonial rituals) function to keep society going. Culture is seen as a complex strategy for meeting human needs; cultural values give meaning to life and, by being shared by people, bind people together. However, critics point out that societies are not so orderly; by focusing attention to social stability and unity, the structural functionalist paradigm tends to ignore social inequalities of social class, race, sex and power, which can generate considerable tension and conflict. In fact, cultural systems are not so stable as this paradigm leads us to believe, e.g. not everyone shares the same beliefs about what is beneficial and what is harmful. A major representative of structural functionalism is Talcott Parsons, who made a great contribution to the development of sociology of health and illness and is well known e.g. for his theory of social action or conceptualization of the sick role.

2) **The social conflictualist paradigm (SC)** is a framework for building theory that sees society as an arena of inequality that generates conflict and change. It suggests that cultural systems do not address human needs equally. Any cultural trait benefits some members of society at the expense of other. Tensions in society lead to movements for change. This paradigm understates how culture integrates members of society.

Both the SF and SC paradigms share a **macro-level orientation**, focusing on patterns that shape society as a whole much like “observing a city from a helicopter”.

3) **The symbolic interaction paradigm (SI)** sees society as a product of individual interactions and communications of individuals. People construct “reality” from their everyday experiences. Without denying the existence of macro-level structures (law, stratification system or health care system), society nevertheless is seen less as a grand system. The SI has **micro-level orientation**, focusing on small-scale observations of interaction patterns of people in specific settings. This perspective sees people in society as thinking individuals who are able to choose their own behaviour and, to some extent, to resist societal influences.

2.1.2 Structure of sociology

The **basic (pure) sociology**, sometimes referred to as the general sociological theory or theory of society, has the objective of gaining a more profound knowledge of the fundamental aspects of social phenomena. For example, when Durkheim studied suicide rates, he was not primarily interested in discovering the ways to eliminate suicide.

Applied sociology is the use of the discipline with the specific intent of yielding practical applications for human behaviour and organizations. Often, the goal of such work is to assist in solving a social problem, e.g. cancer morbidity or teen pregnancy.

Clinical sociology is the use of various techniques to facilitate change, e.g. altering of social relationships or restructuring institutions – in contrast to applied sociology, which may be evaluative.

Methodology of sociological research is a part of sociology that focuses on scientific study of social life with the aim to obtain reliable information. It develops concepts of research methods (e.g. sampling, scaling).

Because social reality includes a variety of issues to study, several **branches of sociology** have formed. They focus on particular segments of population (e.g. the youth, ethnic minorities or immigrants), particular institutions (e.g. family, religion, law), or particular topics (e.g. leisure, lifestyle, unemployment). Branches of sociology cluster theoretical concepts and methodological approaches that provide us by reliable stock of knowledge about particular segments of society and particular aspects of social life.

2.2. Sociological research

The contributions of sociology arise from its techniques of inquiry and its body of knowledge concerning the nature and influence of social factors and processes both at micro-level and in terms of broader social structures. Some research is concerned with measurement and application of “social” variables, while other studies aim to develop new understanding of social phenomena drawing on particular theories of society.

A large proportion of theory in sociology relates to sociological investigation. This part of sociology is usually termed **methodology of sociological research**.

2.2.1 Basic steps in sociological research

Scientific method is a systematic, organized series of steps that ensures maximum objectivity and consistency in researching a problem. The key elements include planning and research design. There are following basic steps in the sociological research:

- 1) Defining the problem
- 2) Literature reviewing
- 3) Formulation of hypotheses and operationalization
- 4) Selecting the research design (sample, research tools, time plane), writing a research plan or project
- 5) Collecting and analyzing data
- 6) Interpretation of data, developing the conclusion
- 7) Presentation or dissemination of research outcomes

Defining the problem. In attempting to understand social behaviour, sociologists rely on an unusual type of creative thinking, which American sociologist C.W.Mills described as “sociological imagination”. An awareness of the linkage between an individual and the wider society allows people to unravel links between immediate personal settings and the remote, impersonal social arrangements. A key element in the sociological imagination is the ability to view own society as an outsider, free of personal experiences and taken-for-granted assumptions.

If we plan to make research on the health of the unemployed, first it is important to define who are the unemployed ones. Whenever researchers want to study an abstract concept, e.g. stigma, sexuality or disability, they must develop workable and valid operational definitions.

Reviewing the literature. Sociology is a typical “cumulative” science. Past and present researches and theories constitute a stock of knowledge that can be reinvented and critically studied. By conducting a literature review on the research problem, researchers systemize the knowledge, present and clarify appropriate methods and techniques of data gathering and analyzing, and may avoid unnecessary mistakes. Sometimes such review brings to the light the conflicting findings of previous research. Examining previous studies that use different techniques before proceeding with one’s own research is crucial.

Formulating the Hypothesis. Essentially, hypothesis tells us what we are looking for in our research. A speculative statement about the relationship between two or more factors (e.g. homelessness and mental health) is called a hypothesis. These aspects/factors are called variables. In **quantitative research**, a variable is a measurable trait or characteristic that is subject to change (variation) in different conditions. If one variable (mental illness) is hypothesized to change the other (homelessness), it is called “independent variable.” The other one is termed the “dependent variable”. In quantitative research, relations between variables can be studied by means of statistics, with the use of specialized software (SPSS, STATA etc.). Quantitative data are often

analyzed using regressions that can consider unknown parameters. Correlation of variables does not imply causal relation, it just indicates that possibility. In *qualitative research*, data typically are cleaned and coded, and can be analysed via software such as ATLAS, NVivo etc.

Collecting and analyzing data. Researchers have to select which research method or a combination thereof will be best to use. It relates to the question of sampling. By using specialized *sampling techniques*, researchers do not need to ask everyone in the population. There are many kinds of samples, the most frequent are 1) representative sample and 2) random sample. The standard requirement is to protect anonymity of the persons being sampled. By using *scaling techniques*, sociologists try to measure such phenomena as attitudes, religiosity, anomie. A scale or index uses a series of questions to measure particular dimensions of the problem. *Validity* requirement refers to the degree to which a measure or scale truly reflects the studied social phenomenon. *Reliability* refers to the extent to which a measurement tool (a questionnaire, or a scale) provides consistent results (even if the same tool is used by different researchers).

2.2.2 Research methods in sociology

There is a variety of research tools and thus various categorisations of them can be made. The research methods or strategies can be based on measurability (quantification) of data. We can classify them as: 1) quantitative research methodology 2) qualitative research methodology.

Quantitative research. The assumptions of quantitative research accord with the view that social phenomena are objective, external to an individual and can be studied in the same way as natural sciences do, aiming to produce valid and generalized findings, test the relationship between variables with the use of statistics, trying to establish cause and effect associations and generalizable results (from the sample to the target population). Sources of data used in quantitative research: 1) primary data, and 2) secondary data (routine statistics, government surveys and other ad hoc enquiries, written records including historical and literary sources).

Qualitative research. This type of research is rooted in interpretative paradigm, with the aim to understand rather than measure social facts. In this highlighting the data themselves suggest concepts and explanations. However, theory and hypotheses are also part of the research design, to reduce bias and ensure validity of data. Qualitative researchers work with “grounded theory”, introduced by Glaser and Strauss in the 1960s. Research techniques frequently used are: interview, focus groups, case study, oral history, diary method, observation (recorded on video-tapes etc.). Data in this type of research usually consist of text, often in the form of interview transcripts.

Recently, the use of combination of both approaches in the study of health and illness is on the rise, sometimes termed by researchers as “mixed methods”.

In general, the term “research method” designates a series of steps which help us study the social world, in short – a way of obtaining data. **The most frequent methods are: 1) experiment, 2) participant observation, 3) survey and 4) unobtrusive techniques (e.g. analysis of secondary data, content analysis).** The most frequently used is probably a survey.

While a wide range of methodologies were introduced and found useful, the large-scale national survey became the launching pad for a wide array of continuing social inquiries. Continuing and special surveys on health care provide much of the information that allows to assess health status and progress in health outcomes of populations.

2.3. Sociology of health and illness or medical sociology?

At the end of the 19th century, when sociology has established as a distinct science, its use in the field of health and medicine was almost exclusively by physicians. Its development is closely linked to World War II. Especially in the USA, much governmental and financial support went into the study of soldiers. Sociologists worked on health issues throughout the century, but medical sociology as an institutionalized specialty first developed a strong educational infrastructure in the 1950s and 1960s in the USA, with similar situation in other western countries. By the 1980s, however, many of the public health agencies in western countries, including WHO, recognized the importance of social and behavioural research for their missions. So while sociology itself has its origin in Europe, medical sociology has evolved as a particularly American perspective.

Sociologist R. Straus distinguished in 1957 that sociological endeavours tend to follow two streams: 1) sociology in medicine and 2) sociology of medicine:

1) **Sociology in medicine.** As David Mechanic suggests, in this stream sociologists work as applied investigators or technicians, seeking to answer questions of interest to their sponsors, whether government agencies, foundations, hospitals, or medical schools. Depending on the ingenuity of the researcher, such work can make broader contributions than the particular task may suggest, but the emphasis is on information and application. This role is familiar, encompassing those who design and execute health surveys and who study such varied topics as access to care, use of services, satisfaction, risk factors in disease, health status determinants, and many more. By W. Cockerham, sociology in medicine can be characterized as applied research and analysis primarily motivated by a medical rather than a sociological problem.

2) **Sociology of medicine,** in contrast, focuses on testing sociological hypotheses, using medicine as an arena for studying basic issues in social stratification, power and influence, social organization, socialization, and the broad context of social values. Work within this tradition explores such themes as how physicians control the work of other health occupations; how lower social status and gender affect health interactions; and how political and economic interests influence the structure of care, reimbursement, and the uses of technology.

Sociology of health and illness. More recently, the concept of medical sociology is being alternated or replaced by the broader concept of sociology of health and illness. This view is shared by a large proportion of researchers in Europe and countries outside the USA. Drawing on the body of existing research, the scope of sociology of health and illness can be outlined by research topics listed out: studies in psychiatric epidemiology, stress and coping, resilience, public attitudes and health beliefs, stigma, labeling processes, the course of disability, and the study of hospitals, study of health care institutions, their organization, operation, financing, interrelations between culture, religion and health and health behaviour, health and illness behaviour (e.g. compliance and non-compliance, health services utilization, self-medication, nutrition patterns, physical activity, preventive health behaviour, sick role, help-seeking behaviour), lifestyle, health literacy, death and dying, medicalization, study of professions involved in health care, internet and electronic communication in health promotion and even evaluation of national health programs.

2.4. Social groups

For the study of healthcare settings, health and illness and its social determination, an understanding of group dynamics is essential. The human being is a “zoon politicon” as suggested by Greek philosopher Aristotle. We learn to become human beings in

groups of individuals – our intermediate social environment. Not every collection of individuals forms a group – some of these collectivities are termed **aggregates** of people gathered together for a particular purpose (a crowd, college class, theatre audience, are in one place at the same time but do not form a group in the sociological sense). **Social networks** are described as a web of weak social ties, consisting of people who know each other but interact rarely and lack the sense of belonging. In contrast to social aggregates, networks are a source of social capital and support; ties can be maintained by different forms of interaction over long periods of time (e.g. former classmates).

Groups can range in size from two persons to any number of people as long as they retain the **characteristics of a group**: 1. Orientation to common goal, 2. Mutuality of relationships and communication 3. Members interact to develop social relationships, 4. Shared values, norms and symbols, 5. Sanction mechanisms 6. Sense of togetherness, 7. Group membership as a basis of personal identity.

2.4.1 Types of social groups

By size: Small and large groups. As groups increase in size beyond 3 members, they are more stable and able to survive fluctuations in membership, however, possibilities for personal face-to-face interaction get reduced. Small groups tend to be less formal and less structured while larger groups must develop more means of communication and more organization is needed.

By proximity of relations: Primary/secondary groups. Primary groups, however small, are among the first groups individuals experience in their life (family and friends) and thus are the most important. Members see each other as irreplaceable, care for each other's welfare, engage in a wide range of activities, know each other very well, display authentic emotions and are involved in long-term interactions of an ongoing nature. Membership is informal and brings emotional satisfaction and feelings of safety. Secondary groups (such as workgroups or sport clubs) are joined later in life and are in most respects the opposite: their goals are particular, relations lack emotional ties and they are formal.

By membership and intergroup relations: in-group, out-group, reference group. In-group is a group where an individual has a membership; it is differentiated from other, non-member groups (out-groups). This classification is useful to explain reactions of competition, rivalry, hostility and conflict between groups in society or in the workplace. For example, orthopaedic surgeons may show disdain for chiropractors and refuse to practice in the same setting with them. A reference group serves as a point of reference for individuals in making evaluations and decisions (the individual "refers" to the group) irrespective of the fact of his/her actual or desired membership.

By formalization: informal groups and organizations. Formal organizations are mainly a feature of modernized societies. Large and complex societies rely upon formal organizations (such as schools, hospitals, parliament) to perform necessary functions in society. Their structure and goals are unaffected by changes in membership; they function on their own. The evolution of healthcare is a set of formal organizations that reflect institutionalization of the curing practices over the centuries, accelerated during the 20th century. Sociologists identify 3 types of organizations, distinguished by the reasons why people participate in them: 1) utilitarian organizations (e.g. sport clubs or commercial enterprises), 2) coercive organisations who force members to join as a form of punishment or treatment (e.g. prisons, hospitals). 3) normative organizations (e.g. Red Cross), sometimes called voluntary associations, that pursue goals considered worthwhile but not in the monetary sense by its members.

Special kinds of groups impacting health are communities and family that consequently will be discussed in more detail.

2.5. Community

Community is a special kind of collectivity, distinct from society or social group. German sociologist Ferdinand Toennies in the late 19th century devoted his main works to the study of community. Community (*Gemeinschaft*) was typical for traditional, rural societies, and he defined it as an organic, natural kind of social group whose members are bound together by the sense of belonging created out of everyday contacts covering the whole range of human activities. People were simply born into a family and into a community. It was the natural social environment for the majority of people over centuries. Toennies studied the solidary nature of social relations in the community in contrast with low solidarity, social isolation and anonymous relations thought to characterize industrializing societies. In his view, modern, industrialized societies (*Gesellschaft*) were typified by 1) a deep change in solidarity and social relations between people living in the same territory, and 2) destruction of communities as a natural social environment. Many later sociological investigations, especially those of urban suburbs and social problems, gathered research material that confirms these claims for the 20th century.

However, communities did not disappear. On the break of the 21st century, Polish sociologist Zygmunt Bauman drew attention to the return to the community in various aspects of human lives. Besides geographical or rural communities, one can find communities of interest such as therapeutical communities, religious communities, criminal communities, communities of people who return voluntarily to ecological and rural lifestyles, and even virtual communities (chatrooms and meeting places in the virtual Internet space).

The *key characteristics of a community* include apart from the features of social groups also shared territory (physical or virtual). Communities are typified by shared social norms (e.g. local practice, customs) and strong social control over their members by means of public opinion, with typical use of mechanisms such as rumour, embarrassment, social defamation or even isolation of members who violated the group norms. An important distinguishing feature of local communities is *neighbourhood*. Long lasting, close and informal relationships of its members, and mutuality of the relationships are of great importance. Communities are often sources of informal help and social support so that for the individual and for the country, territorial communities typically are the source of capital (social capital) including in the field of health maintenance and protection. Research suggests that social support and strong community relationships are associated with good health and self-reported quality of life (however, in criminal communities of e.g. drug dealers and prostitutes this may not be true).

It should be noted that in reality, there can be both “good” communities that give people social capital and social support, and “bad” communities, which are an unsafe place to live in, or the practices of which are very oppressive to their members (e.g. sectarian communities).

Ghetto

In many, even the most industrialized countries, there are local communities of those excluded from the mainstream society: ghettos. A **ghetto** is (by L. Wacquant) a social and organizational device composed of four elements: stigma, constraint, spatial confinement, and institutional encasement. It is a special type of a community. The concept of the ghetto involves segregation – the restriction of persons to a special urban/suburban area, and restriction of their freedom of choice on the basis of race/ethnicity. The fact that most ghettos have historically been places of endemic and often acute misery owing to the paucity of space, density of settlement, and economic exploitation and

generalized maltreatment of their residents does not imply that a ghetto is necessarily a place of destitution, nor that it is uniformly deprived. Not all ghettos are poor and not all poor areas (slums) are ghettos, and lower-class urban districts are not ghettos other than in a metaphorical sense.

2.5.1 Community and health

Over the 20th century, there was a shift in the science of medicine, from the individual to the territorial community as an object of health interventions. Community medicine developed in many countries as a special branch of medicine.

Building connected and well-serviced communities (e.g. water or drain systems) on the one hand and involvement of the communities in the planning and delivery of local services (including health) on the other is beneficial to the health of individuals. This is particularly the case for communities that face material disadvantage or social exclusion, whether they are geographical communities or communities of interest.

The family seems to have much more influence on child and adolescent behaviours than the neighbourhood does. There is evidence, however, that the neighbourhood effects may be greater for children living in high-poverty areas, which are often marked by violence and environmental health hazards, than for children living in low-poverty neighbourhoods.

The life trajectories of members of minority groups in many countries are marked by discrimination and lack of opportunity, which are experienced pervasively as daily insults and pressures. Various cultural groups have devised unique systems of social support to cope with the “mundane extreme environments” in which they live. Others construct lives of desperation or resistance in response to limited opportunities.

Community programs and services reflect the need to solve social problems which are closely connected to the health needs and problems of a population sharing a territory. The blend of health and social services is provided to an individual or family in the place of residence for the purpose of promoting, maintaining or restoring health or minimizing the effects of illness and disability. These services are usually designed to help older people remain independent and in their own homes (e.g. senior centres, transportation, delivered meals or congregate meal sites, visiting nurses or home health aides, adult day care).

Community empowerment is an important goal in community action for health. It involves individuals acting collectively to gain greater influence and control over the determinants of health and the quality of life in their communities. In **community involvement**, individuals and families assume responsibility for their and their communities' health and welfare, and develop the capacity to contribute to their own and their communities' development. The quality of the community environment and the experience of material hardship may be detrimental both to health and the nature of community relationships.

Community development can be defined as a process whereby those who are marginalised and excluded are enabled to gain in self-confidence, to join with others and to participate in actions to change their situation and tackle the problems that face their community. Such approach allows to improve the tools that address health inequalities within multilevel public health programs. The principles and practices of community development are in accordance with current trends in public health, which emphasise preventative, primary and community based health care.

2.6. Family

Family can be defined as a set of people related by blood, marriage or some other agreed-upon relationship, or adoption, who share the primary responsibility for reproduction and caring for members of society. For sociologists, family can be studied both 1) as a type of social group – a special kind of social environment, and 2) as a social institution which is carrying out special tasks and functions within the society.

Demography and the study of social determinants of health go in accordance with the study of family. Recent developments include socialization into parenthood, variations in parenthood (e.g. extension of the age of parenthood, teenage and single parenthood), cohabitation and divorce (see also chapter on demographic transitions).

2.6.1 Types of family

When studied as a social group, there are 2 basic types of family according to its structure:

1. Family in the very narrow sense – a married couple and their unmarried children living together which is a **nuclear family**. The term “nuclear family” is well chosen, since this type of family serves as the nucleus, or core, on which larger family groups are built. However, the proportion of households composed of married couples with children at home has decreased steadily over the last decades in many countries of Europe and Northern America. At the same time, the number of single-parent households has increased.
2. A family in which relatives – such as grandparents, aunts, or uncles – live in the same home as parents and their children is known as an **extended family**. This model of family is frequent in less industrialized countries; however, although not common, such living arrangements do exist also in the most industrialized countries. The structure of the extended family offers certain advantages over that of the nuclear family. Crises such as death, divorce, and illness put less strain on family members, since more people can provide assistance and emotional support. In addition, the extended family constitutes a larger economic unit than the nuclear family. If the family is engaged in a common enterprise – a farm or a small business – the additional family members may represent the difference between prosperity and failure.
3. A **single-parent family** where only one parent is present to care for the children can hardly be viewed as a rarity nowadays. There can be many reasons for this – divorce, or death of one of parents, or incarceration of a parent, but the most frequent in industrialized countries is out of wedlock motherhood. It is as inaccurate to assume that a single-parent family is necessarily deprived as it is to assume that a two-parent family is always secure and happy. However, such reduced family, without kinship bonds, is faced with many problems (such as poverty). For example in the USA, 26.4 per cent of all families headed by women with no husband present were below the government poverty line while the rate for married couples was only 4.9 per cent in 2001.

The study of the types of family is important to identify demographic patterns and trends. The present body of research suggests that there is a linkage between family type on the one hand and demographic outcomes plus population structure on the other. Also health and social services for elderly people who are not integrated in their kinship ties (e.g. childless, divorced people) constitute a real public health problem and a burden for welfare in western societies.

The nuclear family today is in crisis, as families are faced with many challenges of modern societies such as singlehood. **Singlehood** – living without a partner and without children - challenges the traditional assumption in most societies that to be truly happy and fulfilled, a person must get married and raise a family. A growing number of people in Americas and Europe are postponing entry into first marriage. The trend towards maintaining a single lifestyle for a longer period of time is related to the growing economic independence of young people, especially significant in women. Free from economic problems, women do not necessarily need to marry to enjoy a satisfying life. Divorce, late marriage, and longevity also figure into this trend. There are many reasons why a person may choose not to marry. Some singles do not want to limit their sexual intimacy to one lifetime partner. Some men and women do not want to become highly dependent on any one person, and do not want anyone depending heavily on them. In a society that values individuality and self-fulfilment, the single lifestyle can offer certain freedoms that married couples may not enjoy. On the other hand, some married couples keep and use their households established before marriage, and even their lifestyle as unmarried individuals (referred to as „**mingle**” – married but single).

2.6.2 Forms of marriage

Family life is shaped also by the form of marriage that is characteristic of a given society:

1. **Monogamy.** The term monogamy describes a form of marriage in which one woman and one man are married only to each other. Some observers, noting the high rate of divorce in the industrialized countries, have suggested that “serial monogamy” is a more accurate description of the form that marriage takes. In serial monogamy, a person may have several spouses in his or her lifetime, but only one spouse at a time.
2. **Polygamy.** Some cultures allow an individual to have several husbands or wives simultaneously. This form of marriage is known as polygamy. In fact, most societies throughout the world, past and present, have preferred polygamy to monogamy. Anthropologist George Murdock sampled in the middle of the 20th century 565 societies and found that in more than 80 per cent of them, some type of polygamy was the preferred form. While polygamy declined steadily through most of the 20th century, in at least five countries in Africa 20 per cent of men still have polygamous marriages. There are two basic types of polygamy. According to Murdock, the most common – endorsed by the majority of cultures he sampled – is **polygyny**. Polygyny refers to the marriage of a man to more than one woman at the same time. The wives are often sisters, who are expected to hold similar values and have already had experience sharing a household. In polygynous societies, relatively few men actually have multiple spouses. Most individuals live in monogamous families; having multiple wives is viewed as a mark of status. The other principal variation of polygamy is **polyandry**, in which a woman can have more than one husband at the same time. This is the case in the culture of the Todas of southern India. Polyandry, however, is exceedingly rare today. It has been accepted by some extremely poor societies that practice female infanticide (the killing of baby girls), and thus have a relatively small number of women.
3. **Cohabitation.** The term cohabitation describes a family created by a woman and a man (cohabitants) who live together and share the household, but are unmarried. Some societies consider such behaviour illegal, or at least immoral. However, such pattern is rather common in many industrial societies and the number of children born to cohabitating parents is growing rapidly. In the past

decades, pre-marital cohabitation led to marriage; more recently however, this tends not to be taken for granted. Contemporary, cohabitation as an alternative to marriage is increasingly popular with young as well as older couples in western countries.

Patterns of marital, sexual and demographic behaviour are correlated. There exist many studies that confirm: health outcomes of population depend on the family life variations.

2.6.3 Kinship structure within the family

In every culture, children encounter relatives to whom they are expected to show an emotional attachment. The state of being related to others is called *kinship*. Kinship is culturally learned, however, and is not determined by biological or marital ties only. For example, adoption creates a kinship bond that is legally acknowledged and socially accepted. The family and the kin group are not necessarily one and the same. Whereas the family is a household unit, kin do not always live together or function as a collective body on a daily basis. Kin groups include aunts, uncles, cousins, in-laws, and so forth. In a society such as Slovakia or the USA, the kinship group may come together only rarely, for a wedding or funeral. However, kinship ties frequently create obligations and responsibilities. We may feel compelled to assist our kin, and we feel free to call upon them for many types of aid, including loans and babysitting. As Schaeffer and many experts in bioethics pointed out, new forms of reproductive technology will necessitate a new way of looking at kinship – today, a combination of biological and social processes can “create” a family member, requiring that more distinctions be made about who is related to whom, with psychological implications for the identity problems of the “manufactured” individual.

2.6.4 Family’s social functions

In sociological theory, the functionalist perspective focuses on the ways in which the family gratifies the needs of its members and contributes to social stability. Family functions are not vital only to family members but also impact other social institutions and the whole society.

The family as a unique social group has the following features:

- A goal that can be reached only by coordinated common effort;
- Sense of togetherness and unique identity as a member of a particular family;
- Internal organization and structure of social statuses, roles and power;
- Its territory (housing territory);
- Norms – family membership requires adjustment to family norms by the family members;
- Symbols (surname, wedding rings etc.).

The family is a primary group. Social interactions are spontaneous, informal and emotional. Family relations (e.g. respect to parents) are culturally regulated by normative systems such as morals, customs and traditions, religion and family law.

The family’s social functions are:

1. Biological reproduction. For a society to maintain itself, it must replace its dying members. In this sense, the family contributes to human survival through its reproductive function.

2. Protection. Unlike the young of other species, human infants need constant care and economic security. In all cultures, the family assumes the ultimate responsibility for the protection and upbringing of children, and for the care of ageing parents.

3. Socialization and cultural reproduction. Parents and other kin monitor a child's behaviour and transmit the norms, values, and language of their culture to the child.

4. Regulation of sexual behaviour. Sexual norms are subject to change both over time (for instance in the aspect of dating customs) and across cultures (compare Islamic Saudi Arabia to the more permissive Denmark). However, whatever the time period or cultural values of a society, standards of sexual behaviour are most clearly defined within the family circle.

6. Affection and companionship, emotional support. Ideally, the family provides members with warm and intimate relationships, helping them to feel satisfied and secure. Of course, a family member may find such rewards outside the family – from peers, in school, at work – and may even perceive the home as an unpleasant or abusive setting. Nevertheless, we expect our relatives to understand us, to care for us, and to be there for us when we need them.

7. Provision of material resources. The family is an economic unit. Its members share a household. The family provides its members with housing, money (e.g. pocket money for children), food, clothing and other forms of vital and non-vital material resources and support.

8. Provision of social status. We inherit a social position because of the family background and reputation of our parents and siblings. The family presents the newborn child with an ascribed status based on race and ethnicity that helps to determine his or her place within society's stratification system. Moreover, family resources affect the child's ability to pursue certain opportunities, such as higher education and special lessons. The social status of the family of a corporate director will be different from that of the family of a criminal offender.

Traditionally, the family has fulfilled a number of other functions, such as providing religious training, education, and recreational outlets, but many scholars argue that other social institutions have gradually assumed many of those functions. For example, vocational training and education has been since decades the responsibility of the educational system and of different types of institutions such as kindergartens, boarding schools, colleges etc.

Changes in family norms regulating sexual behaviour have an effect on demographic trends and on population size and structure. For instance, although female reproductive age is defined from 15 to 49 years of age, there is a wealth of medical evidence about adverse health effects of pregnancies of women aged under 18, making it not just a social problem, but also a health issue with negative health outcomes in newborn children and young mothers. Many teenage pregnancies for various reasons are terminated by induced abortion in western countries. The present body of research confirms the linkage between parental permissiveness ("idle", positive attitudes) to early sexual life of teenagers and to cohabitation on the one hand, and an increase in teen pregnancy rates and induced abortion in this age group on the other.

2.6.5 Fundamental family roles of its members

Family members maintain family life and family functions in daily life, by performing their social roles, which are bound to their position within the family structure.

Socialization at childhood: Socialization during childhood takes place when children observe and later on replicate the behaviour of the elders (grandparents, parents and older siblings) at home. The children are taught about the values and modes of behaviour (social roles), directly through instruction and communication, and indirectly through observation of the behaviour of the elders at home. As they replicate it, they

are rewarded and the behaviour thus gets reinforced. Thus, the family of orientation (the one into which a baby was born and in which it grew up) has an important role to play. As they grow up, their health behaviour and (un)healthy lifestyle gets influenced also by friends and reference groups (direct and indirect).

Socialization at adulthood: Socialization is not restricted to childhood. It extends throughout the life of an individual, as an ongoing process. As a person grows up to adulthood, they interact with friends, colleagues and work peers, and are influenced by the same. As a newly married couple begins to settle down as a household, they make adjustments to each other with respect to values, lifestyles and modes of behaviour. They also make adjustments and adapt with respect to the likes and dislikes of the partner, including preferences for product and service offerings, and also brands. Once they have children, they begin to impact and are also impacted by them. Thus, just like the family of orientation, the family of procreation also has an important role to play. One of important socialization roles is **the role of the carer**: it is important to gather a stock of knowledge and skills about curing and caring for babies, young children and teenagers, and how to maintain own health and how to assist ageing parents or other kin relatives.

Fundamental roles of family members are:

1. Social role of a husband and father in the family: rearing children, sexual partner of his wife, wealth of the family (breadwinner), gratifying emotional needs of family members, performing physically difficult work in the household.
2. Social role of a wife and mother includes: bearing and rearing children, caring for the sick and elderly family members and parents, sexual partner of her husband, food preparation, gratifying emotional needs of family members, strengthening social networks with relatives and family friends.
3. Social role of a child: subordinate position to his parents, being a son or daughter, sibling, gratifying emotional needs of family members.

Harmonization of family life, roles and work brings a double burden of duties to parents with impact on their health status, in earlier or later stages of life cycle. It is not surprising that in many western countries, many employed parents develop addiction to calming drugs. People in qualified, high income jobs (e.g. physicians, architects, lawyers, managers, businessmen) often work long hours during the week, and also on weekends. People with lower wages often combine several jobs to improve family income. In both cases, this frequently results in orphan-like children of hard working parents, and an unhealthy lifestyle of adults.

2.6.6 Family and social support

Social support is defined as help provided by others that benefits an individual or collectivity. Relationships also control behaviour through expectations, rewards, and punishments. In the present body of research, particular attention has been paid to the family as a source of support and control. In addition, the lives of family members are linked across generations, with both opportunity and misfortune having an intergenerational impact. In addition to the economic connection between parents and children, parents provide social capital for their children in terms of both role models and networks of social support (e.g. by friends of family, parents' former classmates). It should also be noted that parents' lives are influenced by the trajectories of their children's lives. For example, parents may need to alter their work trajectories to respond to the needs of a terminally ill child. Parents may be negatively affected by stressful situations that their children face. Older adults and their adult children are also interdependent. The pattern of mutual support between older adults and their adult children is formed by life events and transitions across the life course.

It is also fundamentally changed when families go through historical disruptions such as wars or major economic downturns. For example, the traditional pattern of intergenerational support – parents supporting children – is often disrupted when one generation moves/migrates and another generation stays behind. It is also disrupted in immigrant families when the children pick up the new language and cultural norms faster than the adults in the family and take on the role of interpreter for their parents and grandparents.

What complicates matters is that family roles must often be synchronized across three or more generations at once. Sometimes this synchronization does not go smoothly. Divorce, remarriage, and discontinuities in parents' work and educational trajectories may conflict with the needs of children. Similarly, the timing of adult children's educational, family, and work transitions often conflicts with the needs of ageing parents. In modern societies, the "generation in the middle" – so called "sandwich generation" – may have to make uncomfortable choices when allocating scarce economic, emotional and physical resources and care to their chronically ill or elderly parents and their own teenage children.

2.6.7 Resilience and family

Resilience is defined as the ability to withstand, and emerge strengthened from, stressful life challenges.

The life challenges can be also related to ill health of family members, e.g. severe illness, injury, disability, or other problems such as financial difficulties or unemployment of family members.

Sometimes, father or mother leaves a family after a child was diagnosed with autism or cancer. Some family researchers conceive of the family as a system impacting on the resilience of the individual, conceiving of the family purely as a support system to the individual family member, and thus as a vehicle for individual resilience. The family can serve as a protective factor to boost the resilience of the family members. Protective factors include: a good fit between parent and child, maintenance of family rituals, proactive confrontation of problems, minimal conflict in the home during infancy, the absence of divorce during adolescence, and a productive relationship between a child and his or her mother.

However, the family also can act as a risk factor raising the vulnerability of family members. Some research outlines the kinds of family factors that create risk for family members (such as severe marital conflict, parental mental illness etc.), while other research has identified factors that help family members be resilient in the face of family dysfunction (e.g. research on adult children of alcoholics). Much of the literature on resilience has, in fact, considered resilience in relation to the profoundly dysfunctional family, creating a very negative image of families.

Both of these approaches consider the family merely as a context for the individual, making barriers or supports to the individual-level resilience. More current researches focus on the family-level resilience, considering the family as a social unit that is resilient. In that regard, multi-level public health programmes are being developed with the aim to strengthen the family.

2.6.8 Family hierarchy: Inequality and power within family relations

Conflict theorists view the family as an economic unit that contributes to societal injustice. The family is the basis for transferring power, property, and privilege from one generation to the next. Children inherit the privileged or less-than-privileged social and economic status of their parents (and in some cases, of earlier generations as well). As

conflict theorists point out, the social class of parents significantly influences children's socialization experiences and the degree of protection they receive. This means that the socioeconomic status of a child's family will have a marked influence on his or her nutrition, health care, housing, educational opportunities, and in many respects, life chances as an adult. In this way the family helps to maintain inequality (see also Chapter 3 on social determinants of health).

Conflict theorists also view the family not as a contributor to social stability, but as a reflection of the inequality in wealth and power that is found within the larger society. Feminist and conflict theorists note that the family has traditionally legitimized and perpetuated male dominance. It is argued the family reproduces the patterns of unequal treatment of men and women: by denying women opportunities that are extended to men, privileged status of men inside the family life is reproduced to further generations. **Social power** is the ability of an individual to force the other people to subordinate to his/her decisions and wishes. Each time a decision in the daily life must be made, an issue is raised: Who has the power to make the decision, who rules the family? The conflict perspective examines these questions in the context of traditional sex and gender stratification, under which men have held a dominant position over women. Societies vary in the way that power is distributed within the family. However, in many contemporary societies, there is the child tyranny within the family (a "king-child" model of family relations).

1. **Patriarchy.** A society that expects males (not necessarily husbands, but also fathers and sons of certain ages) to dominate in all family decision making is termed a patriarchy. In patriarchal societies, such as Iran, the eldest male often wields the greatest power, although wives are expected to be treated with respect and kindness. A woman's status e.g. in Iran or India is typically defined by her relationship to a male relative, usually as a wife or daughter. In many patriarchal societies, women find it more difficult to obtain a divorce than a man does. For example, health care workers who worked in Africa described that in many societies, when a woman is in a hospital and her husband will come to visit her, he takes it for granted to sleep on the hospital bed while the woman-patient who is ill is supposed to lie down on the ground under the bed.
2. **Matriarchy.** In contrast, in a matriarchy, women – the mother – have greater authority than men. Matriarchies, which are very uncommon, emerged among Native American tribal societies and in nations in which men were absent for long periods of time because of warfare or food gathering expeditions.
3. **Egalitarian family.** In a third type of authority pattern, the egalitarian family, spouses are regarded as equals. Usually relations among the children of both sexes tend to be equal. That does not mean, however, that all decisions are shared in such families. Wives may hold authority in some spheres, husbands in others. Many sociologists believe the egalitarian family has begun to replace the patriarchal family as the social norm in the United States and other industrialized countries.

Throughout most of human history – and in a wide range of societies – husbands have exercised overwhelming power and authority within the family. Not until the first wave of contemporary feminism in the United States, in the mid-1800s, was there a substantial challenge to the historic status of wives and children as the legal property of husbands.

The power structure of family manifested in the division of labour within the family (men's work – women's work), and is correlated with the roles socially defined for men and women. Such "traditional" role of husband was to be a breadwinner, to protect his wife and children. Wives' traditional roles included housekeeping and bearing

and raising children. While the egalitarian family has become a more common pattern during the 2nd half of the 20th century in industrialized countries, family roles were re-defined. In many societies, men reinforce their power and control over wives and children through acts of domestic violence.

2.6.9 Domestic violence

Domestic violence is a well-documented problem in developed but also in very traditional societies such as the Inuit tribes. It often manifests in cruel treatment or abuse, leading to severe physical injuries, death, mental health problems and addictions in children (also later in their life). Domestic violence makes families dysfunctional and generates other social and public health problems. Victims of domestic violence are usually women, children and the elderly. Drawing on studies conducted throughout the world, the following generalizations can be made:

- Women are most at risk of violence from the men they know.
- Violence against women occurs in all socioeconomic groups.
- Family violence is at least as dangerous as assaults committed by strangers.
- Though women sometimes exhibit violent behaviour towards men, the majority of violent acts that cause injury are perpetrated by men against women.
- Violence within intimate relationships tends to escalate over time.
- Emotional and psychological abuse can be at least as debilitating as physical abuse.
- Use of alcohol exacerbates family violence but does not cause it.

Within particular countries, social class, religion, race, and ethnicity create variations in family life and occurrence of domestic violence or teenage pregnancy. Thus, studying these variations can give us a better understanding of the distribution of disease and disability within the lifecycle. Various studies have documented the differences in family organization among social classes, with impact on demographic trends.

2.7. Social stratification

Every society divides itself into subgroups based on attributes considered important by that society. Societies formalize these divisions by developing social stratification systems. This process is sometimes referred to as social differentiation, or differentiation of social structure. Religious and ethnic affiliations, for example, cut across class lines and create vertical divisions within society that intersect the horizontal layers of the stratification system.

Social stratification involves not only the existence of inequality but a system of beliefs that support the system. In order for the system to work – that is, be accepted by members of the society – it must be supported by an underlying ideology. Every system of inequality not only gives some people more than others; it provides justification for these disparities. This ideology should be logical and plausible enough to be widely accepted. Just as what is unequal differs from society to society, so do the explanations for why people should be unequal. While neither rich nor poor are responsible for the existence of social stratification, the system influences the life chances of all members of society.

Social stratification inevitably results in the formalization of inequality among social groups in that society, with some people having more of the things (tangible and intangible) that society considers valuable and others less. Thus, social stratification refers to a system by which a society ranks categories of people in a hierarchy, in effect creating “strata”, or social layers within society. Social stratification is a creation of society,

not simply a natural grouping of individuals or a reflection of individual differences. In countries where people emphasize individual achievement (such as the USA), people tend to think of social standing in terms of personal talent and effort, exaggerating the extent to which we control our own destinies. However, the differences we see among individuals do not reflect their personal differences as much as their position in the social stratification system.

2.7.1 Basis of stratification

Age, sex, race/ethnicity, prestige, wealth, political power, family origin ...; although some form of social stratification exists in every society – large or small, rural or industrial – the basis for stratification varies from one society to another. Stratification based on sex and age is found in virtually every society. While variations in socioeconomic status may provide a basis for stratification in some societies, modern societies place special emphasis on income, education, and occupation as bases for differentiation. The stratification system that evolves reflects the needs and values of the particular society. As the things that society considers important change, the bases for social stratification change as well. Contemporary western societies had progressed through various stages of development, from an agrarian society through an industrial to a postindustrial society. In medieval times, social stratification was based on land ownership. With the industrial revolution it shifted to the ownership of capital, and with the post-industrial period to the control of information.

2.7.2 Social status

Once a social stratification system is established, it transcends individual characteristics. Thus, inequality persists from generation to generation as parents pass on their social positions to their children. Even in industrial societies, where some individuals do experience social mobility, the position of most people within the stratification system remains much the same over their lifetimes. In analyzing the social stratification process, sociologists pay attention to the manner in which individuals attain their statuses. There are, in essence, **two ways in which one can attain a status**— through ascription, and through achievement.

1. An **ascribed status** is a social position a person receives at birth or assumes involuntarily later in life. Examples of ascribed statuses are being a daughter, a Cuban, a teenager, or a widower. Ascribed statuses are matters about which people have little or no choice.
2. By contrast, an **achieved status** refers to a social position that a person assumes voluntarily and that reflects personal ability and choice, e.g. the position of a graduate student, a nurse, a judge, a patient advocacy group member, and any number of other achieved statuses within the healthcare institution.

In practice, of course, most statuses in contemporary western countries involve a combination of ascription and achievement. That is, people's ascribed statuses influence the statuses they achieve. People who achieve the status of a physician, for example, are likely to share the ascribed trait of being born into relatively privileged families. By the same token, many less desirable statuses, such as a criminal, drug addict, or unemployed workers, are more easily "achieved" by people born into poverty. Many individuals "achieve" the status of "disabled" persons by virtue of risky health practices that result in chronic conditions.

The dimensions of social status

Sociologists identify three dimensions of stratification or, looked at differently, three types of rewards meted out within the system. Wealth, power and prestige, offered in

various combinations, are the three legs of the stratification stool. Social status a person is holding is derived from these 3 dimensions.

1. **Wealth.** In modern societies, wealth is typically measured in terms of money income or control of financial resources, in terms of land ownership or ownership of other resources. Wealth is often used as a proxy for other measures of social status because it is relatively easy to quantify.
2. **Power** refers to the amount of influence that an individual (or group) has over other individuals (or groups) in society. Although some individuals may have power by virtue of their personal influence (e.g., a journalist or star athlete), this typically refers to the power that is derived from the “office” the individual holds. Thus, individuals occupying such disparate statuses as hospital administrator, physician, father of a family, teacher at an elementary school, or a military official, hold power of different types. This power, for the most part, is derived from the position held and not from any characteristics of the individual.
3. **Prestige** refers to the amount of esteem provided to the individual by society. Many of the same individuals noted above may be accorded a significant measure of prestige, within their particular field or throughout the entire society. Deference is typically accorded to individuals because of the status they occupy or because of occupational skills. Thus, university professors are often accorded significant prestige by virtue of their erudition in their chosen field and their association with a prestigious organization. Physicians are accorded significant prestige due to their presumed skills in the healing arts.

2.7.3 Typology of stratification systems and social mobility

Stratification systems can be classified as “open” or “closed” systems, based on their flexibility. Over the long term, social mobility is less a function of individual actions than it is of changes in society itself. During the first half of the twentieth century, for example, industrialization expanded the U.S. economy and raised living standards. During the late 1990s, on the other hand, economic setbacks generated substantial downward mobility, again regardless of one’s individual situation.

Social mobility can be defined as a vertical shift of an individual or a social group (e.g. women or Christians) within the stratification system. In so called “open stratification systems” (see below), adequate opportunity exists for individuals (and groups) to change their position within the stratification system, particularly by improving their standing on the wealth dimension – referred to as **upward mobility**. At the same time, **downward mobility** is not at all rare, as individuals, either through personal circumstances or through the vagaries of the economy, find themselves relegated to a lower level of the hierarchy.

Intergenerational mobility is a change in social position between generations on comparing a person’s class with their father’s, or – in women – comparing their husband’s class with that of their father. For instance, if an Indian woman gets married with someone from a lower cast, her position thereby is lowered.

Traditional stratification systems are characterized by little social mobility and a high status consistency, so that the typical person keeps the same relative standing with regard to wealth, power and prestige. A greater mobility of class systems, however, generates considerable status inconsistency. Low status consistency reflects the fact that classes are less well defined than they are in traditional systems.

Considering the sharpness of distinction between the various strata, one might ask: Are people in different social strata markedly different from each other, and can someone’s position in the stratification system be identified by looking at them or listening

to them? One might also speak of the rigidity of the lines between the various strata. Are the lines separating the strata clearly marked? How difficult is it to cross these lines? Further, one might consider the degree of legal support for the system. Are the various strata set (or at least reinforced) by law? Are there theocratically enacted rules (taking the force of law) that prescribe the strata in society? Finally, one might consider the “span” of the system. That is, what is the “distance” from the top to the bottom? Is the system relatively flat, with most strata grouped closely together? Or is the span from the richest to the poorest wide? How much of society’s resources are controlled by the various strata of society? Stratification systems can be classified as “open” or “closed” systems.

Closed systems. Most traditional systems are considered relatively closed. These would include the caste system of India and the feudal systems of medieval Europe, as well as the less complex systems characterizing smaller traditional societies. Closed systems are highly structured with clear-cut distinctions between the strata, a strong ideological basis for the system, legal and/or religious support for the system, and virtually no opportunity for social mobility. Such systems emphasize the status quo and are relatively impervious to change.

Open systems, such as those that characterize most industrialized societies, are “informal” compared to closed systems. They tend not to be formally structured but evolve out of the interaction of groups in society. They tend to be relatively flexible, with unclear lines of demarcation, often openly encouraging social mobility. Older European societies tend to be open while retaining some of the traits of closed systems (such as the hereditary English monarchy). A more open class system allows individuals who obtain education and skills to become socially mobile in relation to their parents or siblings. Such mobility, in turn, blurs class distinctions so that even family members may have different social status. Categorizing people according to their colour, sex, or social background gradually comes to be seen as both inappropriate and counterproductive. The industrial production characteristic of modern societies requires a relatively open system for its operation. Compared to agrarian societies where a rigid **caste system** is the rule, industrial societies move in the direction of meritocracy, a system in which social position is based entirely on personal merit. Thus, there is considerable reliance on credentials, degrees, and other objective indicators of “merit” in modern, industrial societies. **Class systems** in industrial societies move towards meritocracy to promote productivity and efficiency but retain some traditional elements of stratification in order to maintain order and social cohesion.

2.7.4 Social class or social strata?

The term **class** was introduced by German philosopher and one of founding fathers of sociology Karl Marx in the 19th century. He studied polarization of economic and political power, followed by collective identities based on class consciousness, and identified in society two classes with juxtaposing interests. This approach was criticized later because of giving overemphasized importance to economic definition of class and neglecting indicators as prestige; however, economic indicators are used up to the present to identify hierarchy in society. The term “social stratification” was introduced in the 1st half of the 20th century by German lawyer and sociologist Theodor Geiger. To identify a strata in society as a class, involves the degree to which society members relate to their social strata. Are individuals constantly aware of their position in the stratification system, or is this only something that comes up occasionally if someone attempts to cross a line? In a class system, sociologists speak of “class consciousness” and, indeed, earlier social observers felt that class consciousness in

capitalist societies would ultimately bring the system down, as entrenched class differences pitted one class against another.

While most society members in contemporary western countries have some vague notion of where they fit into the overall stratification system, they typically do not feel constantly aware of their positions, nor do they share sense of togetherness with others in their social stratum.

Whatever class distinctions exist in western societies, they are not very clear and there is a significant amount of **status inconsistency** within western societies.

Other way is to use **job classification** nomenclature to distinguish jobs requiring higher education and qualification standards. College professors or may be at the highest level of educational prestige but have moderate incomes. Truck drivers may make an upper middle class income, but be relatively low in the system in terms of power and prestige. Further, there is opportunity for social mobility, with individuals frequently crossing class lines through upward mobility (and occasionally through downward mobility). And, there are numerous laws that seek to guarantee equality of opportunity, and society members are constantly reminded that everyone is equal and there are legal proscriptions against any type of formal stratification.

The distinctions would be difficult to operationalize, since the lines between the strata are so indistinct. Social scientists generally see contemporary western societies as being divided into three to six social classes. The three major divisions are: the upper, middle, and lower classes. When more divisions are utilized, the categories are typically subdivisions of the three major groupings.

1. **The upper class**

- a. **The “upper-upper class”** in contemporary western countries usually includes less than one per cent of the national population, and is an exclusive “club” one can only be born into.
- b. **The “lower-upper class”** might be referred to as the “working rich” in that most of these individuals have high incomes as a result of the wages they earn rather than through inheritance. Members of the “lower-upper class” work as top executives in large corporations, as leading professionals or as senior government and military officials.

2. **The middle class**

- a. **The “upper-middle class”** households have above average household incomes and may accumulate considerable property or other wealth. Members of this group typically have well-paid professional or executive positions and many are business owners. This stratum is highly educated and exerts a dominant influence in national and local cultures.
- b. **The “middle-middle class”**. Members of this class generally have a moderate amount of education and hold lower-level “white-collar” jobs (e.g. teacher in kindergarten) or upper-level “blue-collar” jobs.
- c. **The “lower-middle class”**, sometimes referred to as the “working class”, usually includes the majority of population in western countries, people who work for “average” wages in primarily blue-collar and low-paying service jobs that place their households above subsistence level but not into the comfort zone of the “middle-middle class”. Members of this class are generally poorly educated and do not display the ambitions of higher social classes. The lowest segments of this class may be thought to overlap with the upper segments of the lower class.

3. **Lower Class.** The lower class includes population at the bottom of the stratification system. This includes the poor and the near-poor who barely have enough

resources to put them beyond the poverty level. Members of this class may hold low-paying jobs in manual labor or service occupations that are often temporary and unstable and do not provide the benefits associated with most employment. Many are unemployed or underemployed and participation on the welfare rolls is common. Racial and ethnic minorities are overrepresented in this segment of the class system in many western countries. Some researchers point out that this class is disproportionately affected by illness and disability.

Social scientists often emphasize the **objective measures of class** such as **income, education, and occupation**. While these are the demographic dimensions, it should be noted that the **subjective component** cannot be ignored. This “**lifestyle**” **component of social class** involves not only notions of normative behaviour and values, but also attitudes, perceptions, and opinions. While the objective measures are the easiest to operationalize and thereby to use as a basis for dividing the population into measurable groups, these groups’ lifestyles have important implications for health status and health behaviour.

One important aspect of the class system are (by W.Cockerham and other contemporary scholars) the **different time horizons that members of different classes observe** and the implications of these time horizons for health and health care. For the most part, **the lower class is oriented to the present, the middle class to the future, and upper class to the past**. The time horizon is particularly important because of its influence on the individual’s worldview and his subsequent behaviour. Whether one is oriented towards the past, the present, or the future provides an important clue to the values and norms characterizing the group to which the individual belongs. In general terms, an orientation to the past tends to be relatively conservative, emphasizing tradition and the status quo and resisting change. An orientation to the future, on the other hand, disdains tradition, supports orderly change, and encourages investment in hopes of future benefits. An orientation to the present implies no ties to the past and limited confidence in the future, creating a mindset that involves living for today and an emphasis on immediate gratification.

The orientation to the present characteristic of lower income groups impinges dramatically on the everyday lives of lower-income individuals. Members of this class are concerned about the immediate needs of survival and, out of necessity, live day to day. There is limited hope for the future, given that there are insufficient resources for survival in the present, and certainly no resources for investing in the future. The values and behaviour of lower class members of society are held in disdain by the other groups.

2.7.5 Implications of stratification for health

People’s material conditions of life and their position in the social structure greatly affect their behaviour, which in turn affects their health. Influences on behaviour, loosely categorized as culture, appear to affect patterns of eating, drinking and social relationships and may be relatively independent of current material conditions.

There are many aspects of social stratification that have implications for health and healthcare. The most clear-cut of these relate to the impact of socioeconomic status on both health status and health behaviour, which will be discussed in more detail in Chapter 3. Although the discussion below focuses on the implications of income and education stratification on healthcare, other dimensions of stratification also have implications for the system. These include the impact of differences based on sex, age, and race among other factors. The two primary categories of consequences according to K. Thomas are lifestyles and life chances.

Lifestyles

Lifestyles refer to the way of living characterizing the members of a social stratum. Lifestyles are acquired through the socialization process within the context of the family and, later, through other social groups with which one comes in contact. These influences convey the beliefs, values and behaviours of that social stratum to the new society member. In this sense, the socialization process teaches individuals their “station” in life and the characteristics appropriate for one’s place in the status hierarchy. If an acceptable ideology is in place, new society members are appropriately socialized into their proper status. **The lifestyle component of social class involves not only notions of normative behaviour and values, but also attitudes, perceptions, and opinions.** While the objective measures are the easiest to operationalize and thereby to use as a basis for dividing the population into measurable groups, less tangible aspects of lifestyles have important implications for health status and health behaviour.

Because of the **present orientation of members of the lower class**, as explained in the text above, health only is considered as a value to the extent that ill health is an expensive inconvenience. There is **little striving for higher health status**, on the assumption that sickness is an inherent part of (lower-class) life. When symptoms do appear, there is a tendency to ignore them or delay treatment as long as possible. Treatment that does occur is likely to be aimed at eliminating the immediate problem (e.g., pain or impairment) with little concern for the future implications of the actions. Because of the emphasis on immediate gratification, little thought is given to preventive care. The demands of the present, coupled with a general discounting of the future, do not make preventive measures like tooth-brushing, appropriate diet, and well-child checkups very important.

The **future orientation of the middle class** fosters quite different characteristics. There is a great deal of emphasis on a **proactive approach to health conditions**. This means not only addressing them promptly and aggressively when they occur, but utilizing whatever means necessary to prevent the conditions in the first place. Members of the middle class are quick to recognize symptoms and, if anything, tend to overutilize the healthcare system in their desire to be proactive. The middle class (particularly the upper-middle class) has set the tone with regard to healthy lifestyles and has led the movement towards fitness and healthy diets. This class values children because they embody the future and are considered worth “investing” in.

The **orientation to the past characteristic of the upper income groups** places emphasis on family lineage, tradition and an attachment to place. Its orientation reflects the fact that its wealth may have been accumulated in the past, encouraging an **emphasis on preserving the status quo and deemphasizing the importance of future endeavors**. This group’s pride rests with the ancestors that established their position in society, and children are valued for their role in perpetuating the glories of the past.

Life chances

Life chances include a variety of factors that reflect the operation of the stratification system. These include the chances of growing up in a stable, nurturing family, the opportunity to attend certain schools, the likelihood of obtaining a well-paying job, and so forth. Of particular importance are life chances related to health and, as will be seen below, one’s chances of surviving infancy, avoiding various deadly diseases, and generally living a long, healthy life are a function of one’s position in the stratification system. White, native-born Americans do not live longer than African Americans, Hispanics and Native Americans because they are smarter, more responsible, or luckier. They live longer because they are born with certain advantages and have access to certain opportunities that members of minority groups do not have. This situation results in significant disparities in life chances among various groups in society. Children born into affluent families

are more likely than children born into poverty to enjoy good health, be successful at school, succeed in a career, and live long lives. Social environment in childhood affects achieved adult height, life chances and ultimately mortality rates in adult life. It is likely, however, that in addition to the influences acting in adulthood, the social circumstances present in childhood have a continuing effect on disease rates in adulthood.

Sex

The status of women within a given occupation may differ from the status of men in that occupation, and for married women occupation is presumably a less reliable determinant of life circumstances than husband's social class.

Sex-based discrimination had been prevalent for centuries in western countries and persists in many countries worldwide. Economic status, membership in a minority group, and sex are all overlapping and interacting factors in determining both access to health services, their utilization and the content of healthcare research. "Sexism" involves the notion that one sex is innately superior to the other. Every society assigns different meanings to "masculinity" and "femininity" and develops notions concerning positive and negative sex role behaviour. Sexism, racism or ageism are not just a matter of individual attitudes, it is built into the institutions of our society. Institutional sexism pervades the economy, for example, with women highly concentrated in low-paying jobs. Similarly, the legal system has long excused violence against women, especially on the part of husbands, and fathers. In healthcare, women have historically been deemed unfit to practice medicine, excluded as subjects from clinical research, and told by physicians that their symptoms were "all in their head". Historically, it was common for gynaecologists to "treat" women for symptoms such as epilepsy, and nervous and psychological problems, such as hysteria, by removing the ovaries and/or amputating the clitoris.

Age and Ageism

Virtually all societies include age as a component of their stratification system. "Ageism" involves the differential treatment of individuals based on their age. Despite the size of the elderly population, the youth-oriented culture of the industrialized countries predisposes society members to develop negative attitudes towards ageing and the elderly. The youth-oriented values of society are reflected in the attitudes of healthcare providers. The medical enterprise is oriented towards treatment and cure, and the conditions of most elderly patients deny this approach. Patients characterized by chronic conditions that can only be managed and not cured do not make attractive patients.

Older patients are not expected to be knowledgeable concerning their conditions and are criticized for both providing too much information and not providing enough. There is a preconceived notion that many are hypochondriacs. Practitioners are often inclined to "write off" elderly patients, feeling that they deserve less attention than younger patients. This involves providing them less time and attention and assuming that they are not going to be responsive to therapy. There are scores of other patients who can benefit from the doctor's skills, so elderly patients who are not likely to get better anyway may be considered "in the way". Elderly patients may not be offered the same treatment as younger patients, and there is a tendency to "maintain" older patients on drugs rather than aggressively treating them. Further, symptoms of disease that would warrant immediate concern among younger patients are assumed to be natural accompaniments of ageing and are often ignored. Medical practitioners have a tendency to generalize the traits of the elderly and, in the absence of any incentive to determine otherwise, see most elderly patients as essentially the same. Physicians are used to thinking in terms of clinical categories. If clinicians are apt to refer to "the gall bladder in Room 305," they are even more likely to refer to "the 'geri' in Room 306". The antipathy of the system towards the elderly (gerontophobia) is reflected by the lack of attention paid to geriatric medicine during medical education.

2.7.6 Racial inequalities

A **minority group** is any distinct group in society that shares common group characteristics and is forced to occupy a low status in society because of prejudice and discrimination. A group may be classified as a minority on the basis of ethnicity, race, sexual preference, age, or class status. It is important to note that a minority group is not necessarily an actual minority in terms of numbers, but it is a group that holds a low status in relation to other groups in society (regardless of size). The group that assigns subordinate status to a racial or ethnic group in society is called the **dominant group**.

Concepts of race and ethnicity play a large role in everyday human interactions and sociologists studied excessively how and why society treats racial and ethnic groups differently, and why is there social inequality between these groups. Racial problems are universal phenomena and occur in different parts of the world. The sociological study of race and ethnicity examines the social, political, and economic relations between races and ethnicities at all levels of society. Dealing with “social problems” such as crime, poverty, and disease inevitably touches upon the concepts of race and ethnicity. Topics commonly studied include inequality, discrimination, racism, residential segregation, identity, empowerment, and the differences between racial and ethnic groups in various aspects (drug abuse, risk behaviour, family patterns, health literacy etc.).

The civil rights movement in the United States and the anti-apartheid mobilization in South Africa are the most prominent and most successful examples of clearly manifested need for a new social order and changes to stratification of society. Controversy over the significance of race was greatly heightened after World War II. The war itself had significant racial dimensions, and left a legacy of revulsion at racism and genocide. Even today, there are many definitions of the term “race”. Often, the notion of “race” tends to be replaced by “ethnicity”. **An ethnic group or race can be defined as a group that is treated as distinct in society, because of their biological or cultural characteristics**, which are labelled as inferior by powerful groups in society. A race is often singled out for differential and unfair treatment.

A **race** is a category of people who share biologically transmitted traits that society deems significant. Although race is not a recognized biological concept but a social construct, sociologists point out, the existence of perceptions of racial distinctions makes racial classification real in its consequences. Ethnic group classification, or **ethnicity**, is based on differences in cultural heritage. Members of an ethnic category may have common ancestors, language, and religion that contribute to a distinctive social identity. They have a common cultural tradition, including values and norms and perhaps even a language that sets them apart from the larger society. While sociologists distinguish between race and ethnicity, the two may go hand in hand. Japanese Americans, for example, have distinctive physical traits and – for those who maintain a traditional way of life – a distinctive culture as well. **Both race and ethnicity can be grounds for minority status**. Some of these groups are highly distinct and strive to maintain their cultural identity in the face of overwhelming majority forces. Others are less visible, with their existence a function of perceptions held by the majority population and the majority’s reaction to them. In the latter case, it may not even be appropriate to use the term “group” since these groupings of individuals with similar cultural backgrounds may not have the characteristics of a true group.

The **ethnicity data** used in official datasets or national statistics usually rely on individuals’ self-definition. Membership in an ethnic group is something that is subjectively meaningful to the person concerned.

Race inequalities and health

Racial and ethnic attributes are linked with the disparities that may exist in health status and influence the health behaviour for large segments of the national population. Also the healthcare system usually treats members of different racial and ethnic groups differently, with the likelihood of diagnosis and treatment differing based on racial or ethnic characteristics of the patient.

Coping with discrimination can result in chronic levels of stress that impact physical and mental health. As researchers have discovered, this discrimination-related stress is exacerbated by empathizing with discriminatory acts experienced by other members of one's group. Disparities have been found between racial and ethnic groups in the use of health services. To some extent, these differences may be traced to differences in the types of health problems experienced. Where members of minority groups and subcultures do not receive comparable treatment to members of the majority population, sometimes this may be due to issues related to patient attitude, preferences, or perceptions. More often, however, the individual characteristics – real or perceived – of the patient contribute to differential treatment by some of medical practitioners.

More recently, research has begun to explore the possible contribution of structural factors, particularly differences in socioeconomic position, to ethnic inequalities in health. Such studies have found a clear class-related effect in the relationship between ethnicity and health, suggesting that the processes through which ethnic minority status leads to class disadvantages are central to understanding ethnic inequalities in health. However, many of the differences reflect variations in lifestyle patterns, beliefs and living conditions.

Racism

Racism is any attitude, action or institutional structure that subordinates a person or group because of their race (“color of skin”). Racism is different from racial prejudice or discrimination. Racism involves having the power to carry out systematic discriminatory practices through the major institutions in society, or at the individual level. No society will distribute social benefits in a perfectly equitable way. “Racist” societies use race as a criterion to determine who will be rewarded and who punished, or excluded from social benefits such as health care, healthy living, education or good jobs. Institutional racism can be observed in societies where social policies, procedures, decisions, habits and measures taken actually subjugate a race of people and permit another race to maintain control over them.

In the history of medicine, there is evidence that racism penetrated the practice of medicine and health care.

In the 20th century, untold numbers of women of colour endured life-altering experiences in part because of medical racism. The eugenics program in the USA was eliminated in 1977. Until the present, Black, Native American and Puerto Rican women report being sterilized without their consent after undergoing routine medical procedures (e.g. appendectomy) or after giving birth. Others say they unknowingly signed documentation allowing them to be sterilized or were coerced into doing so. The experiences of these women strained relations between people of colour and healthcare personnel. In the 21st century, members of communities of colour in the USA still widely distrust medical officials.

In the 20th century, people regarded as inferior were used as “laboratory rats” for clinical research in medicine and pharmacy, such as in the “Tuskegee syphilis experiment”. The clinical study had been conducted 1932-1972 in Tuskegee, Alabama, by the U.S. Public Health Service. In the experiment, 400 impoverished black men who had syphilis were offered “treatment” by the researchers, who did not tell the test subjects that they had syphilis and did not give them treatment for the disease, but rather just

studied them to chart the progress of the disease. By 1947, penicillin became available as treatment, but those running the study prevented the study participants from receiving treatment elsewhere, lying to them about their true condition, so that they could observe the effects of syphilis on the human body. By the end of the study in 1972, only 74 of the test subjects were alive. 28 of the original 399 men had died of syphilis, 100 were dead of related complications, 40 of their wives had been infected, and 19 of their children were born with congenital syphilis. The study was not shut down until 1972, when its existence was leaked to the press, forcing the researchers to stop in the face of a public outcry.

The mid-20th century was a period in which overt racism flourished throughout the world. The idea of racial hygiene went hand in hand with legalization of coerced sterilization of people suffering of mental illness or members of racial/ethnic minorities. Nazi Germany was only one of several European countries that openly practiced an extreme form of racism. Even the United States was not blameless, harbouring deep hostility to minorities of colour and of religion. Asians were as racist as their European and American brothers and sisters. Racism in Japan, as in most other cultures, was born of religion and skin colour. Japanese racism, as exploited by ultranationalists, became indistinguishable from that of the Nazi concept of the superiority of the Aryan race. To the militarists, Asians and most Westerners became sub-races. They were not regarded as truly human, or worthy of the respect accorded to humans. This belief provided a perfect basis for the ill-treatment of prisoners of war and of civilians, who were considered to be worthless. Organized, structured, systematic, involuntary human experimentation was a feature of both German and Japanese military planning during World War II. Japanese soldiers after their invasion to China caught people surreptitiously and brought them to their facilities. In all, Japanese scientists used human guinea pigs to perform grotesque experiments at 26 secret laboratories in China, Japan and other occupied countries. Between 3,000 and 12,000 prisoners are believed to have died from these experiments. No survivors have been located. Local residents were afraid every day that they might be kidnapped by Japanese soldiers.

Most armed and war conflicts even in today's world are between ethnically defined nations, or between groups of different ethnicity (such as the Rwanda conflict). The effects of war on physical and mental health of populations are devastating.

2.8. The life course

By the term "life course", sociologists denote **the sequence of activities or states and events in various life domains that span from birth to death.**

In social medicine and public health, sociology can be helpful in unravelling patterns of health, illness or disability in life courses in a given population.

The sociological study of the life course, therefore, aims at mapping, describing and explaining the synchronic and diachronic distribution of individual persons into social positions across the lifetime. One major aspect of life courses is their internal temporal ordering, i.e. the relative duration times in given states as well as the age distributions at various events or transitions.

From the perspective of sociology, life courses are not considered as life histories of persons as individuals, but as patterned dynamic expressions of social structure. These apply to populations or subsets of populations, are governed intentionally or unintentionally by institutions, and are the intentional or non-intentional outcomes of the behaviour of actors. The age and cohort structure of a population is the highly consequential result of a multitude of fertility behaviours and decisions.

Events across the lifetime are not randomly distributed, but the choice or experience of a prior transition or state narrows down options and probabilities for consequent steps. For example, continuities in occupational trajectories of doctors can come about via their individual investment in human capital and the accumulation of human capital in education, training or at work.

2.8.1 Age

Many societies engage in **age structuring**, or standardizing of the ages at which social role transitions occur, by developing policies and laws that regulate the timing of these transitions.

Chronological age itself is not the only factor involved in the timing of lives. Age-graded differences in roles and behaviours are the result of biological, psychological, social, and spiritual processes. Thus, age is often considered from each of the perspectives that make up the biopsychosocial framework.

Dimensions of age:

1. Biological age

2. Psychological age has both behavioural and perceptual components. Behaviourally, psychological age refers to the capacities that people have and the skills they use, e.g. skills in memory, learning, intelligence, motivation, emotions. Perceptually, psychological age is based on how old people perceive (feel) themselves to be.

3. Social age refers to the age-graded roles and behaviours expected by society – in other words, the socially constructed meaning of various ages. In most human societies, the life course is composed of an age-graded structure, which stratifies the society into age strata and involves **age norms** for important life events and role transitions. Age norms also vary by social location, or place in the social structure of a given society, most notably by gender, race, ethnicity, and social class. These variables create differences from one cohort to another, as well as differences among the individuals within a cohort. The concept of age norm is used to indicate the behaviours that are expected of people of a specific age in a given society at a particular point in time. Age norms may be informal expectations, or they may be encoded as formal rules and laws. For example, cultures have an informal age norm about the appropriate age to begin romantic dating, if romantic dating is the method used for mate selection. On the other hand, many countries have developed formal rules about the appropriate age for driving, drinking alcohol, and voting. Life course scholars suggest that age norms vary not only across historical time and across societies but also by gender, race, ethnicity, and social class within a given time and society.

4. Spiritual age indicates the current position of a person in the ongoing search for “meaning and morally fulfilling relationships.” Spirituality is typically seen as a process of growth, a process with no end. There is scientific evidence that spiritual development of a person is not strictly linear; rather, there can be regressions, temporary leaps, and turning points in a person’s spiritual development.

Increasing life expectancy across the most affluent nations of the world has not only led to a demographic transition where the numbers and proportions of people aged over 60 have increased (see also Chapter 4), but has also been accompanied by a radical re-writing of the normative template of old age. This is not simply because there are now more people living to a later age, but also as the levels of health and functioning that were once assumed to be constitutive of old age are no longer adequate interpretative structures on which to understand this period of life. The most notable aspect of

this transformation is the emergence of distinguishing the ‘**Third Age**’ to designate the period after working life and family responsibilities have ended, but before a ‘**Fourth Age**’ of dependency and decline has made its presence felt in the lives of older people. The Third Age puts an emphasis on choice and agency in the construction of post-work lifestyles and activities. Such a discourse is heavily dependent on the maintenance of personal health and vitality as ways of demonstrating a continued capacity to participate in Third Age culture, including “anti-ageing” strategies. A notable feature of the contemporary ageing experience, therefore, is the increasingly sharp demarcation that is being made between the Third Age of relatively active later life and the Fourth Age of decline and dependency. In this arena, the Fourth Age becomes a status that is defined in terms of lack, most notably in relation to the loss of cognitive functions such as short-term memory, loss of autonomy, dependency and frailty.

Gerontologists are hopeful that making a society “ageing friendly” might be the most powerful tool we have to cope with the challenges imposed by the demographic swing to longevity. Medical care can reduce mortality, but seems to do very little to improve physical and cognitive function in old age – the factors that burden individuals and predict healthcare resource utilization and cost. Until we find the secret to slowing down the biological clock of ageing and preventing the development of dementia and other disabilities characteristic of frailty, we should start to promote “healthy ageing”, based on our presently, rather incomplete, knowledge of the “ageing process”. Reshaping our society in response to the demographic transformation may be the most powerful strategy to accomplish this goal.

2.8.2 The life course perspective

1. The life course perspective attempts to understand the continuities as well as the twists and turns in the paths of individual lives.
2. The life course perspective recognizes the influence of historical changes on human behaviour.
3. The life course perspective recognizes the importance of timing of lives not just in terms of chronological age, but also in terms of biological age, psychological age, social age, and spiritual age.
4. The life course perspective emphasizes the ways in which humans are interdependent and gives special attention to the family as the primary arena for experiencing and interpreting the wider social world.
5. The life course perspective sees humans as capable of making choices and constructing their own life journeys, within systems of opportunities and constraints.
6. The life course perspective emphasizes diversity in life journeys and the many sources of that diversity. The differing patterns of social networks in which persons are embedded produce differences in life course experiences.
7. The life course perspective recognizes the linkages between childhood and adolescent experiences and later experiences in adulthood.

Basic concepts of the life course perspective

Cohort: Group of persons who were born at the same historical time and who experience particular social changes within a given culture in the same sequence and at the same age. One way to visualize the configuration of cohorts in a given society is through the use of a **population pyramid**, a chart that depicts the proportion of the population in each age group (see also Chapter 4). Cohorts differ in size, and these differences affect opportunities for education, work, and family life. Some observers suggest that cohorts develop strategies for the special circumstances they face; however, a study by Stockard & O’Brien, 2002, found that large cohorts in affluent

countries have higher rates of suicide than smaller cohorts, suggesting that not all members of large cohorts can find positive strategies for coping with competition for limited resources.

Trajectory: A long-term pattern of stability and change, which usually involves multiple transitions. The changes involved in transitions are discrete and bounded; when they happen, an old phase of life ends and a new phase begins. In contrast, **trajectories** involve a longer view of long-term patterns of stability and change in a person's life, involving multiple transitions. We do not necessarily expect trajectories to be a straight line, but we do expect them to have some continuity of direction. For example, we assume that once a man became addicted to alcohol, he set forth on a path of increased use of alcohol and deteriorating ability to uphold his responsibilities, with multiple transitions involving family disruption, job instability and ill health. Because individuals and families live their lives in multiple spheres, their lives are made up of multiple, intersecting trajectories – such as educational trajectories, family life trajectories, health trajectories, and work trajectories. These interlocking trajectories can be presented visually on separate lifeline charts or as a single lifeline.

Life event: Significant occurrence involving a relatively abrupt change, positive (promotion at work) or negative (job loss), that may produce serious and long-lasting effects. Individuals make subjective assessments of life events. The same type of life event may be a turning point for one individual or family, but not for another. Loss of a parent is not always a turning point, but when such a loss occurs off-time, in early childhood, it is often a turning point. As the life course perspective has continued to evolve, it has more clearly emphasized the links between the life events and transitions of childhood, adolescence, and adulthood. Studies indicate that childhood events sometimes shape people's lives 40 or 50 years later.

Transition: Change in roles and statuses that represents a distinct departure from prior roles and statuses. Marriage and divorce are examples of a life transition, which is a significant occurrence with long-lasting effects. Life is full of such transitions: starting school, entering puberty, leaving school, getting a first job, leaving home, retiring. A life course perspective is stage-like because it proposes that each person experiences a number of transitions, or changes in roles and statuses that represent a distinct departure from prior roles and statuses.

Turning point: Life event that produces a lasting shift in the life course trajectory. Most life course pathways include multiple turning points. A turning point is a point in the life course that represents a substantial change or discontinuity in direction; it serves as a lasting change and not just a temporary detour. Research indicates that three types of life events can serve as turning points:

1. Life events that either close or open opportunities
2. Life events that make a lasting change on the person's environment
3. Life events that change a person's self-concept, beliefs, or expectations

For example, child labour and childbearing in adolescence are considered off-time in modern industrial countries, but in much of the world, such timing of roles is seen as a part of the natural order. Likewise, death in early or middle adulthood is considered off-time in modern industrial societies, but, due to the HIV/AIDS epidemic, has now become commonplace in much of Africa.

2.8.3 Life course and social class

Life course trajectories also vary by social class. In impoverished societies, and in neighbourhoods in affluent societies that are characterized by concentrated poverty, large numbers of youth drop out of school by the ninth grade.

In contrast, youth in upper middle-class and upper-class families expect an extended period of education with parental subsidies. These social class differences in educational trajectories are associated with differences in family and work trajectories. Affluent youth go to school and postpone their entry into adult roles of work and family. This trajectory of unearned advantage is sometimes referred to as **privilege**. Children who do not come from affluent families are more likely to attend underequipped schools, experience school failure or dropout, begin work in low-paying sectors of the labour market, experience unemployment, and arrive at old age with compromised health and limited economic resources. Early deprivations and traumas do not inevitably lead to a trajectory of failure, but without intervention that reverses the trajectory, these early experiences are likely to lead to accumulation of disadvantage. Individual trajectories may be moderated not only by human agency but also by historical events and **environmental supports**.

In terms of environmental support, governmental safety nets to support vulnerable families at key life transitions have been found to reduce the effects of deprivation and trauma on health. For example, researchers have found that home nurse visitation during the first two years of a child's life can reduce the risk of child abuse and criminal behaviour among low-income mothers.

2.8.4 Life course perspective in the study of population health

It has been suggested that the **disparities found in the health status of men and women** stem from three sources: **different biologies and physiologies; divergent life courses; and unequal social statuses**. Women have remarkably dissimilar experiences in growing up, during maturity, and as they age. Despite the rapid social change of the last generation, they still play different roles in society and face different pressures and expectations. Perhaps the most important factor influencing health status is economic and, when economic considerations are interfaced with gender traits, females are especially vulnerable. Disparities in health status between men and women are further reinforced by the disparities in the area of clinical research. A major concern of the women's health movement has been that women have historically been excluded from clinical trials. This exclusion has been based on fears among researchers that women's menstrual cycles and their potential for becoming pregnant might skew the results and/or harm the mother/fetus. Consequently, many conditions that disproportionately affect women have been understudied. Despite current mandates for the inclusion of women in clinical trials, there are lingering concerns that women's health needs are not being appropriately addressed.

Many diseases typically diagnosed in adulthood have social and physiologic antecedents much earlier in life. Although the research faces many analytic challenges, the fundamental premise – that illnesses of middle and late life are often shaped by developmental processes experienced in utero, in childhood, in adolescence or early adulthood – has strong empirical support. This result has several important implications for appropriate design, analysis, and interpretation of research on ageing and chronic diseases. In many cases, an understanding of the role of early life conditions is relevant even for substantive research questions relating to exposures or outcomes exclusively encountered in adults. Research on adult chronic diseases focuses on identifying opportunities to intervene to improve population health, whether via clinical treatments, behavioural interventions, or policy changes. Understanding the lifecourse antecedents of diseases associated with ageing can provide essential insight into selecting the timing and structure of interventions in order to successfully improve population health.

Researchers are trying to develop aetiological models of the life course to address risk factors and determinants of chronic illness.

The life course perspective and the **concept of cumulative disadvantage** are beginning to influence scientific disciplines that focus on the prevalence of disease across communities. Researchers in this tradition are interested in social and geographical inequalities in the distribution of chronic disease. They suggest that risk for chronic disease gradually accumulates over a life course through episodes of illness, exposure to unfavourable environments, and unsafe behaviours. They are also interested in how some experiences in the life course can break the chain of risk. This approach to public health mirrors efforts in developmental psychology and other disciplines to understand developmental risk and protective factors. The study of risk and protection has led to an interest in the concept of **resilience**, which refers to the ability of some people to fare well in the face of risk factors. Researchers studying resilient children are examining the interplay of risk factors and protective factors in their lives. Although the study of protective factors lags behind the study of risk factors, researchers speculate that a cumulative effect will also be found for protective factors.

The influence of wider social conditions on health is significant at different points in the lifecycle, particularly when people are most dependent or vulnerable, e.g. childhood, pregnancy and older age. Recent research shows how accumulated social disadvantage or advantage over the lifecycle influences health and well-being, the likelihood of illness and of premature death.

A lifecycle or lifecourse perspective provides a useful framework for understanding how social determinants influence health and the generation of health inequalities (see also Chapter 3) and for identifying entry points for interventions. **In brief, a life-course perspective explores how different social determinants operate or accumulate as advantages or disadvantages over different stages of the lifecycle.** Research shows that health experiences in early life, even in the womb, and the social conditions that shape them, e.g. poor maternal health resulting from material disadvantage, will go on to influence health in later life.

Disparities in health outcomes and in the psychosocial factors contributing to them are present early in life and are expressed and compounded during a person's lifetime. Because research on health disparities has demonstrated the effect of many determinants interacting in various contexts at developmentally sensitive points, we need an integrated conceptual model to translate evidence into policies, practices, and health systems. Recent developmental theories place greater emphasis on the role of dynamic environment-gene transactions and on the mechanisms through which social contexts induce changes in psychological and biological functions. The most recent **dynamic contextual developmental models** combine gene transactions, changes in social context, and environmental and biological factors to trace the effect of the timing of developmental events on developmental trajectories.

2.8.5 The life course health development framework

The life course health development (LCHD) framework organizes research from several fields into a conceptual approach explaining how individual and population health develops and how developmental trajectories are determined by interactions between biological and environmental factors during the lifetime. This approach thus provides a construct for interpreting how people's experiences in the early years of life influence later health conditions and functional status. By focusing on the relationship between experiences and the biology of development, the LCHD framework offers a better understanding of how diseases occur. By suggesting new strategies for health measure-

ment, service delivery, and research, as well as for improving health outcomes, this framework also supports health care-purchasing strategies to develop health throughout life and to build human health capital.

The LCHD framework by Halfon and Hochstein (2002) presented here is based on four related principles that explain how biological factors and environments transform individual biobehavioural functioning across the lifespan or life course:

1. The multiple contexts of health development.
2. The design and process of health development.
3. Mechanisms that account for variation in the trajectories of health development.
4. The integration of multiple timeframes of health development.

These four principles – context, process, mechanism, and timing – constitute the central components of the LCHD framework. Health development is shaped by the dynamic and continuous interaction between biology and experiences and is framed by the constantly changing developmental contexts over the lifetime. These nested contexts include child rearing, access to resources, employment and health care, and the psychological environment that mediates behavioural and stress responses to the trials and tribulations of daily life.

In populations, the influence of different environmental contexts can be represented as “macropathways” depicting the interactions between the economic, social, physical, behavioural, cultural, and other environments that mediate, or modify, individual functioning. Macropathways typically involve risk and protective factors that are often correlated (e.g., poverty, geographic proximity, physical environment, limited social capital) and that together define the path of health development. Several macropathway models have been proposed to explain how various determinants interact to produce different population health outcomes. In individuals, multiple-determinant models describe the macropathways through which different environmental contexts influence lifestyle, physical activity, and food consumption. These in turn mediate the effects of social, economic, and cultural environments on short- and long-term health and well-being. This mediation is based on the functioning of metabolic and neuroendocrine regulatory “micropathways.” In any particular environmental context, one or two factors (e.g., access to food, level of psychosocial stress, amount of air pollution) may be especially important to specific health outcomes (e.g., growth, psychological adjustment, exacerbation of asthma), but it is probably rare that a single environmental factor is uncorrelated with other influential factors from the same environment. Moreover, these multiple nested environments are dynamic, and during different stages in life, their relative influence changes. For example, family environment has a relatively greater effect on the health development of young children, whereas neighborhood and individual behaviours become more important as they age. To understand how multiple nested environments affect individual development, life course sociologists created the concept of “life pathways”. The life pathway concept contrasts with the earlier view of life course as a simple linear trajectory, divided into ages and stages and bounded by the finitude of death.

The 1946 British National Birth Cohort Follow-up Study provided extensive evidence of the effect of early life experiences on cognitive functions, physical growth trajectories, menopause, blood pressure, psychotic illness, respiratory health, and other serious diseases. Other studies demonstrated a “dose response” relationship between the exposure to abuse and family dysfunction during childhood on the one hand, and the prevalence, severity, and age of onset of adult disease on the other. Early experiences and adaptive responses can significantly influence the trajectory of health development, without having a deterministic effect. Especially for behavioural subsystems,

contemporary theories and research stress that people remain relatively malleable throughout life.

The life pathway of health development is defined by the cumulative pattern of experiences of individuals and populations in many contexts, reflecting the importance of developmental transitions, turning points, and trajectories. The age-dependent patterns of social influence are most powerful at times of transition between different life phases. As individuals move along even very constrained life pathways, they may adopt and relinquish roles and identities, and transform and modify personal ties and social relationships as they adapt to the demands of their shifting social, psychological, and biological environments. Distinct life paths emerge not only from the correlation of related contexts but also because individual and family responses form coherent biological and cultural strategies of adaptation.

Various stages of the life course from 'womb to tomb' present opportunities and entry points for action on health equity, better public health and the reduction of health inequalities.

Maternal health: Women earn less at work than men do, and are over-represented in low-paid and low-skilled jobs and part-time employment. The experience of socio-economic disadvantage can be harmful to a mother's health and can influence a child's health in the long term. Research in Ireland indicated that babies born in 1999 to parents who were unemployed were over twice as likely to have low birth weights as babies born to higher-level professionals. This research also highlighted the greater risk of death, disability and academic underachievement associated with low birth weight. Support for mothers, particularly for those who are less well-off and those who are parenting alone, is vital to maternal and childhood health.

Child health: For children, the provision of safe playspace both at home and in public areas as schools is of particular importance given growing concerns about obesity.

Child poverty is a significant (however not the only) problem because poor health during childhood has long-term consequences not just for health and well-being, but also for education and employment opportunities. In industrialized countries, research recognises clear links between family socio-economic circumstances and the health status and health behaviours of children. In poorer families, children were found to have more adverse behavioural conditions, higher accident rates, higher rates of decayed teeth and teeth extractions, higher intakes of fried food, processed meats and sweets and lower intakes of fruit and vegetables.

Elderly health: Diminishing income, reduced mobility and reduced social support or activity may impact on health as one grows older. In addition, those who have experienced adverse social conditions earlier in life can experience the accumulation of these factors even more acutely – or may even face premature mortality.

Many important health conditions, including dementia and disability, reflect the intersection of 1. developmental processes, 2. pathological or disease processes, and 3. recovery or resilience. These three components may have distinct antecedents. Treatments may be most effective at interrupting the pathological process long before conventional diagnostic criteria are met, although the optimal timing is unknown.

Life course models of aetiology of chronic illness

Although many diseases are primarily diagnosed in old age, such conditions may nonetheless reflect damage (or benefits) incurred from exposures much earlier in life. Alternative lifecourse models linking the timing of exposure to health outcomes are: (a) Immediate risk model; (b) Social trajectory model; (c) Cumulative risk model; (d) Early life latency model; (e) Social mobility effects model (see below in Figure 2.1).

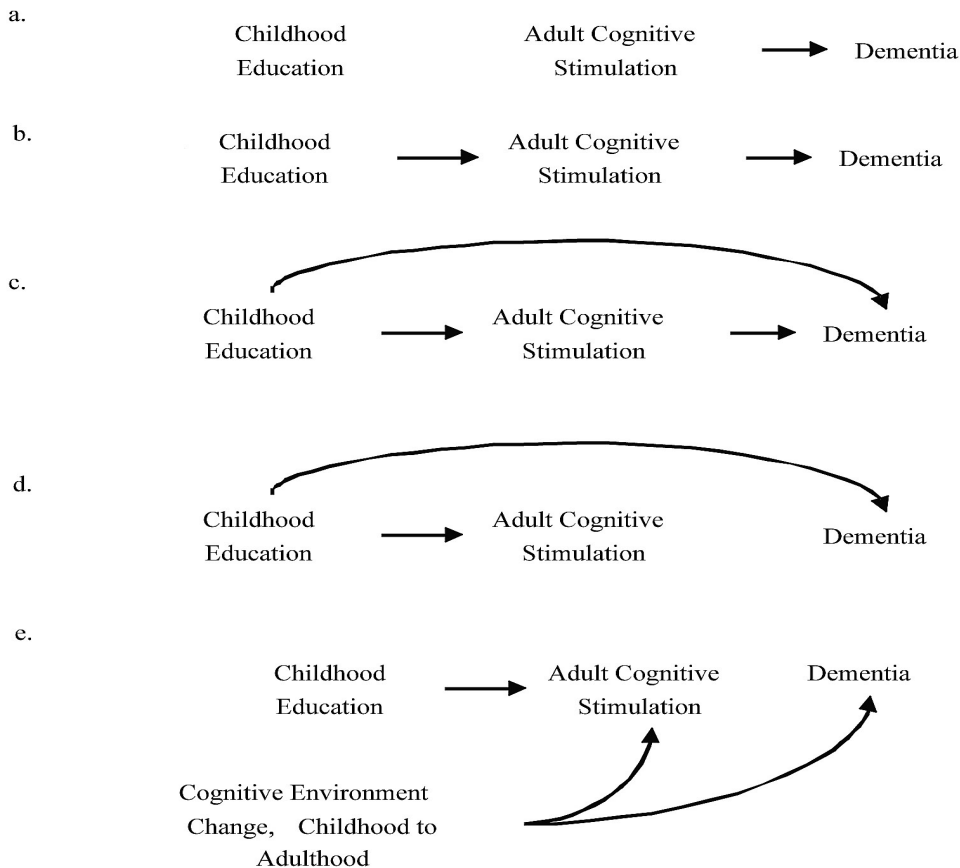


Figure 2.1 Alternative life course models of aetiology of adult age chronic illness on the example of dementia developed by Liu, Jones and Glymour.

Source: Sze Liu, Richard N. Jones and M. Maria Glymour 2010: *Implications of Lifecourse Epidemiology for Research on Determinants of Adult Disease*. *Public Health Reviews*, Vol. 32, No 2, 489-511.

Immediate effect models posit brief aetiological periods so that exposure to a causal risk factor increases risk of disease quite promptly.

Social trajectory model (sometimes called “chain of risk”): there is no direct effect of childhood exposure on adult outcomes, it is only the adult exposure that directly harms or benefits adult health. But many exposures, particularly those related to social position follow a “sticky” trajectory, where childhood conditions shape adult exposures.

Cumulative risk models posit that each period of risk factor exposure induces permanent physiologic harm. This damage accumulates over the life course, increasing risk of later illness with each additional exposure period. Cumulative models may be especially apt for social risk factors. There are often many possible pathways via which social risk factors affect health, and different mechanisms may be relevant at different points in the pathway. For some diseases, including dementia, the diagnosis of the disease typically occurs long after the initial physiologic damage begins. The diagnosis is the tail end of a long, accumulating pathologic process. The cumulative biological model can also incorporate the concept of historically linked lives and intergenerational

transfer of risk. Previous studies have suggested that parental health and health behaviours have direct and early effects on their children, placing the children at greater risk for subsequent detrimental health outcomes.

Sensitive period or latency models typically invoke a key developmental period. For some exposures, there may be an especially sensitive window of time during which the exposure is extremely influential, and after the temporal window closes, the exposure is no longer relevant. An example of a sensitive period is language development: humans are especially responsive to language exposure during early life. If there is no exposure during the sensitive age, full fluency is rarely achieved. Immigration studies in the USA suggest that the patterns of smoking among immigrant children depend on the age of immigration: early immigrants are more likely to adopt the smoking patterns of the receiving culture (e.g., high smoking rates among American teenagers), while those who immigrate as adults are more likely to retain the smoking patterns of their country of origin.

Social mobility effects model explicitly addresses *change* as an exposure. For example, one may hypothesize that children successfully adapt to their early life conditions but those adaptations may be harmful if they encounter a different environment in adulthood (e.g., nutritional environment).

A large body of evidence now indicates that many adult chronic diseases are shaped by early life exposures. When designing interventions, it is valuable to clearly articulate the lifecourse model assumed to link the exposure and the outcome, and identify lifecourse periods when the exposure can be changed. If there is a single early life sensitive period for a specific exposure-outcome combination, it may be useless to initiate interventions later in life. If harm accumulates slowly throughout life, interventions to change exposure in adulthood may take years before they show benefits. Explicit recognition of lifecourse models can help improve design and effectiveness of future intervention programs to promote healthy ageing.

Thus, recommended **maternal and child health preventive interventions using a lifecourse approach include:**

1. Information strategies that use age-appropriate messages and venues to disseminate health information across the lifespan;
2. Administrative strategies that link health services across the lifespan;
3. Organizational strategies that reconfigure programs to reflect integrated health goals, and
4. Environmental strategies that address community building and environmental exposure.

Although preventive interventions early in life may have larger benefits than comparable interventions later in the lifecourse for some outcomes, most adult health outcomes presumably reflect an ongoing interplay between biological, environmental and social factors, and interventions targeting time points in middle or late adulthood may have substantial benefits.

Multiple timeframes of health development

The contexts, processes, and mechanisms of health development are organized according to biological, behavioural, cultural, and historical timeframes, each influencing individuals and populations in:

1. The pattern of critical and/or sensitive periods during the lifespan;
2. The transitions and turning points in health development;
3. The interactions among developmental timescales.

Recently, the role of transitions and turning points in health development has been studied. The series of biological, psychological, and social transitions and turning points that individuals experience during their lives affect their health outcomes. Each transi-

tion represents an important point in the development during which adverse and beneficial inputs can have a relatively greater effect on future health. Life transitions, such as starting nursery school, entering middle school, or entering or leaving the workforce, impose stress on adaptive and regulatory systems, requiring the developing individual to adapt to new routines and to adopt new response patterns. In young children, neuroendocrine changes are associated with the development of social competence in a new peer group. Other simultaneous physiological and social developmental transitions may take place during puberty or menopause. In future research, these transition and turning points are likely to provide important clues to the nature of biological and behavioural programming. How life's transitions and turning points are managed can lead to different stress response patterns, different levels of allostatic load, and different functional trajectories.

Biological, psychological, cognitive, and social developments occur on different timescales, each with its own developmentally significant transitions and turning points. For example, biological processes are regulated by the organism's own "biological clock," which is genetically programmed and influenced by various physiological feedback mechanisms. The "biological clock" determines the onset of puberty and the emergence of reproductive capacity for males and females, but it is also influenced by social and cultural changes, as evidenced by the shifting age of puberty onset and the changing age of menarche.

Psychological timeframes are reflected in the particular stages of psychological development and are influenced by transactions between the neurodevelopmental process and social experiences as studied by Freud, Erickson, Piaget, Levenson, Kohlberg and many other developmental psychologists.

At a cultural level, socially defined stages such as "middle childhood" and "adolescence" and societal expectations and age norms based on chronological age and outward appearance represent additional timeframes.

As claimed by Halfon and Hochstein (2002), a key feature of these different biological, psychological, and cultural timescales is the fact that critical developmental events may occur in varying relationships to one another in different persons. For example, adolescents may enter high school at the same chronological age but function at different levels of emotional maturity and physiological development.

During periods of rapid historical, cultural, or social changes, these entrained timescales can push and pull on one another, leading to disjointed interactions. For example, adolescents now become reproductively mature at a younger age while at the same time, adolescence is being extended into the early to middle 20s, without the need to marry or enter the workforce at the age of 16 to 20, which was the norm a century ago. For many adolescents, the social pressure for psychosexual autonomy directly clashes with this prolonged dependence on family. Similarly, now that families have historically unprecedented residential mobility, many frail elderly persons have become isolated, uncared for, and subject to depression. These subtle changes in the relationships among different specific developmental timescales may have profound consequences for the adaptive response of those regulatory systems that determine health development.

2.9. Culture

The society institutions guide our behaviour as we develop as society members. People are socialized in society that reinforces conforming behaviour. Political parties, trade unions, professional associations, churches influence our thoughts and actions, and we are influenced for the most part by groups that immediately surround us: by our

families, friends, peers, schoolmates, colleagues etc. These social influences act simultaneously to shape our beliefs, values, attitudes and actions.

Human beings are born as a “blank slate”, ready to be inscribed upon by their social group. While some aspects of our being can be conveyed through genetic matter, our “social being” is a product of our social environment. We are not born knowing the language, or how to follow healthy lifestyles or brush our teeth, or to act as patients or nurses. These behaviour patterns are imprinted through the **socialization process**.

Culture is the totality of learned, socially transmitted customs, knowledge, material objects, and behaviour. It includes the ideas, values, customs, and artifacts (for example, CDs, comic books, and birth control devices) of groups of people. Culture is a set of tools (material and non-material) that groups of people use to influence and accommodate to their natural environment conditions (climate, available natural resources, etc.). Culture is studied by different social sciences, e.g. archaeology, anthropology, ethnography, linguistics etc.

In sociological terms, culture does not refer only to fine arts or refined intellectual taste. It consists of all objects and ideas within a society, including ice cream cones, rock music, and slang words. A tribe that cultivates soil by hand has just as much of a culture as a people who rely on computer-operated machinery.

The fact that people share a similar culture with others helps to define the group or society to which an individual belongs. A fairly large number of people are said to constitute a **society** when they live in the same territory, are relatively independent of people outside their area, and participate in a common culture. Contrasting to “community”, relations and interactions of members of society may not be so frequent, are rather mediated than face-to-face, sense of togetherness need not be strong. Contemporary societies are politically organized in states with complex legal regulation. However, there are also small (by the number of members) societies with communal features, such as tribal societies of Africa or Southern America.

Members of society learn its culture and transmit it from one generation to the next. They even preserve their distinctive culture through literature, art, video recordings, and other means of expression. If it were not for the social transmission of culture, each generation would have to reinvent the toothbrush, television, not to mention the wheel, anew.

Having a common culture also simplifies many day-to-day interactions. For example, when buying an airline ticket, one does not have to bring along money in cash, and can pay with a credit card instead. When we are part of a society, there are many small (as well as more important) cultural patterns that we take for granted. One assumes that theaters will provide seats for the audience, that physicians will not disclose confidential information, etc.

Despite their differences, all societies have developed certain common practices and beliefs, known as **cultural universals**. Many cultural universals are, in fact, adaptations to meet essential human needs, such as people’s need for food, shelter, and clothing. Anthropologists compiled a list of cultural universals, which include e.g. cooking, funeral ceremonies, medicine, and sexual restrictions. The cultural practices may be universal, but the manner in which they are expressed varies across societies and time. Each generation, and each year for that matter, most human cultures change and expand through the processes of innovation and diffusion. The process of introducing a new idea or object to a culture is known as **innovation**. Innovation interests sociologists because of the social consequences that introducing something new can have in any society, e.g. contraception pill or vaccination. There are two forms of innovation: discovery and invention. Sociologists use the term **diffusion** to refer to the process by which a cultural item spreads from group to group or society to society. Diffusion can

occur through a variety of means, among them exploration, military conquest, missionary work, the influence of the mass media, migration, tourism, and the Internet.

Sociologist George Ritzer coined the term “McDonaldization of society” to describe how the principles of fast food restaurants developed in the United States have come to dominate a growing number of sectors of societies throughout the world. For example, hair salons and medical clinics now take walk-in appointments. In Hong Kong, sex selection clinics offer a menu of items – from fertility enhancement to methods of increasing the likelihood of producing a child of the desired sex. McDonaldization is associated with the melding of cultures, so that we see more and more similarities in cultural expression. Some societies try to protect themselves from “invasions” by other countries’ cultures.

2.9.1 Core culture and subcultures

A **subculture** is a segment of society that shares a distinctive pattern of mores, folkways, and values that differs from the pattern of the larger society – the **core culture**. The bearers can be ethnic groups, professional groups (e.g. health care workers or lawyers), groups of interest, or communities. Subcultures establish rules and the means of enforcing these rules. Members of a subculture are expected to display similar attitudes. The values and norms of the subculture can be seen as appropriate to members and superior to those of the larger society.

Based on the level of acceptance of values and norms of the dominant culture, subcultures can be distinguished that alternate the dominant culture (e.g. the subculture of students), and “deviant” subcultures – termed **countercultures** – the values and norms of which are in conflict with the core culture (e.g. hippies, criminal groups).

Elements of culture

Sociologist William F. Ogburn (1922) made a useful distinction between the elements of material and non-material culture. **Material culture** refers to the physical or technological aspects of our daily lives, including food items, clothing, houses, factories, items of daily use etc. **Non-material culture** refers to ways of using material objects and to customs, beliefs, philosophies, governments, and patterns of communication. Generally, the non-material culture is more resistant to change than the material culture. For example, the ethical and legal norms related to medicine have not yet caught up with the explosion in medical technologies.

Sociologists are in general more interested in the study of the non-material elements of culture. The major aspects of culture that shape the way members of a society live, are: symbols, language, social norms, sanctions, values and beliefs.

Language. The key component of culture is language. Members of a society generally share a common language, which facilitates day-to-day exchanges with others. However, even within the same society, a term can have a number of different meanings. For instance in the United States, “grass” signifies both a plant eaten by grazing animals and an intoxicating drug.

Values influence people’s behaviour and serve as criteria for evaluating the actions of others. There is often a direct relationship among the values, norms, and sanctions of a culture. Cultural values are these collective conceptions of what is considered good, desirable, and proper – or bad, undesirable, and improper – in a culture. They indicate what people in a given culture prefer as well as what they find important and morally right (or wrong). Values may be specific, such as honouring one’s parents and owning a home, or they may be more general, such as health, love, and democracy. Members of a society do not uniformly share its values and value conflicts may arise (e.g. the surgical abortion debate).

Norms. The core of a culture is in its norms. Social norms are rules of behaviour and there are different types of norms. These can be intentionally developed, codified and firmly fixed, with defined sanctions and mechanisms for the enforcement of conformity – this is typical for law as a normative system. Other normative systems can be less formal, such as customs. In general, **4 types of normative systems** are distinguished based on the criteria of formalisation of norms, type of sanctions and the authority which is imposing sanctions: **1) law; 2) religion; 3) tradition, customs and folkways (including fashion); 4) mores.**

Social institutions. Social institutions are patterns of behaviour that had formed historically to fulfill the needs of people. Thus, there are many kinds of institutions in society, but there are cultural universalialia that exist in some form in every society: kinship, family, justice, medicine, religion, government etc. In developed societies, the functions of institutions are performed by specialized **organizations** such as hospitals and various health care settings, courts, banks, parliaments, schools, churches, restaurants or sports clubs.

2.9.2 Culture and health

If people do not conform to norms and break them, it is called **social deviance** and such conduct labelled as deviant behaviour. The mechanisms developed by societies to ensure that people will follow social norms were termed by sociologists **social control**. Perhaps the simplest mechanism of social control is public opinion within a community, enforcing conformity with customs by means of backchat, blaming or social isolation. There are various organisations that perform social control, enforce conformity with norms and impose sanctions in today's complex societies: medical chambers, police, courts of justice, health ministries, public health authorities, principals in schools etc. These topics are studied by branches of sociology such as sociology of deviance, of law, of medicine, and criminology.

There are many interconnections between individual and population health and culture. This includes certain beliefs that motivate people either into healthy behaviour, or into risk behaviour. For example, no reasonable person would undergo female genital circumcision, or do a crash diet. In contrast, it is believed by some cultures that only eating meat and greasy food is worthy of wealthy men.

2.9.3 Anomie

One of the oldest sociological research insights was made by E. Durkheim in his study of suicide from 1897. He noticed changing suicide rates in France and found they were determined by relationships between individuals and society. He explained the variability in suicide rates with the notion of social cohesiveness and his original concept of anomie. He found that suicide rates were dependent on the degree to which individuals were integrated into society and to which society regulated individual behaviour. He distinguished 4 types of suicides: 1. altruistic (individual sacrifice of one's own life out of a sense of duty to others); 2. egoistic (occurs if an individual is insufficiently integrated into social groups and society); 3. fatalistic (occur when society restricts the individual too much and thus no other solution is seen) and 4. anomic (occurs if society fails in regulating individuals).

Anomie is a state of society where social control mechanisms are failing to regulate the behaviour of its members. Anomic situations occur where norms and values are disrupted and not accepted by a large part of society, and thus not sufficiently enforced. Such contexts include periods of deep and rapid social changes that lead to uncertainty. Typically, periods of economic depression or economic growth are followed by anomie,

with one of its symptoms being an increase in suicide rates – anomic suicide. Since Durkheim, many scientists studied the symptoms and consequences of anomy (e.g. R. K. Merton, P. L. Berger and T. Luckmann) and even tried to measure it (e.g. L. Srole, J. Schenk). The concept of anomy has been expanded and current sociologists distinguish **1. societal anomy**; **2. organizational anomy**; **3. individual anomy**. There are studies indicating that deep structural changes in more recent societies, such as the post-communist transformation, are followed by changes in patterns of disease distribution, morbidity and mortality. In general, it is accepted that the consequences and indicators of societal anomy include higher levels of both interpersonal aggression and aggression to oneself. Thus, higher crime rates are observed along with higher rates of domestic violence, mental health problems and addictions (drug and alcohol abuse, nicotinism, gambling, workoholism, etc.) and various types of self-harm (e.g. eating disorders, suicidal attempts). All of this affects health. The study of suicide testifies to the power of sociological investigation in going behind the surface and unraveling the underlying causes of individual (health) behaviour.

2.10 Trust

Trust is an invisible, but immanent part of daily social life. Social bonds between people need cementing by trust. Trust is a social phenomenon that puts together micro-macro linkages at the different levels of components society consists of. Public health institutions and programmes need to be trusted by people. There is much evidence about the relevance of trust in public health, such as help seeking, or compliance in chronically ill. The most prominent example hereof is vaccination.

Immunisation programmes currently represent an inherent and widely accepted part of preventive medicine within public health. Across many countries though, critical views arose on vaccination among the public and especially among parents. Patient movements and individuals criticize vaccination and highlight its health risks, question the positive effects of vaccination, challenge the mandatory duty to vaccinate against certain diseases and call for appropriate explanation of its real impacts and side effects as an invasion of the organism. Also the economic interests are hinted at of physicians, pharmaceutical producers and distributors of vaccines and the groups are accused of overplaying the benefits and downplaying the risks of vaccination. Sociological research of hesitancy and refusal, addressing the motives that move parents to refuse vaccination of their children highlights previous experience with health authorities and feelings of loss of faith in the trustworthiness of biomedicine as the key factors. On the basis of field research, lack of trust in common biomedical practices of vaccination should not be oversimplified as a manifestation of the lack of interest or irresponsibility of parents but should be approached as the will to actively participate in decisions related to health maintenance and the desire to be treated as partner within the authoritative structures of biomedicine; trust matters.

The concept of trust has become a feature of recent political discussion and of reflections on the nature of modern society, especially with regard to the political transition in post-communist countries, social integration, solidarity and social order. The issue of trust draws our attention to the quality of social relationships between people and institutions, and the obligations inherent to them.

Anthony Giddens (1990) refers to **personal trust** and **abstract trust**. In relationships that are based on **personal trust**, comprising bonds such as family or friends, people are assuming that they can rely on these familiar others for consideration of, and stable commitment to, their own needs, interests and preferences. **Abstract trust**

is called upon when a person is not familiar with another party but is reliant on them for expert knowledge and competence. It is based on the impersonal belief that a representative or member of a given expert group or institution will conventionally act according to particular principles, duties and requirements, which are laid down in codes and training for professional groups, rather than their own personal interests. Because contemporary society is characterised by contingency, uncertainty and social differentiation, people can no longer just passively exercise trust; rather, they have to actively take risks and evaluate whether or not to trust. Thus, personal trust has come to supplement trust in abstract systems.

Piotr Sztompka considers **trust as a powerful cultural resource a tool to deal with the future**. Natural and social environments threaten people with certain dangers and risks to which they have to adapt or respond (e.g. unemployment, victimization, cancer). Trust deals with socially generated aspects of the future, with the social environment of action (other people and their actions). There is always a risk that other people will decide on actions that are harmful and not beneficial to us. The risk grows as potential partners become more numerous, heterogenous, distinct from ourselves – in short, when our social environment becomes more complex. So we can give or withdraw trust. Contrary to hope, trust describes our attitude towards events produced by human actions.

Trust implies that the others will be trustworthy, i.e. their future conduct will exhibit some combination of the following traits (by P. Sztompka):

1. Regularity as opposed to randomness or chaos;
2. Efficiency (competence, discipline, proper performance) and not utility or negligence;
3. Reliability (rationality, integrity, fulfilling obligations, considering arguments, honouring commitments) as opposed to voluntarism or irresponsibility;
4. Representativeness (acting on behalf of others, representing their interests) and not self-enhancement;
5. Fairness (applying universalistic criteria, equal standards, due process, meritocratic justice) as opposed to particularistic bias (favouritism, nepotism);
6. Accountability (subjection to some socially enforced standards, rules, patterns) and not arbitrariness;
7. Benevolence (help, sympathy, generosity) as opposed to egoism.

As Sztompka suggests, trust may be vested in various social objects and constructed at various levels of reality:

1. Generalized trust – trust in the social order, or its particular form (“Democracy is the only equitable system”), providing people with ontological security.
2. Segmental trust – in the various institutional segments in society, e.g. medicine, justice, the political system (“The Swedish medical system is highly developed”).
3. Technological trust – in expert systems, i.e. systems of technical accomplishment or professional expertise that organize large areas of the material and social environments in which we live today (transportation, financial markets etc) – in our time we could hardly survive without using and trusting them.
4. Organizational trust – in concrete organizations (hospital, university, laboratory etc.).
5. Commercial trust – in products or all kinds of goods satisfying human needs. It can refer to a certain type of good (cornflakes are healthy, immunization is a good prevention of death). It can refer to goods made by a particular country, company or author.

6. Positional trust is granted irrespective of concrete personal qualities, to all incumbents at a par. Trusted are all who perform social roles in particular positions – physicians, nurses, priests, policemen and representatives of similar professions.
7. Personal trust depends on perceived individual competence, fairness, integrity, generosity and similar virtues. It reaches its peak in the case of persons considered as eminent, ascribed with charisma.

How does this relate to public health? For example, if there is a lack of trust in medicine, it is a lack of segmental trust. If there is a lack of trust in certain types of vaccines, it means a lack of commercial trust. If there is a lack of trust in paediatricians (suspected as agents spearheading the economic interests of pharmaceutical companies), it is a case of no positional trust. How to recover trust and motivate people to support immunization programmes?

If trust decays, warns Sztompka, a “**culture of distrust**” develops in society and some other (negative) mechanisms emerge to satisfy the need for order, predictability etc., such as:

1. Providentialism, relying on fate, destiny etc. over which no one has control. On societal level it produces stagnation and passivism.
2. Corruption – offers some sense of control over a chaotic environment and over the decision makers to guarantee a favourable decision. “Gifts” accepted by medical doctors, teachers etc. are to guarantee preferential treatment by them. The same tissue of social bonds is replaced by the net of reciprocal favours, barter, by the pathological connections of bribe-givers and bribe-takers, mutual exploitation and manipulation.
3. Vigilance – means taking into private hands the control or supervision of those agents who are not trusted (their competence or integrity is put into doubt, or have weak accountability). If medical doctors are not trusted, a patient will check diagnosis with a number of them.
4. Ghettoization – building impenetrable fences around a group, thus cutting off the external world. People retreat to ghettos of limited and intimate relationships, isolated and strictly separated. The distrust in wider society is compensated by strong loyalty to tribal, ethnic or familiar groups, combined with xenophobia and hostility towards foreigners.
5. Paternalization. When the culture of distrust develops, people start to dream about a father figure, a strong autocratic leader who will purge with an iron hand all distrustful and suspicious persons, organizations and institutions. This “Führer” will restore (if necessary by force) the order, predictability and continuity in social life. When such a leader emerges, he easily becomes a focus of blind, substitute trust.
6. Externalization of trust. If local politicians, institutions, products etc. are not trusted, people deposit their trust to a leader, organizations or foreign goods, often blindly idealized.

Distrust can be examined on 2 types of **indicators** (P. Sztompka):

Behavioural indicators are available to observation, e.g. protest events, preference of foreign instead of local products such as studying abroad, preference of private clinics and doctors in spite of the high expenses, growth of voluntary associations aimed at defending citizens from abuse. **Verbal indicators** are direct opinions and projections in which people verbally exhibit some measure of distrust, e.g. appraisal of systemic reforms, their success up to now and their future prospects.

Recovery of trust in society

As A. Giddens pointed out, people arrive at judgements about the political, economic, and other expert systems and institutions by encountering their representatives:

ministers, doctors, nurses, etc. The representatives act as “access points” to these systems. When they show professionalism, seriousness, competence, trustfulness, concern for others, readiness to help, their demeanour can recover trust. On the other hand, any bad experiences at the “access points”, any frustrating contacts – even if vicarious through the media and not personal – are immediately generalized to the whole system. Extensive training, precise screening and highly selective recruitment to all positions of high social visibility are prerequisites for generalized, institutional and positional trust.

2.11. Social change

Sociology offers concepts to understand and describe human societies in terms of both stability and change. Various forms of living arrangements such as family, kinship, status and social role, various social institutions, social stratification and social norms compose rather static social patterns. The dynamic forces that promote the transformation of culture, of social institutions, forms of family life or health care over time are inherent to social change. The society’s emphasis on progress and technological advancement makes change inevitable. Social change is sometimes intentional, but often unplanned.

Many sociologists agree that it is no accident that sociology arose in the 19th century, nicknamed as the century of steam and steel, when industrialization brought new forms of living arrangements and deep changes in societal structures previously taken for granted, to study all the new and unknown in societies. The founding fathers of sociology provide comprehensive insights into the rise of modernity and early stages of the **process of modernization**.

2.11.1 Sources of social change

Social change has many causes. By J. J. Macionis (1997), these are:

1. Culture. Culture is a dynamic system and changes in its elements can cause a societal change. **Invention** produces new objects (technology, art, etc.), ideas and social patterns. Today we take many technologies for granted such as the Internet that has changed our communication and sense of togetherness, and facilitates new forms of health care services and employment but also of criminal activities (such as cybermobbing). **Discovery** for example in terms of medical advances (brain functions, the decoding of the human genome), besides direct benefits for human health, also has effects on life expectancy etc. Cultural **diffusion** of cultural elements such as the clock, television, the idea of universal human rights, brought many changes in social arrangements and lifestyles of contemporary societies. The processes of diffusion are enabled by migration of people and ideas (communication).

2. Conflict. Tensions and conflicts within a society also produce changes, especially if the conflicts arise from inequality involving a social class, race or sex. Another form of conflict is war – though over the 20th century, there have been many initiatives to channel conflicts into non-violent forms, or to institutionalize ways of armed aggression (e.g. humanitarian law, the Hague Conventions), bloody armed conflicts still continue all over the world to this day.

3. Natural environment. Human societies are closely linked to their natural environment – air, water, soil, sunshine, raw materials and natural resources such as wildlife etc. Change in one tends to produce a change in the other. Western societies have always tended to cast nature as a force to be tamed and reshaped to human purposes. Attempts to control the natural environment and the idea of “growth” have produced the rising tide of problems including waste, pollution and devastation of global resources

that also have negative impact on human health (growing immunity disorders, infertility, etc.). Another example is the ozone hole.

4. Demographic change. Population growth and changes in population structure (by age, sex, marital status, race etc.) have long-lasting effects. The key demographic factors that promote social change are: ageing, demographic transition, and migration within and between societies.

2.11.2 Modernity and Postmodernity

A central concept in the study of social change is **modernity**. In everyday usage, modernity **designates the present in relation to the past**. Sociologists include within social change the many social patterns set in motion by the Industrial Revolution beginning in Western Europe in the mid-eighteenth century. The former type of society is claimed as “traditional”. There are many concepts of social change; for example, J. J. Macdonald (1997) defines modernization as the process of social change initiated by industrialization. Peter L. Berger identified **4 major characteristics of modernization**:

1. **The decline of small, traditional communities.** German sociologist Ferdinand Toennies described in the late 19th century this phenomenon in the categories of “Gemeinschaft” and “Gesellschaft”. “Gemeinschaft” (community) is typified by cohesiveness, social capital, strong social bonds among its members, and strong social control both limiting the individual and strengthening their identity. Modernity typically involves living in anonymous neighbourhoods of larger cities in isolation from others, who are seen as strangers or aliens.
2. **The expansion of personal choice.** People see their lives as an unending series of options; Berger calls this process as **individualization**. The process has been later studied by many authors (e.g. A. Giddens, U. Beck, M. Fford).
3. **Increasing diversity in beliefs.** In pre-industrial societies, strong ties of large families and powerful religious beliefs enforced conformity while discouraging diversity and change. Modernization promotes a more rational, scientific world view in which tradition lost its force and morality becomes a matter of individual attitude.
4. **Future orientation and growing awareness of time.**

There are many competing explanations of the social changes ongoing in Western societies at the turn of the 20th and into the 21st century. Some contemporary thinkers consider the present as a new historical epoch “after modernity” – the postmodernity.

2.11.3 Globalization

While precise definitions of globalization differ, the term is generally used to describe a **process of growing interdependence** that represents a fundamental change from a world of individual and independent states to a world of mutual interdependence. As a result, national, but also economic and cultural boundaries, are becoming less important. Interdependence refers to the relationship between different actors (states, societies) that are connected in such a way that if something happens to one, all will be affected. The term globalization also includes change through the spread of ideas, information and perceptions that lead to cultural and social changes, such as the concept of universal human rights.

The effects are evident in many spheres of life. The social dimension of globalization refers to the impact of globalization on life and work of people, their families and their societies. Concerns and issues are often raised about the impacts of globalization on employment, working conditions, income and social protection. Beyond the sphere

of work, the social dimension encompasses security, culture and identity, inclusion or exclusion, and cohesiveness of families and communities.

Globalization may manifest by its **positive or negative effects**: growing trade, tourism and migration, which facilitate the spread of infectious diseases and antimicrobial resistance, but also availability of new medications or accessibility of specialized treatment for rare diseases. Indirect examples of the impacts of globalization on health include those with leverage through the national economy, such as the effects of trade liberalization and financial flows on the availability of resources for public expenditure on health. The principal underlying idea of globalization is the **progressive integration of economies and societies**. It is driven by new technologies, new economic relationships and the national and international policies of a wide range of actors, including governments, international organizations, business, labour and civil society. Globalization process started long before the recent age of information technology. It dates back earlier to the rise of capitalism and industrialism, and the institutions, technologies and incentives these systems brought along. These provided the biggest qualitative leap in globalization and are at the roots of many forms of globalization today.

In 1991, sociologist A. Giddens defined globalisation as the intensification of worldwide social relations linking distant localities in such a way that local happenings are shaped by events occurring many thousands of miles away and vice versa. He points to the unequal distribution of political and economic power of corporate actors as national states and transnational business companies. Sociologist L. Martell argues that globalization may appear as a distant macro phenomenon, relative to micro issues that have more of an impact on daily life. But large-scale global processes of economic restructuring and international political power have a big impact on our individual lives. The global economy and distribution of wealth affect, for example, our chances of employment and material circumstances. Identity and cultural experience is forged out of global inputs, from media to music, migration and food. Which side one lives on in the constellation of global political powers has significant consequences for one's your life chances. Besides other factors, it is the capitalist economics, the pursuit of profit by private owners, that is the significant driving force in the globalization processes. Globalization is structured by power, inequality and conflict. Some are agents in globalization more than others, some are more integrated and others excluded.

For example in the field of nutrition, as highlighted by physician C. Helman, the globalization process involves the diffusion of Western modes of food production, marketing and consumption to many parts of the world, especially to poorer countries. One effect of this the concentration of control over these processes into ever fewer hands, especially in the Western corporate sector. This in turn implies a shift in power from the food producer – the farmer, peasant, or agricultural worker – to the distributor of that food (often a multinational corporation or 'agribusiness'). Overall, the effects of this process on nutrition include the rapid change of centuries-old traditional diets, the introduction of a variety of nutritionally inadequate fast foods ('burgerization'), and a shift towards high-fat, high-salt, and high-calorie diets as part of this 'nutrition transition'.

On the other hand, ideas of alternative curing by certain food, spices or vegetables (e.g. the jin-jang diet, ajurveda teas) or self-healing practices (tai-chi etc.) are spreading from the East to the Western Countries.

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3 SOCIAL DETERMINANTS OF HEALTH AND DISEASE

Michaela Kostičová

The “social determinants of health” is a concept that directs attention to the social factors shaping people’s health. Distributions of health and disease in human populations cannot be understood outside their social context as we have already stressed in previous chapters. In particular, the claim that social processes drive the social patterning of population distributions of health and disease – within and between societies – runs diametrically opposed to the individualistic biomedical and lifestyle assumptions that disease distributions arise from intrinsic characteristics of individuals, whether biological or behavioural. In recent decades, much public health activity has focused on proximal causes of health and health inequalities, which seeks to identify mostly individual risk factors for specified health conditions neglecting their broader social context.

In accord with aspects of the social production of disease thesis, there are several frameworks emphasizing **socioeconomic gradients in health**, which are postulated to reflect people’s social standing in their society’s “social hierarchy” and attendant resources. This approach, which we will explain further in this chapter, is criticized by a new wave of US public health epidemiologists, mainly Nancy Krieger, for focusing solely on the individual’s resources (social position) and neglecting societal level political-structural determinants of health inequities, and the new opponents have begun to employ the more **expansive term societal determinants of health**. The difference stated by Krieger et al. between the two approaches is that:

- **The first approach views social determinants of health as arising from a “social environment,”** structured by government policies and status hierarchies, with social inequalities in health resulting from diverse groups being differentially exposed to factors that influence health – social determinants act as the **causes of causes**.
- **The second approach posits societal determinants of health as political-economic systems,** whereby health inequities result from the promotion of the political and economic interests of those with power and privilege (within and across countries) against the rest, and whose wealth and better health is gained at the expense of those whom they subject to adverse living and working conditions; societal determinants thus become **the causes of causes of causes**.

In this chapter we will focus mainly on the first approach which views **the social determinants of health (SDH) as:**

- The social, economic, political, environmental and cultural factors that shape health;

- The circumstances into which we are born, grow up, live, work and age;
- The not direct causes of illness, but as the causes of the causes of illness;
- The causes of health inequalities.

3.1 The history of social determinants of health

The concept of social determinants of health originated in a series of influential critiques published in the 1970s and early 1980s, which highlighted the limitations of perspectives and interventions targeted at individual risks of disease. From that period social determinants began to be a matter of investigation and also a matter of concern of national and international health policies.

WHO Health for All Strategy

The 1978 Declaration of Alma-Ata and the subsequent **WHO Health For All** movement gave prominence to health equity and intersectoral action on SDH; however, neo-liberal economic models dominant during the 1980s and 90s impeded the translation of these ideals into effective policies in many settings.

Great Britain's Black report on inequalities in health

Great Britain's Black report on inequalities in health (1980) marked a milestone in understanding how social conditions shape health inequities. Black and his colleagues argued that reducing health gaps between privileged and disadvantaged social groups in Britain would require ambitious interventions in sectors such as education, housing and social welfare, in addition to improved clinical care.

Whitehall studies

The Whitehall study of British civil servants, just men, begun in 1967, but socioeconomic differences were initially not on the agenda. Nevertheless, the first Whitehall study showed a steep inverse association between social class, as assessed by grade of employment, and mortality from a wide range of diseases. The Whitehall II study was established in 1985 by Professor Sir Michael Marmot and his University College London team to investigate the importance of social class for health by following a cohort of 10,308 men and women, all of whom were employed in the London offices of the British Civil Service. Participants were asked to answer a self-administered questionnaire and attend a screening examination. Self-perceived health status and symptoms were worse in subjects in lower status jobs. There were clear employment-grade differences in health-risk behaviours including smoking, diet, and exercise, in economic circumstances, in possible effects of early-life environment as reflected by height, in social circumstances at work (e.g., monotonous work characterized by low control and low satisfaction), and in social supports.

Social determinants as policy concerns

By the late 1990s and early 2000s, health equity and the social determinants of health had been embraced as explicit policy concerns by a growing number of countries, particularly but not exclusively in Europe, in response to mounting documentation of the scope of inequities, and evidence that existing health and social policies had failed to reduce equity gaps.

WHO Commission on Social Determinants of Health

In 2005 the Commission on Social Determinants of Health (CSDH) was set up by the World Health Organization. CSDH was a global network of policy makers, researchers and civil society organizations aimed to draw the attention of governments and society to the social determinants of health and in creating better social conditions for health, particularly among the most vulnerable people. It was tasked to collect and synthesize global evidence on the social determinants of health and their

impact on health inequity, and to make recommendations for action to address that inequity. CSDH was chaired by Sir Michael Marmot from University College London. CSDH ended its mission and activities in 2008 by setting up the Final Report: Closing the gap in a generation: health equity through action on the social determinants of health. The Commission framework on SDH and recommended actions are discussed further in this chapter.

3.2 Models of social determinants of health

Several models attempt to demonstrate the relationship between different determinants and health and only some of them are focusing on social determinants as the causes of health inequities. What is important that social and economic determinants of health – as well as lifestyle-related factors – can be influenced by political, commercial and individual decisions – as opposed to age, sex and genetic factors which also influence health but are not, on the whole, open to influence by political factors or other types of policies. We will focus our attention on the most famous models which have been developed to translate the concept of social determinants for a policy audience:

1. **The Dahlgren and Whitehead health determinants model** (Fig. 3.1), introduced in 1993 and
2. **Commission on Social Determinants framework** (Fig. 3.3), introduced in 2007.

3.2.1 The Dahlgren and Whitehead health determinants model

This model is frequently used to identify the determinants of health and the pathways through which they operate and contributed to the first WHO Health for All strategy in Europe. The model illustrates the “rainbow-layered” **view of the determinants of health as the causes of health inequalities on individual level**. Health levels do not vary at random but are the result of systematic differences in the distribution of factors – determinants affecting them.

The Dahlgren-Whitehead health determinants model is presented in Figure 3.1. This model for describing health determinants emphasizes interactions: **individual lifestyles are embedded in social norms and networks, and in living and working conditions, which in turn are related to the wider socioeconomic and cultural environment**.

In the centre of the figure, **individuals** possess age, sex and constitutional **characteristics** that influence their health and that **are largely fixed**.

Surrounding them, however, are **determinants that are theoretically modifiable by policy** and are presented in four layers: 1) Individual lifestyle factors; 2) Social and community networks; 3) Living and working conditions, and 4) Socioeconomic, cultural and environmental conditions.

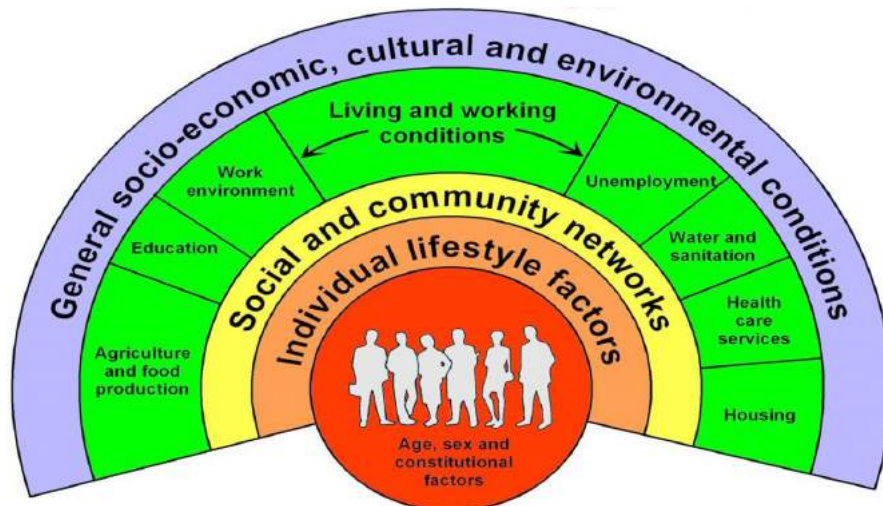


Figure 3.1. Dahlgren-Whitehead health determinants model
 Source: Dahlgren, Whitehead: WHO Europe 2007 "European strategies for tackling social inequities in health: levelling up Part 2" Referring to D&G / previous source 1993.

LAYER 1. Individual lifestyle factors

One of the ways in which social determinants influence health includes the effects that lack of control, stress and reduced capabilities have on **health-related behaviours**, including smoking, unhealthy diet, physical inactivity, harmful use of alcohol and unsafe sexual behaviour. Most studies estimate that individual behaviour can **account for 25-35% of differences in people's health**. Behavioural risk factors are sometimes portrayed as freely chosen and, therefore, as social differences in lifestyles attributable to unhealthy individual choices. The obvious strategy to reduce these lifestyle-related risk factors is to inform people about the negative effects on health of different risk factors, so that they are motivated to change their lifestyle – that is, make a healthier choice. The assumption that the lifestyles of different socioeconomic groups are freely chosen is, however, flawed, as **the social and economic environments in which people live are of critical importance for shaping their lifestyles** (see also Chapter 2). Recognizing these structurally determined lifestyles highlights the importance of structural interventions in reducing social inequities in diseases related to lifestyle factors. Such interventions include fiscal policies that increase prices of harmful goods and legislation that limits access to these products. Equally important is the option of promoting healthier lifestyles, by making it easier to choose the healthy alternatives – for example, by public subsidies and increased access to healthy food and recreational facilities. It does not mean, that individual interventions are not important. For example, quality of life of oncological patients can be improved by changes in their health behaviours and to achieve this goal, the individual health education of patients by health professionals must be applied.

LAYER 2. Social and community networks

The degree to which an individual is interconnected and embedded in a community – is vital to an individual's health and well-being as well as to the health and vitality of entire populations as it is highlighted also in Chapter 2. Critical factors **include how much control people have over resources and decision-making and how**

much access people have to social resources, including social networks, and communal capabilities and resilience.

Social support and good social relations make an important contribution to health. Social support helps give people the emotional and practical resources they need. Belonging to a social network of communication and mutual obligation makes people feel cared for, loved, esteemed and valued. This has a powerful protective effect on health. Supportive relationships may also encourage healthier behaviour patterns. Support operates on the levels both of the individual and of society. The amount of emotional and practical social support people get varies by social and economic status. Poverty can contribute to social exclusion and isolation.

Social cohesion – defined as the quality of social relationships and the existence of trust, mutual obligations and respect in communities or in the wider society – helps to protect people and their health. Inequality is corrosive of good social relations. Societies with high levels of income inequality tend to have less social cohesion and more violent crime. High levels of mutual support will protect health while the breakdown of social relations, sometimes following greater inequality, reduces trust and increases levels of violence.

LAYER 3. Living and working conditions

Population health can be improved by improvements in living and working conditions, food supply, and access to essential goods and services, such as education and health care. Actions on this layer of determinants are very important for reducing social inequities in health, as there are strong social gradients in these factors. Unemployment, poverty and education are strongly linked.

Education

Studies across Europe have shown a close association between education and health: **the lower the educational achievement, the poorer the adult health status** and vice versa, some results are presented later in this chapter. The **pathway** between better education and better health may be

- **Direct** – greater health knowledge may help people promote their own health and avoid health hazards, including risky behaviour.
- **Indirect** – through influences on the types of work open to an educated person, the greater income that they can command, and the lower levels of stress that they encounter as a result of their privileged position

The education system plays a fundamental role in preparing children for life, giving them the knowledge and skills they need to achieve their full health potential – socially, emotionally and physically.

Working environment

Employment and high-quality work are critically important for population health and health inequalities in several interrelated ways.

- The lower the social position, the higher the risk of having an unhealthy job.
- Occupational position is important for people's social status and social identity, and threats to social status from job instability or job loss affect health and well-being.
- Psychosocial factors, such as work-related stress, are recognized increasingly as major health hazards. People with less control over their work tend to have higher death rates. Health suffers when people have little opportunity to use their skills and low decision-making authority.
- The social aspect of a working environment can constitute a very positive determinant of health. For many people, the feeling of doing something useful together with colleagues is one of the most important dimensions of life and positive health.

- Exposure to physical, ergonomic and chemical hazards at the workplace, physically demanding or dangerous work, long or irregular work hours, temporary contract and shift work and prolonged sedentary work can all adversely affect the health of working people.

Unemployment

Unemployment causes ill health and premature death, including deterioration in mental health and increased risk of suicide. Work plays a central role in society: it provides the means of acquiring income, prestige and a sense of worth and provides a way of participating and being included as a full member in the life of the community. Being unemployed effectively excludes people from this participation and the benefits that employment brings. Groups at particular risk include unskilled workers, people with only a few years of schooling, low-income families, single mothers, ethnic minorities and recent immigrants. The **main mechanisms by which unemployment damages health** for these groups include:

- Increased poverty from loss of earnings;
- Social exclusion and the resulting isolation from social support;
- Changes in health-related behaviours, such as smoking, drinking and the lack of exercise brought on by stress or boredom;
- Life course effects, as a spell of unemployment increases the risk of unemployment in the future and damages long-term career prospects.

Levels of unemployment are high even in EU countries and vary substantially by country, age, sex, migrant status and educational level. They have recently risen considerably in the countries most affected by recession and the economic crisis, such as Spain and Greece.

Housing has a major impact on health and well-being and is, itself, strongly a social class. At the most basic level the quality of housing is strongly related to income. Overcrowding, lack of privacy, lack of safe play areas, damp and inadequate food storage and preparation areas all have specific impacts on health. As regards housing, sections of the EU population lack access to running water, adequate washing and toilet facilities, affordable energy, central heating and insulation and live in damp, overcrowded conditions.

Health care services

Equity assessments of health systems are needed as a first step towards addressing the social inequities. When making an assessment, it is important considering:

- **Differences in need and access for care** – not only to consider access of the population as a whole, but also to consider the experiences of low-income groups when they seek care for different types of health problems. The higher burden of disease among low-income groups should be fully reflected in a higher utilization of essential health services.
- **The burden of payment** generated by fees, other direct payments for public health services and drugs, and unofficial fees and payments to commercial health services selling their services at market prices.

LAYER 4: General socioeconomic, cultural and environmental conditions

The driving forces that generate social inequities in health are, to a great extent, related to the **macropolicy environment**, in the outer layer of the “Rainbow”. This environment includes neo-liberal economic growth strategies, which have widened income inequalities and increased poverty. The increasing globalization of national economies has reduced the possibilities for national governments to influence these trends. Assessments of the impact of these broader upstream determinants of health and social inequities in health are often lacking, while the focus of assessments of the problem is generally only on the effects of interventions in specific downstream determinants.

Intensified efforts must therefore be made to identify and, whenever possible, quantify the effects of different economic growth strategies, income inequalities and poverty on the health of different socioeconomic groups. We will focus on the socioeconomic and political context of health inequities further by describing the WHO Commission on Social Determinants of Health framework and also in Chapter 5, “Health policy.”

3.2.2 WHO Commission on Social Determinants of Health framework

The conceptual framework on social determinants of health was developed by WHO Commission on Social Determinants of Health (CSDH) in 2007 to:

- Identify the social determinants of health and the social determinants of inequities in health;
- Show how major determinants related to each other;
- Describe mechanism by which SDH generate inequities;
- Propose the specific levels of intervention and policy entry points.

The CSDH framework is based on Diderichsen’s model of the social production of disease. Social position is at the center of Diderichsen’s model as well as of CSDH framework - the model of “the mechanisms of health inequality”. The CSDH perspective is that a very important contribution to the causes of poor health resides in the broader social and political context. The causes start with the societies in which individuals, families and communities are located as they grow and develop. These **societal-level factors and the macro processes operating on them influence the exposure of men, women and children to health-damaging and health-promoting conditions through the life course** - from pregnancy and early years development, through educational experiences, relationship to the labour market and income levels during normal working ages and into later years. The influences that operate at each stage of the life course can either change the odds of being exposed to harmful or beneficial experiences, the level of exposure or help people beat the odds when exposed.

The framework identifies the **structural determinants** (socioeconomic and political context, individual socioeconomic position) that operate through a series of **intermediary determinants** (conditions of daily life) to shape health outcomes. Together they constitute the social determinants of health and are responsible for a major part of health inequities between and within countries. The CSDH framework is distinguished from some others by its emphasis on the socio-economic and political context and the structural determinants of health inequity.

As shown in Figure 3.2, **the structural determinants are:**

1. **Socio-economic and political context** - includes all the social and political mechanisms that generate, configure and maintain social hierarchies, including: the labor market; educational system; culture, norms, and values within society; global and national economic and social policy; processes of governance (institutions) at the global, national, and local levels; and
2. **Individual socioeconomic position** characterized by the objective measures of income, education, occupation, social class, gender and race/ethnicity.

The structural determinants constitute the social determinants of health inequities. They influence health outcomes not directly, but through specific, intermediary determinants. The main categories of **intermediary determinants of health are:**

- **Material circumstances** - housing, neighbourhood quality, consumption potential (i.e., the financial means to buy healthy food, warm clothing, etc.), physical work environment;

- **Psychosocial circumstances** – psychosocial stressors, stressful living circumstances and relationships, and social support and coping styles (or the lack thereof);
- **Behavioural (lifestyle) and biological factors** – nutrition, physical activity, tobacco consumption and alcohol consumption/genetic factors;
- **Health system** – relevant through the issue of access, which incorporates differences in exposure and vulnerability, and through intersectoral action led from within the health sector.

Social cohesion/social capital – cuts across the structural and intermediary dimensions, with features that link it to both.

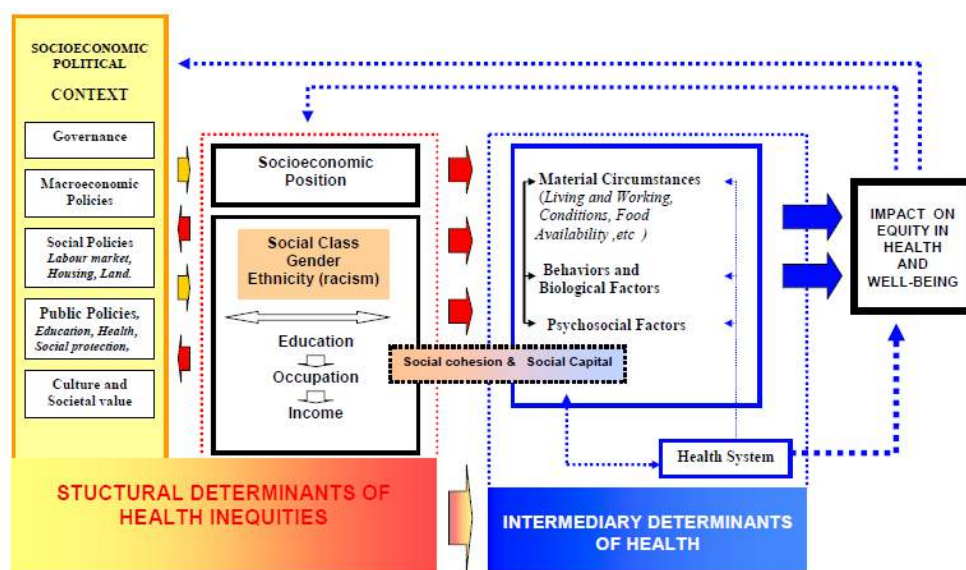


Figure 3.2. WHO Commission on Social Determinants of Health framework
 Source: Commission on Social Determinants of Health. *A Conceptual Framework for Action on the Social Determinants of Health*. WHO, 2007.

Reading the diagram from left to right, is evident that the social and political context gives rise to a set of unequal socioeconomic positions or social classes. Groups are stratified according to the economic status, power and prestige they enjoy, for which proxy indicators as income levels, education, occupation status, gender, race/ethnicity and other factors are used. This column of the diagram (“socioeconomic position”) locates the underlying mechanisms of social stratification and the creation of social inequities.

Moving to the right, these socioeconomic positions then translate into specific determinants of individual health status reflecting the individual’s social location within the stratified system. The model shows that a person’s socioeconomic position affects his/her health, but that this effect is not direct. Socioeconomic position influences health through more specific, intermediary determinants.

Based on their respective social status, individuals experience differences in exposure and vulnerability to health-compromising conditions. **Socioeconomic position directly affects the level or frequencies of exposure and the level of vulnerability, in connection with intermediary factors.** Also, differences in exposure can generate more or less vulnerability in the population after exposure.

Distinctive element of this model is its explicit incorporation of the health system. Socioeconomic inequalities in health can in fact be partly explained by the “**feedback effect of health on socioeconomic position**, e.g., when someone experiences a drop in income because of a work-induced disability or the medical costs associated with major illness. Persons in poor health less frequently move up and more frequently move down the social ladder than healthy persons. This implies that the health system itself can be viewed as a social determinant of health. It may be noted, in addition, that some specific diseases can impact people’s socioeconomic position not only by undermining their physical capacities, but also through associated stigma and discrimination, e.g., in the case of HIV/AIDS. Because of their magnitude, certain diseases, such as HIV/AIDS and malaria, can also impact key contextual components directly, including the labour market and governance institutions. This effect is illustrated by the arrow in the diagram.

Both the Dahlgren-Whitehead health determinants model and the CSDH framework have adopted the same approach that social determinants:

- Are determining individual health behaviour;
- Are the causes of health inequities, and
- Are influencing each other and there is a network of relationships between them.

3.3 Social determinants and health inequities

These are social, economic and lifestyle-related determinants of health that increase or decrease social inequities in health. These factors can always be influenced by political, commercial and individual choices/decisions. The determinants of inequities in health may be different from the social determinants of health for the whole population – that is, the most important determinants of health may differ for different socio-economic groups. **It is therefore of critical importance to distinguish between social determinants of health for the overall population and the social determinants of inequities in health.**

Health equity according to WHO CSDH is defined as:

“The absence of unfair and avoidable or remediable differences in health among population groups defined socially, economically, demographically or geographically”.

Health inequities are

“Health differences which are: socially produced, systematic in their distribution across the population and unfair.”

According to Michael Marmot, Chair of the WHO Commission on Social Determinants of Health, “Health inequities are determined by the conditions in which people are born, grow, live, work and age, and the inequities in power, money and resources give rise to these conditions of daily life.”

The international human rights framework is the appropriate conceptual structure within which to advance towards health equity through action on SDH. The framework is based on the 1948 **Universal Declaration of Human Rights** (UDHR). The UDHR holds that “Everyone has the right to a standard of living adequate for the health and well-being of himself and his family, including food, clothing, housing and medical care and necessary social services”. The realization of the human right to health implies the empowerment of disadvantaged communities to exercise the greatest possible control over the factors that determine their health (read more in the chapter from Fabian G. Health and Human Rights in the textbook Mojzesova, M. et al.: Public Health Ethics – Selected Issues).

3.3.1 Mechanisms to social inequities in health

According to Diderichsen it is possible to identify the following **five mechanisms or pathways to social inequities in health** within a country:

1. Different levels of power and resources
2. Different levels of exposure to health hazards
3. The same level of exposure leading to differential impacts
4. Life course effects
5. Different social and economic effects of being sick

1. Different levels of power and resources

Individual social position (social status) in society defined by wealth, power and resources exerts a powerful influence on the type, magnitude and distribution of health risks experienced within different socioeconomic groups. **Groups that are better off typically have more power and opportunities to live a healthy life than groups that are less privileged = social gradient in health.**

Social gradient in health

- **Means: the higher the social position, the better the health** – people further down the social ladder usually run at least twice the risk of serious illness and premature death as those near the top.
- **Runs right across society** – the social gradient in health is not confined only to those in poverty. It runs from top to bottom of society, with less good standards of health at every step down the social hierarchy.

Social position is therefore in itself an important determinant of social inequities in health not simply through the direct physical effects of exposure to better or worse material conditions. It is also a matter of position in the social hierarchy, people's experience of superior and dominant status versus inferior and subordinate status, coupled with processes of stigmatization and exclusion of those nearer the bottom of the hierarchy. **Both material and psychosocial causes contribute to these differences.** Efforts to reduce differences in education or income between socioeconomic groups are likely to have a positive effect from a health equity perspective, as they increase the power of (and opportunities for) less privileged groups to avoid unhealthy living and working conditions. Social status is then seen as a determinant of health in its own right and has a huge impact on whether people feel valued, appreciated and needed or on the other hand looked down on, treated as insignificant, disrespected, stigmatised and humiliated. **The point is that psychosocial determinants of health**, such as continuing anxiety, insecurity, low self-esteem, social isolation and lack of control over work and home life that generates unhealthy stress, **are socially structured – that is, related to the social position** – and thus typically far more common among people with a low social position, as compared with people with a high social position. Stressful circumstances, making people feel worried, anxious and unable to cope, are damaging to health and may lead to premature death. **Social and psychological circumstances can cause long-term stress.** Long periods of anxiety and insecurity and the lack of supportive friendships are damaging in whatever area of life they arise. The lower people are in the social hierarchy of industrialized countries, the more common these problems become. This does not imply that material living standards are unimportant: it means that their effects are mediated by how they are tied to, and signify, social position.

2. Different levels of exposure to health hazards

The most obvious reason why the risks for most major diseases differ among socioeconomic groups is differences in exposure to the factors that cause or prevent these diseases. **Exposure to almost all risk factors (material, psychosocial and behavioural)**

is inversely related to social position – that is, the lower the social position, the greater the exposure to different health hazards – and produces the familiar social gradient in health. Conversely, people with the greatest access to resources have the best opportunities of avoiding risks, diseases and the negative consequences of poor health.

3. The same level of exposure leading to differential impacts

The same level of exposure to a certain risk factor may have different effects on different socioeconomic groups. For example, in Sweden, similar levels of alcohol misuse cause two to three times more alcohol-related diseases and injuries among male manual workers than among male civil servants. This impact differential between the groups can be explained by differences in drinking patterns and social support systems at work and at home. The focus of policies to reduce social inequities in health caused by these types of impact differentials should therefore be on the social, cultural and economic environment, as well as on reducing a specific risk factor alone. Impact differentials may also be due to the greater likelihood of low-income groups being exposed simultaneously to several risk factors that reinforce each other, such as social exclusion, low income, alcohol abuse and poor access to health services.

4. Life course effects

Another important pathway to social inequity in health involves a life course perspective, considering **the cumulative outcome of all the pathways above as they interact and operate over a lifetime**. Many events early in life generate poor health later on, and material circumstances in early life are stronger predictors of health status later in life than social position during adulthood. The longer people live in stressful economic and social circumstances, the greater the physiological wear and tear they suffer, and the less likely they are to enjoy a healthy old age. **The foundations of adult health are laid in early childhood and before birth**. The life course perspective is discussed in more detail in Chapter 2 “Sociology”.

There are several studies focusing on understanding young people’s health in their social context – at home, at school, with family and friends – and how these factors influence young people’s health as they move into young adulthood. One example is WHO collaborative cross-national study **Health Behaviour in School Aged Children (HBSC)** that collects data on 11-, 13- and 15-year-old boys’ and girls’ health and well-being, social environments and health behaviours every four years from 1983/1984. The study in 2009/2010 that included 43 countries and regions across Europe and North America has found family affluence to be an important predictor of young people’s health. In general, cost may restrict families’ opportunities to adopt healthy behaviours. Young people living in low-affluence households are less likely to have adequate access to health resources and are more likely to be exposed to psychosocial stress, which underpins health inequalities in self-rated health and well-being. In Slovakia (HBSC national report 2009/2010), young children from families with low socio-economic status reported 1.5-2 times more health problems, lower life satisfaction, insufficient, dental hygiene and higher smoking rates than children from families with higher socio-economic status. Another example is the cross-sectional Tromsø Study in Norway the aim of which was to assess the effects of childhood socioeconomic status on subjective measures of health and well-being in adulthood. The results for the latest round (n= 12,984) in 2008 show that low childhood financial conditions were associated with lower health and well-being in adulthood and parental education has an indirect effect on later health, but mothers’ education may also have a long-term direct effect on later health (low education increased the risk of anxiety/depression among women).

5. Different social and economic effects of being sick

Poor health may have many adverse consequences for the life and livelihood of individuals, including loss of earnings from employment, loss of a job altogether, and

social isolation or exclusion, brought about by unemployment or restrictions on activities because of the illness. At the same time, sick people may face additional financial burdens due to high out-of-pocket payments for health care and the drugs they need. All of these negative consequences of being ill are likely to result in a downward spiral that damages health further. Members of higher socioeconomic groups that experience health problems often have a better chance of keeping their jobs than those in lower socioeconomic groups with similar health problems.

3.3.2 Socioeconomic and political context of health inequities

The driving forces that generate social inequities in health are, to a great extent, related to the macropolicy environment. The political and historical situation in a country, its policies and practices, the cultural and social norms of a society and its government, at every level, set the context in which the social determinants operate and hence are potentially amenable to change. They vary across countries and societies. If correctly channelled, changes in policies, practices and norms can lead to reductions in health inequalities and improvements in health for all in a country, as well as greater community cohesion and well-being. If not, they can lead to widening inequalities and worse health and well-being. This chapter will focus on socioeconomic determinants of health; the political context in relation to health inequalities will be discussed in Chapter 5, “Health Policy”.

Economic growth as a determinant of health

In the long term, the health of populations improves with the economic development of a country. This trend, however, varies substantially, with some countries at the same level of economic development achieving very different levels of life expectancy and child mortality. Conversely, some countries with a much lower gross domestic product (GDP) per person have achieved a similar health status as much richer countries. **Improved health is therefore not an automatic by-product of economic development.**

The relation of national income to life expectancy at birth in OECD countries in 2011 is shown in Figure 3.3 and is known as **the Preston curve**. At low levels of national income there is a steep relation between income and life expectancy. This is consistent with the benefits of economic growth improving life chances and health. But there are two important issues:

- **First**, at higher levels of income, there is little relation between national income and life expectancy at birth (LE).
- **Second**, there are also notable differences in life expectancy between countries with similar income per capita. For example, Japan and Italy have higher, and the United States and the Russian Federation have lower life expectancies than would be predicted by their GDP per capita alone.

Figure 3.4 shows the relationship between life expectancy at birth and health expenditure per capita across OECD countries and emerging countries. Higher health spending per capita is generally associated with higher life expectancy at birth, although this relationship tends to be less pronounced in countries with the highest health spending per capita. Japan, Italy and Spain stand out as having relatively high life expectancies, and the United States and the Russian Federation relatively low life expectancies, given their levels of health spending. Availability (including infrastructure, equipment and number of health professionals), access to and quality of healthcare are key factors in determining inequalities as they influence the likelihood of overcoming morbidity and avoiding premature mortality. Many other factors, beyond national income and total health spending, affect life expectancy and explain variations across countries.

Economic growth gives the opportunity to provide resources to invest in improvement of people's lives. **But growth per se, without appropriate social policies, brings no benefit to health.** A clear distinction should therefore be made between healthy and less healthy, or even unhealthy, economic growth strategies. The positive linkages between economic growth and improved health are mainly determined by the extent to which the economic resources generated raise the living standards of low-income groups and are invested in public systems for health and education. If economic growth primarily increases the income of already affluent groups and public health services are heavily underfunded, then the positive links between economic growth and improved health are reduced or even eliminated. This is then reflected in high mortality and morbidity rates among disadvantaged groups in very rich countries, for example the USA.

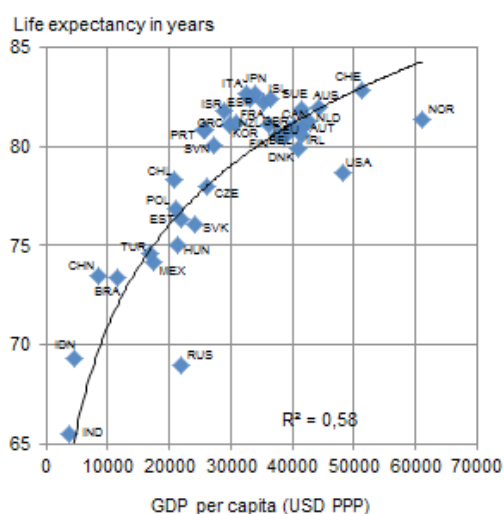


Figure 3.3. Life expectancy at birth and GDP per capita, 2011 (or nearest year)



Figure 3.4. Life expectancy at birth and health spending per capita, 2011 (or nearest year)

Note: PPP = a purchasing power parity exchange rate equalizes the purchasing power of different currencies in their home countries for a given basket of goods.

Source: OECD. *Health at a Glance 2013*

Poverty and health

Poverty severely limits the chance of living a healthy life and is still in some European countries a major cause of poor health and of social inequities in health. Poor health can also be a major cause of impoverishment, as it puts a heavy burden on the family budget, which can push families and individuals into poverty. Conversely, improved health can be a prerequisite for being able to capture opportunities for education and increased earning power. Although poverty is multidimensional, it is often measured in terms of income. The poverty line in a country can be defined in absolute or relative terms.

Absolute poverty is usually defined in terms of inadequate financial resources for physical survival. Definitions of national poverty lines in absolute terms differ from country to country, making international comparisons difficult. In addition, some countries set the absolute poverty line very low, to reduce the official prevalence of poverty in the population.

Relative poverty is defined in relation to the rest of society. Within the EU, poverty is defined as living on less than 60% of the national median income. In addition to very limited financial resources, the concept of relative poverty can also include the notion of inability to participate in, or exclusion from, the normal social interactions in a society. Being excluded from the life of society and treated as less than equal leads to worse health and greater risks of premature death. Poverty, relative deprivation and social exclusion have a major impact on health and premature death, and the chances of living in poverty are loaded heavily against some social groups.

Income inequalities and health

It has been found that no matter what indicator of health status is utilized, there is generally an inverse relationship between income and health status. There is a strong inverse relationship between income level and morbidity for both physical and mental disorders. As income increases, the prevalence of both acute and chronic conditions decreases. Not surprisingly, members of lower-income groups assess themselves as being in poorer health than do the more affluent. Not only are there more episodes of both acute and chronic conditions recorded as income decreases, but the severity of the conditions is likely to be greater when income is lower. Income is probably one of the better predictors of sickness behaviour and the utilization of health services. Income is related not only to levels of service utilization but to the types of services utilized and the circumstances under which they are received.

The scale of income inequality in a society affects the impact of social status differences:

- Wider income differences are almost synonymous with increased relative deprivation and relative poverty. Where income differences are larger, people on smaller incomes will experience themselves as falling further behind the rest of society.
- The quality of social relations (trust, violence, involvement in community life) is poorer where income differences are greater; so the problems of low social status are likely to be increased by greater inequality.

Income inequality is related through psychosocial mechanisms to health; more egalitarian societies tend to have higher standards of health and longevity. People living in wealthy countries with greater income inequalities and higher relative poverty tend to have a shorter life expectancy and higher rates of infant mortality. Different regions within the same country also show this link.

3.3.3 Social determinants and health inequities between and within countries

Health inequities are not diminishing and are increasing in many countries. There are significant gaps in health outcomes between and within countries. A girl born today can expect to live for more than 80 years if she is born in some countries – but only 50 years if she is born in others.

There are large differences in life expectancy between countries all over the world and even between European countries. Average life expectancy at birth differs across European countries, ranging from 82.2 years to 68.7 years, giving a gap of 13.5 years for 2010 (Figure 3.5). Over time, three distinct periods can be noted in terms of inequalities. During the 1980s the highest and lowest levels were converging, showing inequalities across countries narrowing. Following the mid-1990s, inequalities slowly widened, coinciding with significant social, political and economic change in the eastern part of the continent. Since 2006, the upper and lower extremes have slowly begun to converge again.

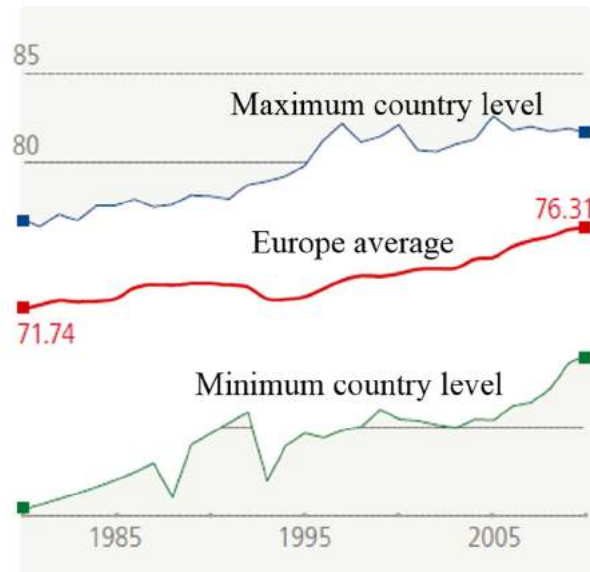


Figure 3.5. Life expectancy at birth in European countries, 1980-2010
 Source: *The European health report 2012*, WHO, 2013.

Further, health inequities are not confined to poor health for people in poor countries and good health for everyone else. **Health inequities persist even in some of the most affluent countries.** In rich countries, low socioeconomic position means poor education, lack of amenities, unemployment and job insecurity, poor working conditions, and unsafe neighbourhoods, with their consequent impact on family life. These all apply to the socially disadvantaged in low-income countries in addition to the considerable burden of material deprivation and vulnerability to natural disasters. So these dimensions of social disadvantage – that the health of the worst off in high-income countries is, in a few dramatic cases, worse than average health in some lower-income countries, as shown in Table 3.1 – are important for health.

Table 3.1 Male life expectancy, between- and within-country inequities, selected countries

Place	Life expectancy at birth
UK, Scotland, Glasgow (Calton)	54
India	62
USA, Washington DC (black)	63
Philippines	64
Lithuania	65
Poland	71
Mexico	72
United States	75
Cuba	75
United Kingdom	77
Japan	79
Iceland	79
USA, Montgomery County (white)	80
UK, Scotland, Glasgow, (Lenzie N.)	82

Source: CSDH. *Closing the gap in a generation*. WHO, 2008

Even across EU countries there are differences in the social determinants of health and inequalities in health between social groups based on these determinants. The large inequalities remain between EU countries, with differences between new and early EU member states and between groups of countries in southern Europe, western Europe and the Baltic states. Health inequalities are the largest in the east of Europe. As found in the EU study on social determinants in 2010, whichever indicator of socioeconomic status was considered – education, income or material deprivation – reporting of poor or very poor general health and long-standing health problems tends to be infrequent in the most advantaged group and increasingly common as disadvantage worsened. The steepest social gradients were those between material deprivation and adverse health outcomes. Data on income, poverty, social exclusion, living conditions, labour, education and health information for the EU countries has been regularly collected at the individual and household level using the special tool of “**The European Union Statistics on Income and Living Conditions (EU-SILC)**” since 2004. The three main respective sources of data are household panel, income study and national data sources.

Education and health inequities

Educational gradients in life expectancy exist in all countries but they vary by sex, age and the overall level of survival. On average among the 14 European OECD countries for which data are available in 2010 (Figure 3.6), persons with the highest level of education can expect to live six years longer at 30 than people with the lowest level of education at the same age (53 years versus 47 years). These differences in life expectancy by education level are particularly pronounced for men, with a gap of almost eight years on average. They are particularly large in central and eastern European countries (Czech Republic, Estonia, Hungary, Poland and Slovenia), where the life expectancy gap between higher and lower educated men reaches more than ten years. Differences in Portugal, Sweden, Switzerland and Italy are less pronounced, although not negligible.

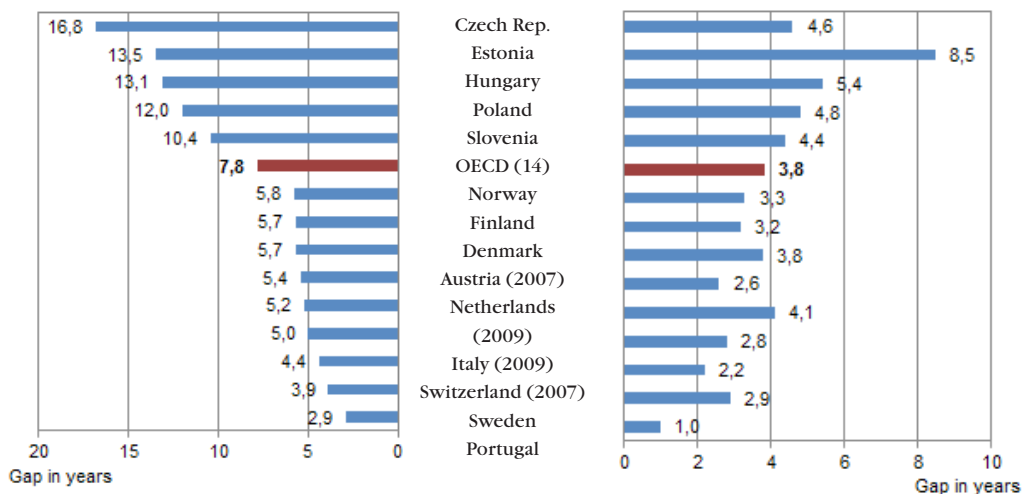


Figure 3.6 Gap in life expectancy at age 30 by sex and education level, OECD countries, 2010 (or nearest year). Source: OECD, *Health at Glance*, 2013

Note: The figures show the gap in the expected years of life remaining at age 30 between adults with the highest level (“tertiary education”) and the lowest level (“below upper secondary education”) of education.

Evidence from studies on mortality inequality according to educational level in the EU shows that **those who were less educated had higher rates of death from all causes examined except breast cancer**. Smoking, alcohol and obesity inequalities were important contributors to variation between countries. Although neonatal and post-neonatal mortality rates declined, **infants born to mothers with low education generally had the largest mortality risk**. Findings of the study in northern European countries demonstrate that mothers with less than 10 years of education had a higher risk of preterm births and lower infant birth weight. Father's education was also independently associated with birth weight for gestational age, at about half of the effect of the mother's education.

The higher the educational level, the lower the morbidity level. This is true for both acute and chronic physical conditions, **except mental disorders**. As the level of education increases, there appears to be an increase in the prevalence, but a decrease in the severity, of disorders. The better educated appear to be more characterized by anxiety disorders, while the less educated appear to be more frequently psychotic.

Income level and health inequities

There are large **disparities in self-reported health across different socio-economic groups**, as measured for instance **by income level** in OECD countries. Figure 3.7 shows that, in all countries, people with a lower level of income tend to report poorer health than people with higher income, although the gap varies. On average across OECD countries, nearly 80% of people in the highest income quintile report being in good health, compared with just over 60% for people in the lowest income group. These disparities may be explained by differences in living and working conditions, as well as differences in health-related lifestyles (e.g., smoking, harmful alcohol drinking, physical inactivity, and obesity problems). In addition, people in low-income households may have more limited access to certain health services, for financial or non-financial reasons.

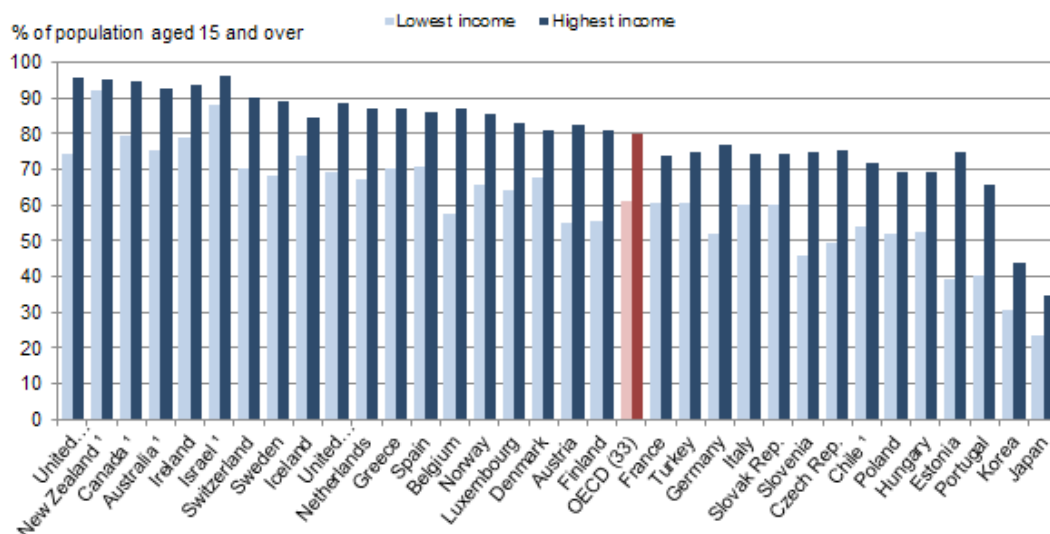


Figure 3.7. Perceived health status by income level, 2011 (or nearest year). Percentage of people reporting being in good health

Source: OECD. *Health at a Glance 2013*

Problems of access to health care and unmet needs for medical examination are also more common among lower income groups of population. In OECD countries in 2011:

- Doctor visits were more likely among higher income persons. In the United States, Brazil, Chile and Mexico, richer people are significantly more likely to visit doctors.
- Higher income people are more likely to see a specialist than those with low income, and also more frequently.
- People with low incomes, because of costs, are more likely to report unmet care needs than people with high incomes.

Beyond the direct cost of care, other health system characteristics also are important in reducing social inequalities in health care utilisation, such as the role given to the general practitioners (GP) and the organisation of primary care. Social inequalities in specialist use are smaller in countries with a national health system and where GPs act as gatekeepers. Countries with established primary care networks may place greater emphasis on deprived populations, and gatekeeping often provides simpler access and better guidance for people in lower socioeconomic positions.

In the United States the mortality rate for the lowest income levels may be twice that of the most affluent in some communities, even after adjusting for age. Virtually all infant mortality in the United States today is accounted for by the lowest income groups, and maternal mortality (which has been virtually eliminated society-wide) is still disturbingly frequent among the poor. The highest overall rates of mental disorder are found in the lower class, including schizophrenia— the most severely disabling form of mental illness. Anxiety and mood disorders, however, tend to be more prevalent among the upper and middle classes, although the lower class suffers from these problems as well.

3.4 Recommendations on social determinants of health inequities in Europe

According to the **WHO Review of Social Determinants and the Health Divide in the European Region (2013)**, European countries should have **two** clear aims:

- Improving average health;
- Reducing health inequities by striving to bring the health of less advantaged people up to the level of the most advantaged.

Two types of strategy are needed:

- Within each country, action on the social determinants of health to improve average health and reduce health inequities, and
- Action at the transnational level to address the causes of inequities between countries.

Action is needed on these **four themes** (Fig. 3.8):

- Life course stages (prenatal, early years, working age, older ages);
- The wider society;
- The macro-level broader context and
- Systems.

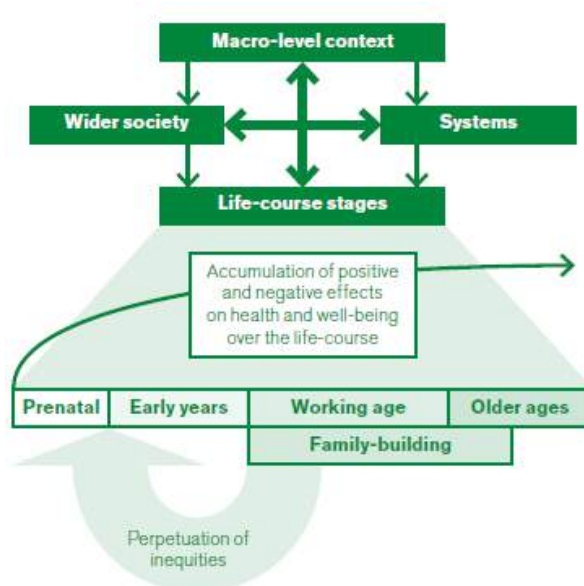


Figure 3.8. Areas for actions on social determinants of health inequities: broad themes
 Source: Marmot M. Review of Social Determinants and the Health Divide in the WHO European Region: executive summary. WHO, 2013

Actions on life course stages

- Adequate social and health protection for women, mothers-to-be and young families;
- Provide universal, high-quality, affordable early years, education and child care system;
- To reduce stress at work;
- To reduce long-term unemployment through active labour market programmes, and
- To address the causes of social isolation in old age.

Actions on wider society

- To create or reassert societal cohesion and mutual responsibility;
 - To ensure an adequate level and distribution of social protection, according to need.
- Through a **whole-of-society approach** that encourages the development, at local level, of partnerships with those affected by inequity **and exclusionary processes** – working with civil society and a range of civic partners.

Actions on macro-level context

- Promote equity through the effective use of taxes and transfers. In particular, the proportion of the budget spent on health and social protection programmes should be sustained in all countries and increased for countries below the current European average.
- Plan for the long term and safeguard the interests of future generations by identifying links between environmental, social and economic factors and their centrality to all policies and practice.
- Recognition of the health and social consequences of economic austerity packages must be a priority in further shaping economic and fiscal policy in European countries.

Actions on systems

- **Health system** – achieving greater coherence of action across all sectors (policies, investments and services) and stakeholders (public, private and voluntary) at all levels of government (transnational, national, regional and local). Universal access to health care is a priority.
- **Action on disease prevention** must include reducing the immediate causes of inequity within and between countries – alcohol consumption, smoking and obesity. Ensuring that people have the skills and control over their lives to be able to change behaviour.

The Review indicated that **action should be taken on a universal basis**, but, in recognition of the social gradient in health, that it should be delivered with an intensity that relates to social and health needs (**proportionate universalism**), underpinned by the recognition of:

- Health and its social determinants as basic human rights;
- Acceptance of mutual responsibilities between countries and groups within countries;
- The need for equity within and between generations;
- The role that is played by national and transnational economic, social, political and cultural processes – operating through the life course – in determining social position and leading, to a greater or lesser degree, to exclusion and vulnerability;
- The importance of empowerment and control for both individuals and communities, based on their assets and rights;
- Ensuring a minimum standard of healthy living for everyone.

The cost of health inequities to health services, lost productivity and lost government revenue is such that no society can afford inaction. Tackling inequities in the social determinants of health also brings other improvements in societal well-being, such as greater social cohesion, greater efforts for climate change mitigation and better education. More socially cohesive, educated population is likely to have lower rates of crime, a more highly skilled workforce and enable people to lead lives they have reason to value, as well as having better health and greater health equity.

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4 MEASURING THE HEALTH OF THE POPULATION

Michaela Kostičová

4.1 Health information system

Measuring the health of the population is fundamental to improving its health status. The public health professional working with individual and community health needs to acquire the knowledge and skills necessary to measure and interpret the factors that relate to disease and health. An assessment of the health status of the community, based on information about health problems and diseases, is necessary for planning and evaluating the health services. The common **purposes of the health assessment** include:

- Comparing findings for the population with other similar populations or larger populations, or comparing health status observed with that expected for the type of population;
- Describing the relative health of parts of the population (areas or social groups), identifying inequalities;
- Comparing health trends over time;
- Estimating the extent of potentially preventable health problems;
- Describing the likely health impact of environmental and social factors;
- Describing the impact of health problems in terms of people's experience of health problems.

Information about the health of the population can cover:

1. **Demography:** the basic characteristics of the population, such as age, sex, geographic distribution, and dynamics.
2. **Determinants of health:** environmental, socio-economic, behavioural, biological factors.
3. **Mortality:** the death experience of the population, including causes of death and life expectancy.
4. **Morbidity:** the health or illness experience of the population, including prevalence and incidence of diseases.
5. **Summary measures of population health:** combines information on mortality and morbidity such as healthy life expectancy, disability-adjusted life years.
6. **Health service data,** such as consultations, admissions, prescribing, surgical and other procedures, investigations and referrals, information about health personals, health providers;
7. **Health economic data:** health expenditure, distribution of resources, number of acute hospital beds, the costs of interventions etc.

In terms of how it is collected, assembled, and made available, **information can be** either:

- **Routinely collected data and**
- **Specially collected data (surveys, studies).**

Routine data are collected, assembled, and made available repeatedly, according to well-defined protocols and standards; such data are usually part of a system of data collection by which information is:

- Made available at regular intervals;
- Intended to allow tracking over time;
- Codified according to national or international standards (for example, using the International Classification of Diseases)

Data can be collected at national and international level. International statistical databases on data related to health: **World Health Organization Statistical Information System** (WHOSIS – global health data); **WHO Health for All Database** (HFADB – European health statistics); the **Organization of Economic Cooperation and Development Health Statistics**; the **European Commission Eurostat statistics**; the **World Bank Open Data**, the **United Nations Statistical Databases** (UNSD).

Specially collected data (studies, surveys) are collected for a particular purpose, without the intention of regular repetition or adherence to standards (other than those needed for the specific study or task). Such data are usually:

- Aimed at a specific, time-limited study or task;
- Codified according to the task at hand and the wishes of the investigators;
- Difficult to compare (between times, places, and people) with routine data and other specially collected data.

The European Union Statistics on Income and Living Conditions (EU-SILC) is an instrument aimed at collecting timely and comparable microdata on income, poverty, social exclusion, living conditions, labour, education and health information for the EU countries. It combines national data sources, data from household surveys and studies at the individual level. The data are available in the Eurostat database. Another source of information on health and related factors at the European level are **Eurobarometer surveys**. Eurobarometer is a series of multi-topic surveys undertaken for the European Commission on attitudes towards European integration, institutions, policies, social conditions, health, culture, the economy, citizenship, security, information technology, the environment and other topics. Standard and Special Eurobarometer surveys are conducted in two waves per year, consisting of approximately 1,000 face-to-face interviews in the 28 EU member states.

Many of what are termed measures of health are actually measures of illness. General health is usually measured subjectively by asking people whether they are well or not. There are a number of standard questionnaire-based tools that can be used to measure general health in surveys, clinical trials or other research studies. Illness can also be measured subjectively, by asking patients to rate their illness in terms of, for example, symptoms or ability to perform everyday activities.

A great deal of useful data is recorded as part of clinical care or collected by health care providers. However, very great care is needed in using such data: not all people with a health condition receive treatment (or they may be treated by other providers). Clinicians usually record information just for clinical purposes rather than for analytic purposes. The absence of a positive record (e.g. of smoking) may mean a true negative, or on the other hand that the information was not sought. The definition of a condition (and whether to treat it) may vary substantially from clinician to clinician, causing large differences between areas. Issues of confidentiality must be addressed.

The iceberg concept in health information system

Routine health information covers mainly information about mortality from death certificates and information about morbidity from people who use health services; they do not cover people who did not ask for health care. Thus the data are just the tip of the iceberg of all people who are ill. This is illustrated in Figure 4.1. Even using the best information from primary health care will miss a significant proportion of people who are ill but who may not seek help, or may seek advice from friends, relatives, pharmacists or alternative therapists rather than members of the primary health care team. It will also of course miss people who have a disease but who do not feel ill, such as can be case in early cancer, heart disease, diabetes and many other diseases.

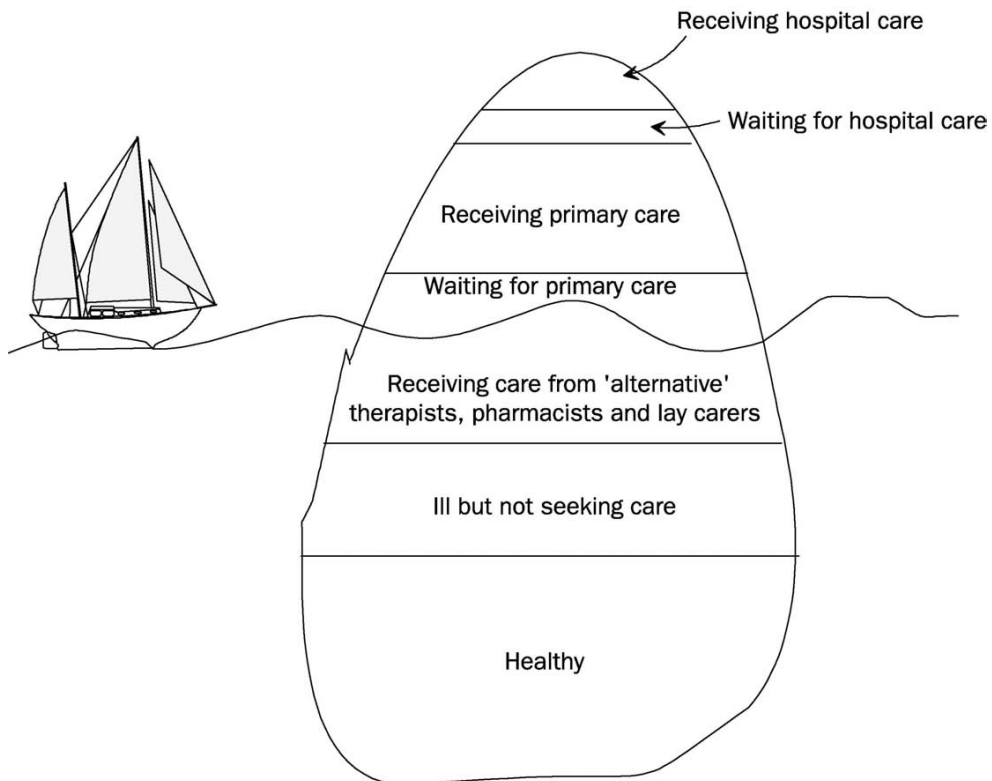


Figure 4.1. The iceberg concept in health statistics

Source: Based on an illustration in Donaldson and Donaldson (1983) *Essential Community Medicine*. Cambridge, MA: MTP Press. In Carr, Unwin, Pless-Mulloli, 2007.

Demography and epidemiology are the basis of health information systems. Demography deals with the recording of the characteristics and trends of a population and its characteristics over time. Epidemiology measures the distribution, causes, control, and outcomes of disease in population groups. It provides the basic tools for quantification of the extent of disease, its patterns of change, and associated risk factors. This chapter will focus on demography and its relation to health and also the most common used measures of population health status will be explained.

4.2 Demography

The health and health care needs of a population cannot be measured or met without knowledge of its size and characteristics. Defining the population of interest is critical. **Demography is the systematic and scientific study of human populations.** The word demography comes from the Greek words *δημος* (demos) for population and *γραφια* (graphia) for “description” or “writing”, thus the phrase, “writings about populations”.

Demography is the social science that studies:

- The size, composition, and distribution of the human population of a given area at a specific point in time – **demographic static**;
- Changes in population size and composition – **demographic dynamics**;
 - The components of these changes (fertility, mortality, and migration);
 - The factors that affect these components, and
 - The consequences of changes in population size, composition, and distribution, or in the components themselves.

Demography is concerned with how large (or small) populations are; how populations are composed according to age, sex, race, marital status, and other characteristics; and how populations are distributed in physical space (e. g., how urban and rural they are). Demography is also interested in the changes over time in the size, composition, and distribution of human populations, and how these result from the processes of fertility, mortality, and migration.

Health demography is a subdiscipline within the field of demography that involves the application of the content and methods of demography to the study of health and healthcare. Health demography concerns itself with the manner in which demographic attributes influence both the health status and health behaviour of populations and how, in turn, health-related phenomena affect demographic attributes. Health demography shares an interest in individual-level health issues with clinical medicine and in population-level health issues with social medicine. The demographic characteristics of population serve as both determinants and consequences of the relationship between the population and its system of healthcare. For example, if the population exhibits high health status, it can be expected to have low mortality rates and a relatively old age structure since attrition through death will be minimal. At the same time, the demographic characteristics of the population will have an effect on its health status and health service needs. For example, the age composition of the population will be reflected in the types of health problems that are common.

4.2.1 Demographic data

Most demographic data are routinely collected. **The basic sources of demographic data are:**

- **Censuses** – snapshot of a population at one point in time, usually once every ten years, getting a picture of the size of the population, its characteristics, and its spatial distribution.
- **Registers** – continuous compilation of major population events
 - vital registration systems (birth data – derived from mandatory reporting of births, mortality data from compulsory death certificates),
 - population registries (marriages, divorces, migration)
- **Surveys**

Censuses and registers are intended to cover the entire population. In a national census, everyone in the population is supposed to be enumerated, and all the demo-

graphic events (births, deaths, and so forth) that occur in the population are supposed to be registered. Surveys, on the other hand, are by definition administered to only a fraction of the population. Most developed countries now have well-established registration systems with complete, or very nearly complete, coverage. In the less developed world, however, many people have no need for certificates of birth or marriage and vital registration systems are frequently seriously incomplete or non-existent, although there are some exceptions.

Census

A census **is an enumeration of the population**, recording – through **questionnaire survey** – the identity of all persons in every residence at a specified time. The census provides important information on all members of the household. According to United Nations, a national census is “**the total process of collecting, compiling, and publishing demographic, economic, and social data pertaining, at a specified time, to all persons in a country or delimited territory**”.

The principal objective of a census is to obtain data about the size, composition, and distribution of the population. A typical census thus includes **information about**

- The **size** of the population and its social and geographic subpopulations, as well as data on their **age and sex composition** and their **educational composition** (levels of literacy and educational attainment and extent of school attendance);
- Data on the **industrial and occupational composition** of the working population, as well as **economic (salary and income) data**;
- Information pertaining to country or **area of birth, citizenship, language, recent migration experience, religion, and ethnic heritage**, which refers to group distinctions based on shared cultural origins.

Census taking had its origins in ancient Egypt, China, and Rome, among other places, although only a few of these enumerations have survived. Several census counts are mentioned in the Bible. Roman censuses were conducted quinquennially for more than 800 years. The first modern censuses were undertaken in Scandinavia in the eighteenth century. During the nineteenth century censuses spread throughout Europe and are now almost universal. Most countries of the world today conduct censuses. The United Nations recommends that censuses be **conducted** at least **decennially in years ending 0 or 1**.

Censuses have many strengths. They have been used as ways of discovering vital events in order to provide data on recent internal migration. **Limitations of census are:**

- the **huge costs** of collecting and processing census data, and
- the **quality of data**.

Young, geographically mobile adults, members of minority ethnic groups, infants, and the very old are the groups most likely to be **under-enumerated**. Groups such as seasonal migrants (including students), seamen, military personnel, and people temporarily away from home present a particular problem. Assessment of the extent of under-enumeration is usually achieved through census validation surveys.

Age misreporting is one of the most serious problems that must be estimated and allowed for in analyses of census and similar data. In many populations, people may not always know their exact age and some approximation is reported or made by an enumerator. Overstatement of age by elderly people (particularly older men) is common.

Other characteristics may be “**mis-stated**” because an individual’s perceptions of their status do not match official classification systems (e.g. quite high proportions of divorced men revert to describing themselves as single – never married).

Despite its limitations, the census is accepted as the basis of a “statistics” definition of a population.

In the inter-census period, **population estimates are updated annually** using a standard technique known as the cohort component method. In simple terms, the previous year's population estimate is "aged on" by one year, with births added and deaths removed. Net migration is also accounted for. The following formula is thus applied to update the population:

1. Previous year's population estimate aged on by one year
2. + Births to mothers resident in the country;
3. - Deaths;
4. + Net migration

The population estimates refer to the number of people in the population to 30 June each year; the statistics are therefore often referred to as the **mid-year population**.

Registration systems

Whereas censuses provide a cross-sectional (one point in time) portrayal of the size, composition, and distribution of the population, **registration systems pertain to the population's demographic events** (births and deaths and, in some places, migrations) and measure them as they occur. While censuses are static, registers are **dynamic and continuous**. Registers apply principally to births and deaths, although many countries also maintain registrations of marriages, divorces, and abortions. Some countries maintain a migration registration system. But not all birth and death registrations occur in the context of population registers. For most countries in the world, the recording of vital events - **vital statistics**, that is, births and deaths along with marriages, divorces, fetal deaths (stillbirths), and induced termination of pregnancies (abortions), are recorded in their civil registration systems. But these registration systems need not necessarily be population registers.

According to WHO in the year 2009 only around a quarter of the global population lived in countries where more than 90% of births and deaths are registered - and these are mostly high-income countries. In low- and lower-middle income countries, only a small proportion of deaths are counted by the system. The two most populous countries of the world, China and India, do not have fully functional civil registration systems, with both countries instead making use of sample registration approaches to generate representative mortality statistics.

The unregistered children are often found in countries where there is little awareness of the value of birth registration, where there are no public campaigns, where the registration network is inadequate, or where the costs of registration of children are prohibitive. In general, most unregistered babies are born in developing nations, largely because these countries are more likely to face political, administrative, and economic barriers to registration. In some countries, gender discrimination and son preference also lead to female babies being excluded from the birth registration.

Surveys

Sample surveys now represent a major addition, or in some cases an alternative, to routine demographic data sources. Most developed countries have a range of government-sponsored surveys which provide far more detailed information on, for example, health-related behaviour, family-building strategies, or reasons for migration than it would be possible to collect in a census. Data quality is potentially much better in a survey than in a census, as it is more likely that well-trained interviewers can be used. The enormous potential complications arising from people's uncertainties about age or other 'basic' characteristics, uncertain recollections of prior events, and the vast scope for administrative errors of various kinds have to be considered.

4.2.2 Demographic static

Demographic static refers to population size, distribution and structure.

Population size

Size is typically measured in terms of the number of individuals who reside in the defined geography at a specified time. The size of a population determines the level of need for various services. Knowing the size of a population provides information on the volume of health services required (although not necessarily the type of health services). The most complete count of a population is performed by means of a census.

Population distribution

Population distribution is the manner in which population is distributed within a geographic area. A variety of different geographic units (e.g. country, county, postcode area) are used by demographers in their examination of population distribution. An understanding of the distribution of the population is critical for the analysis of health service needs and the allocation of healthcare resources. The distribution of the population is a major determinant of the distribution of the need for health services.

Population structure

Population structure variables can be divided into two categories:

1. **Biosocial characteristics** (age, sex, race, ethnicity)
2. **Sociocultural characteristics** (marital status, income, education, occupation, religion etc.)

This chapter focuses on the most important biosocial characteristics of population structure – age and sex. From a healthcare perspective, the age and sex distribution is a major consideration in determining the number and types of health problems that exist, the pattern of health services utilization and health behaviour. Sociocultural characteristics and their relation to health status are discussed in Chapter 3.

Age composition of population

For many purposes, the age distribution of a population represents its most significant compositional variable. After population size, the age distribution is the most important factor in determining a society's character and for calculating many of the rates used by demographers. The results of demographic processes from the past are reflected in the age structure of population; at the same time, it is the basis for future demographic developments. From a healthcare perspective, the age distribution is a major consideration in determining the number and types of health problems that exist and the pattern of health services utilization.

Population Pyramid

Population pyramid **is a graphic presentation of the age distribution** of the human population of a particular region. It gives a picture of the population's age-sex structure, and can also be used to display historical and future trends.

Population pyramid is nothing more than two ordinary histograms (bar graphs), representing the male and female populations in, usually, 1- or 5-year age categories, placed on their sides and back to back. The base of the pyramid, representing the size of each of the age/sex population groups, is presented in either absolute numbers or in percentages.

Generally, there are three main pyramid shapes: expansive, constrictive, and stationary (Figure 4.2).

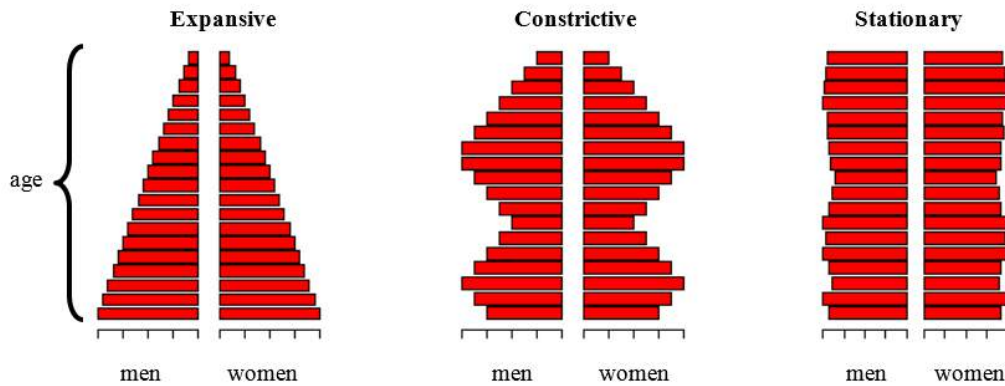


Figure 4.2. Three main shapes of population pyramids.

Source: Korenjak-Černe, Kejžar, Batagelj, 2008

1. **Expansive** shape (with a wide population base) is typical for fast-growing populations where each birth cohort (a group of people born in the same year or year's period) is larger than the previous one (Latin America, Africa). A country or region has a high birth rate and a large percentage of its population under age 15;
2. **Constrictive** shape (a narrow base) displays lower percentages of younger population (United States). Growing elderly population will have a smaller workforce to provide the economic base for the “dependent age” population.
3. **Stationary** shape present somehow similar percentages for almost all age groups. The population pyramids of the Scandinavian countries tend to fall in this group.

Although fertility has the greatest potential impact on age structure and population growth, in some circumstances mortality may become a more important influence. Many factors may affect the population pyramid, such as the loss of a large number of people during wartime.

Median age of population

It is a single index that summarizes the age distribution of a population. The median age is the age that divides a population into two numerically equal groups; that is, half the people are younger than this age and half are older. In 2014 the median age ranged from a low of about 15 in Uganda and the Gaza Strip to 40 or more in several European countries and Japan.

Population ageing

Population ageing refers to changes in the age composition of a population such that there is an increase in the proportion of older persons. With ageing of the population in many countries due to low birth rates and increasing longevity, the concepts of “dependent” population groups of those under age 15 and those over 65 as a percentage of the total population are becoming increasingly relevant to social and economic planning.

The indicators of population ageing are:

- The ageing index - calculated as the number of persons aged 60 or above per hundred persons under the age of 15.
- The total dependency ratio - is the number of persons under age 15 plus persons aged 65 or older per one hundred persons between the ages 15 to 64.

Sex composition of population

To characterize the sex composition of a population, several indexes are used:

- **The masculinity index** is calculated by dividing the number of males in the population by the number of males and females and multiplying the result by 100.

- **The sex ratio (SR)**, by far the most popular index of sex composition in demographics, is defined as the number of males per 100 females.

A SR above 100 indicates an excess of males and a SR below 100 indicates an excess of females. Most societies have SR values between 104 and 106, that is, 104-106 boys are born for every 100 girls. This so-called biologically normal SR is likely an evolutionary adaptation to the fact that females have higher survival probabilities than males. Since at every year of life males have higher mortality than females, slightly more males than females are required at birth for there to be around equal numbers of males and females when the groups reach their marriageable ages. Biology thus dictates that the age-specific SR will be highest at the very young ages, starting around 104-106 at age 0, and should then decline with age, attaining a value of around 100 for persons in their late 20s and continuing to decline to levels around age 50 or 60 in the oldest ages.

In relation to health and health services, women are more aggressive users of health services than are men. They live longer, but they suffer from more disabilities. Perhaps even more important, women bear much of the burden for health care decision making, not only for themselves but also for their families. They are also more likely to influence the health behaviour of their peers.

4.2.3 Population changes – demographic dynamics

It should be clear that the size of a population can change only through the **processes of fertility, mortality, and migration**. There are only two ways of entering a population – being born or moving into it. There are also two, and only two, ways of leaving a population – dying or moving out of it. It is posited that an area's population size can change because of only **three types of events: births, deaths, and migrations**. These three events are known as the components of demographic change and also as the three demographic processes.

Natural changes in population

The quantity **B - D**, refers to the difference between the number of births and the number of deaths occurring during a period of time and is known as natural change; if

- **B > D**, then the number of births exceeds the number of deaths, meaning **natural increase**;
- **B < D**, then the number of deaths exceeds the number of births, meaning **natural decrease**.

Mechanical changes in population – net migration

The quantity **I - E** refers to the difference between the number of immigrants and the number of emigrants occurring during the time period and is known as **net migration**. If

- **I < E**, then more persons leave (emigrate from) the area than enter (immigrate into) the area, and the quantity is known as **negative net migration**;
- **I > E**, then there is **positive net migration**.

Total population change – the demographic equation

Total population change **P** depends on the natural change and net migration occurring during a period of time in a specific geographic area, e.g. a country. This can be written as the following equation:

$$P = B - D + I - E$$

where B and D are, respectively, the number of births and deaths occurring in the population; and I and E are, respectively, the number of immigrants to and emigrants from the population.

All three of the demographic processes play important roles in determining not only the size but also the composition of any region's population. Changes in the variables themselves are the result of our behaviour as population actors. This is the heart of demography: understanding how the many factors that cause changes in demographic behaviour and that the consequences of this behaviour are all interrelated.

Fertility

Fertility is the actual **production of male and female births** and refers to real behaviour. Fertility is the bearing of living children. Fertility is a complex issue influenced by cultural, social, economic, religious, and even political factors. **Reproduction** is also actual production, but refers to the **production of only female births** (there is no demographic term to refer to the production of only male births).

Fertility Rates

Crude birth rate (CBR) is the number of births in a population over a given period, usually one calendar year, per 1 000 persons.

$$\text{CBR} = \frac{\text{number of births}}{\text{mid-year population}} \times 1000$$

In 2007, the CBR for the world was 21/1,000. This means that in the world in 2007, there were 21 births for every 1,000 members of the population. Among the continents, the CBR in 2007 ranged from a high of 38 in Africa to a low of 10 in Europe. Almost four times as many children per 1,000 population were born in Africa than in Europe in 2007. Generally, CBRs above 30 are considered to be high, and those less than 15 to be low. The CBR is referred to as "crude" because its denominator, the mid-year population of the area, includes many people who are not at the risk of childbearing, such as young women (under age 15), postmenopausal women (above the age of 50), and men.

General fertility rate (GFR) is superior to the CBR because it restricts the denominator to women of childbearing ages. The GFR is calculated as follows:

$$\text{GFR} = \frac{\text{number of births}}{\text{number of females age 15-49 in mid-year population}} \times 1000$$

where the numerator is the number of births in the population in the year, and the denominator is the number of females in the mid-year population who are in the childbearing ages 15-49.

Total fertility rate (TFR) is the most popular of all fertility rates and it is the mean number of children that would be born alive to a woman during her reproductive lifetime (ages 15-49) if she were to pass through her childbearing years conforming to the age-specific fertility rates of a given year; most accurately answering the **question "how many children does a woman have, on average?"**

A **total fertility rate of around 2.1** children per woman is considered to be **the replacement level**, that is, the average number of children per woman required to keep the population size constant in the absence of inward or outward migration. Fertility levels in much of the developed world have been below this level. Total fertility rates are highest in sub-Saharan Africa. In the long term, populations will grow if mothers replace themselves with one or more (surviving) daughters and decline if they fail to

achieve this. Reproduction rates thus relate only to female fertility, i.e. births of daughters. A **TFR below 1.3** children per woman is described as '**lowest-low fertility**'. TFR is used as an indicator for the fertility level and is comparable across countries, since it takes into account changes in the size and structure of the population.

Fertility trends

A huge range of social, economic, cultural, and psychological factors may influence decisions about family-building strategies and family size. The biological and behavioural factors have a direct influence. Determinants of fertility are presented in Figure 4.3 and are divided in proximal and distal determinants. **The proximate determinants of fertility** are directly influencing fertility and according to Davis and Blake include:

1. **Intercourse** – the amount of intercourse is affected by the proportion of persons who marry, the length of time these persons are married, and their frequency of sexual intercourse while married;
2. **Conception** – the probability of conception is affected by contraception and by voluntary or involuntary infecundity (i.e., the inability to conceive);
3. **Gestation** – the probability of a birth resulting from a given conception depends on the likelihood of miscarriage and abortion.

These proximate determinants are influenced by **distal variables of fertility**:

1. Family planning programs/policies;
2. Socioeconomic conditions;
3. Reproductive attitudes – regarding family size and birth spacing and regarding proximate determinants.

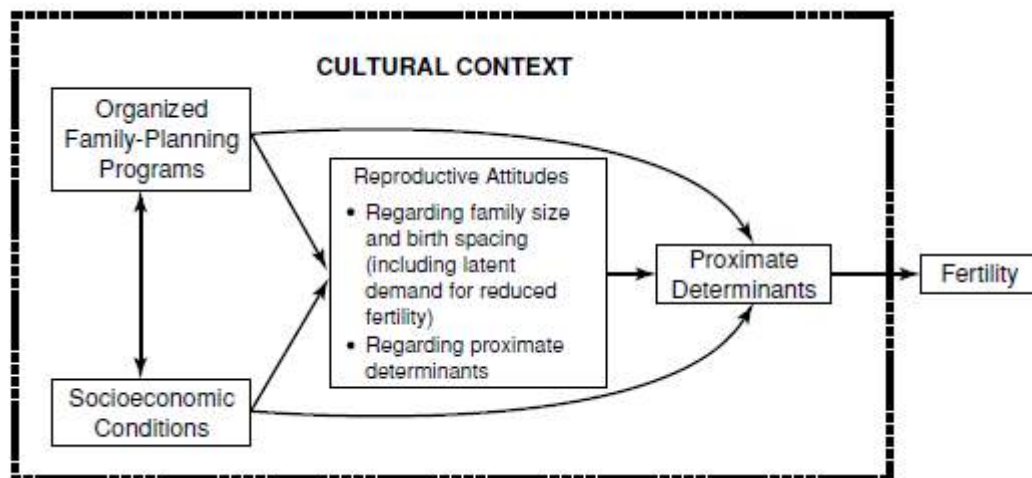


Figure 4.3. The determinants of fertility. Source: Davis and Black (1956). In Poston, Bouvier, 2010.

In modern populations, fertility decisions are normally couple (or woman) based, and implemented through contraception and abortion. In non-contraception populations, biosocial factors, notably marriage patterns, breast feeding-practices, sexual frequency, and, in some populations, the prevalence of infertility have been, or are, of major importance. Entry into marriage, or more generally, any sexual union, is important because it marks entry into the social reproductive span. Nowadays potential parents must think it acceptable to balance the advantages and disadvantages of another child and some advantage must be gained from reduced fertility. Generally, the higher a person's socioeconomic status, the fewer children that person is likely to have. In industri-

alized societies, women employed in the labour force tend to have fewer children than women who are not so employed. Having a smaller family also increases the woman's availability for employment, and her employment per se encourages a small family. Levels of childbearing also tend to be lower in urban than in rural areas. The fertility of Muslim women, however, is higher than that of Christian and Jewish women, both in developed and developing countries.

In the developed world there have been substantial variations in post-transition fertility levels and trends. Many developed countries experienced a post-war 'baby boom' which was followed by a 'baby bust' period in which fertility declined to very low levels during the 1970s. Since 1970 fertility has continued to decline in southern Europe, which now has the lowest fertility in the world. The reasons for these recent trends and for the very low fertility now prevalent in much of the developed world remain a matter of lively debate.

Factors in fertility decline in developed countries:

1. Education, especially of women;
2. Decreasing infant and child mortality reduces pressure for more children to ensure survivors;
3. Economic development, improved standards of living, expectations, and income levels;
4. Urbanization - changes family needs compared to rural society;
5. Birth control, supply, accessibility, and knowledge;
6. Government policy promoting fertility control as a health measure;
7. Mass media increases awareness of birth control, and aspiration to higher standards of living;
8. Health system development and improved access to medical care;
9. Changing economic status, social role, and self-image of women;
10. Changing social, religious, and political and ideological values

In recent years the fertility rates are slightly increasing in Europe as shown in Figure 4.4.

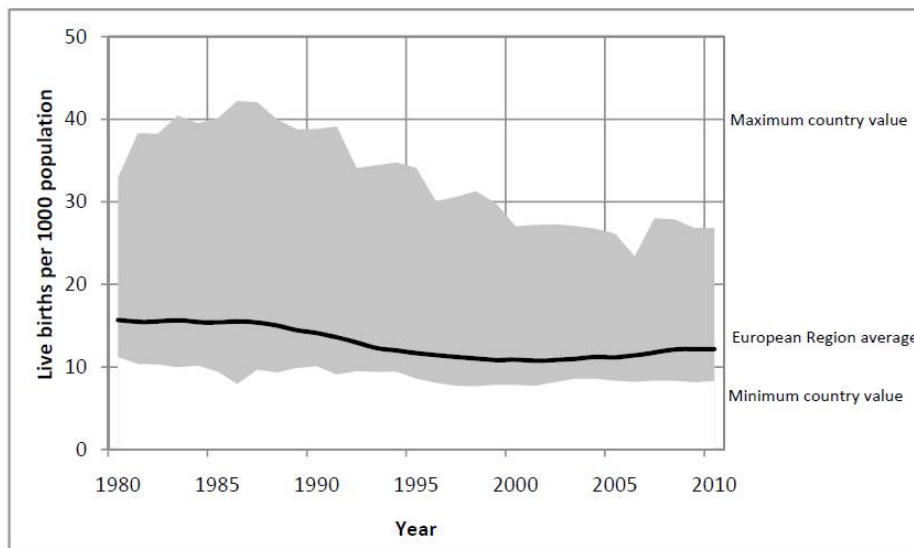


Figure 4.4. Crude birth rates in Europe.
Source: *The European health report 2012*. WHO, 2013

Most of the increase is in countries that have experienced extremely low fertility in the recent past, that is, below 1.3 children per woman. At the same time, women are delaying motherhood, giving birth much later in their lives. The TFR declined steeply between 1980 and 2000-2003 in many EU countries, falling far below replacement level. In 2000, values had fallen below 1.3 in Bulgaria, the Czech Republic, Greece, Spain, Italy, Slovenia and Slovakia. After reaching a minimum between 2000 and 2003, in the six years to 2009, the TFR had risen in most EU member states, and in 2009, all EU-27 countries were displaying rates above 1.3. If current low levels of fertility persist, the populations of more developed countries will start to decline in size unless the negative natural increase is offset by immigration. However, fertility levels are still high, the population is young, and population growth is rapid in regions of the less developed world.

Fertility patterns and related behaviour have numerous implications for health and health care. The obvious linkage involves the health care needs of mothers and children prior to, during, and after birth. The demographic characteristics of women who bear children such as age, race, marital status, income and education have been shown to be good predictors of fertility levels and birth outcomes. Variations in fertility levels among geographic areas provide valuable information about service needs. Differences in the numbers of births and birth rates among regions or local service areas result in variation in the demand for obstetrical and related services. One other consideration is the impact of the health status of the population on fertility levels. It is a biological fact that the ability to reproduce for people (particularly women) who are in very poor health or under considerable stress is reduced. Even people in these circumstances who are able to conceive may face challenges in bringing the pregnancy to term or producing a healthy child.

Mortality

Death is defined as the complete cessation of life after a live birth has taken place. Deaths that occur prior to a live birth - fetal deaths - are allocated to a separate category of mortality study. **Mortality** refers to the level of death within a population as measured by the number of deaths and death rates characterizing that population for a particular year.

Statistics of deaths remain one of the most widely available and comparable sources of information on health. Registering deaths is compulsory in all European countries, and the data collected through the process of registration can be used by statistical and health authorities to monitor diseases and health status, and to plan health services.

Death certificates are mandatory in most countries and must be signed by a licensed physician before the body can be buried or cremated and before insurance payments or inheritance can occur. The content of the death certificate is important because the medically certified cause of death is the basis for mortality statistics. Standardization of reporting causes of death is far from simple. **Causes of death** recorded on the death certificate include the **immediate cause** of death; the second and third lines include **contributing conditions** (e.g., acute myocardial infarction and congestive heart failure); with the fourth line being the **underlying cause** (e.g., coronary heart disease). Medical diagnoses are **coded, according to the 10th International Classification of Disease (ICD-10)**, adopted by the World Health Organization (WHO) in the 1990s. Doctors who fill in the form may vary in their perception of diagnosis and the difference between immediate and underlying cause of death. **Quality of data drawn from death certificate is influenced by:**

- Completeness of reporting;
- Accuracy of diagnosis;
- Coding of causes of death, and
- The extent to which autopsies are used.

Mortality rates

Mortality rates are based on numbers of deaths registered in a country in a year divided by the size of the corresponding population. **The data need to be standardized to remove the effect of differences in age structure.**

Most commonly used mortality rates are:

Crude death rate (CDR) is the number of deaths in a population in a given year per one thousand members of the population. It is expressed as

$$\text{CDR} = \frac{\text{number of deaths all causes}}{\text{mid-year population}} \times 1000$$

The CDR is referred to as crude because its denominator is comprised of the entire population, the members of which are not all equally at the risk of experiencing death. This is because the risk of death varies by age, sex, race/ethnicity, socioeconomic status, and many other characteristics. Thus, although it is true that all persons in the denominator of the CDR will eventually experience death, they are not all equally exposed to the risk of death.

Age-specific death rate (ASDR) is the number of deaths to persons in a specific age group per 1,000 persons in that age group. Its formula is

$$\text{ASDR} = \frac{\text{number of deaths of persons in the specified age group}}{\text{number of persons in that age group}} \times 1000$$

Death rates vary by age. They are high in the initial year of life, then drop precipitously, and begin increasing again at around age 40 or so.

Concerning the age-specific mortality rates, **infant mortality** is the most common measure of infant death. **Infant mortality rate (IMR)** is the number of deaths in a year to persons under age 1 per 1,000 babies born in the year. It is expressed as

$$\text{IMR} = \frac{\text{number of deaths to persons under age 1}}{\text{number of live-births}} \times 1000$$

Infant mortality has attracted particular research interest because of observed links with fertility behaviour and as an indicator of public health standards and conditions. This is because of the special vulnerability of members of this age group: their sensitivity to overall living conditions and other social determinants of health, including access to health services. Infant and child mortality continues to influence life expectancy in several countries in the European Region. **Infant mortality rates in the European Region** have continued to decline since 1990 and **are the lowest in the world.**

Cause-specific death rate (CSDR) is the number of deaths from a specific cause per 100,000 live population (estimated on 1 July of the given year);

$$\text{CSDR} = \frac{\text{number of deaths from a specific cause}}{\text{mid-year population}} \times 100\,000$$

For example, annual number of deaths from lung cancer in a given year = 400 in a population of 1 million = $400/1,000,000 = 40$ lung cancer deaths per 100,000 population;

Standardized Mortality Rate or Ratio = the ratio of the number of deaths from a specified condition observed in a study population over the number that would be expected if the study population had the same specific rates as the standard population x 1000. Young populations tend to have low CDRs, and old populations have high CDRs, so **for a comparison of death rates in countries with different age composition, the standardization is needed.**

Mortality is one of the most robust indicators for monitoring the situation and trends of disease impact in a population. **Overall mortality from all causes of death continued to decline in the Europe**, reaching an age-standardized rate of 813 deaths per 100,000 population in 2010. All-cause mortality shows a geographical gradient, with the highest rates in the eastern part of the Europe and the lowest towards the western part of the Europe (Figure 4.5).

Life Tables

Life tables provide one of the most powerful tools for analyzing mortality. Life tables are derived from age-specific mortality rates and show the probability of dying (and surviving) between specified ages. Life tables are an essential part of much demographic analysis (including, for example, making population projections). They allow the calculation of a variety of other indicators, including life expectancy (see in more detail further in this chapter) and are also widely used to analyze events other than death.

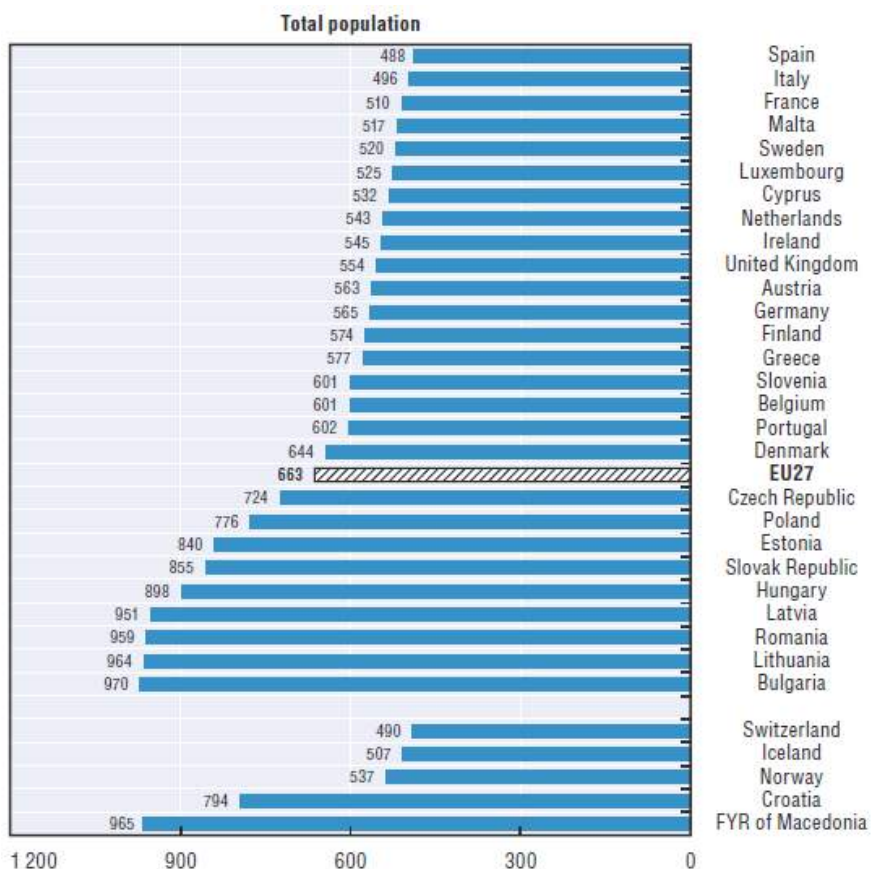


Figure 4.5. Mortality from all causes of death in Europe, 2010.
Source: OECD. *Health at a Glance: Europe 2012*

Causes of death

Globally in 2012:

- Non-communicable diseases (NCDs) were responsible for 68% of all deaths. The four main NCDs are cardiovascular diseases (ischaemic heart disease, stroke), cancers, diabetes and chronic lung diseases.
- Communicable, maternal, neonatal and nutritional conditions collectively were responsible for 23% of global deaths, and
- Injuries caused 9% of all deaths.

Ischaemic heart disease, stroke, chronic obstructive lung disease and lower respiratory infections have remained the top killers during the past decade. The projections of mortality and causes of death in the world for 2015 are shown in Table 4.1.

Table 4.1. Leading causes of death in the world, estimates for 2015

2015				
Rank	Cause	Deaths (000s)	% deaths	Deaths per 100,000 population
1	Ischaemic heart disease	7594	13,2	105
2	Stroke	6700	11,7	92
3	Lower respiratory infections	3223	5,6	44
4	Chronic obstructive pulmonary disease	3217	5,6	44
5	Diarrhoeal diseases	1808	3,2	25
6	HIV/AIDS	1667	2,9	23
7	Trachea, bronchus, lung cancers	1636	2,9	23
8	Diabetes mellitus	1556	2,7	21
9	Road injury	1423	2,5	20
10	Hypertensive heart disease	1137	2,0	16

Source: World Health Organization http://www.who.int/healthinfo/global_burden_disease/projections/en/

In terms of proportion of deaths that are due to **NCDs**:

- High-income countries have the highest proportion - 87% of all deaths were caused by NCDs;
- Upper-middle income countries - 81%;
- Lower in low-income countries (37%) and lower-middle income countries (57%).

The causes of death in high-income countries:

- Diseases of the circulatory system account for nearly 50% of all deaths, with higher rates among men than women.
- Cancer (neoplasm) mortality follows in frequency, accounting for 20% of deaths in the Region.
- The third major cause of mortality are external causes of injury (traffic accidents and suicide) and poisoning, representing 8% of all deaths.
- Respiratory diseases accounting for 6% of deaths.

Mortality profiles differ greatly by cause of death, age and sex. For example, the external causes of injury and poisoning account for more than 70% of deaths among adolescents and young adults (especially men). Diseases of the circulatory system and cancer become leading causes as age increases. In early childhood, diseases of the respiratory system and "other diseases" comprise the largest share (nearly 90% of deaths),

affecting boys and girls similarly. Infectious and parasitic diseases have declined among young children, accounting for less than 5% of deaths, but are becoming increasingly important among adults.

Factors influencing mortality decline

1. Increasing family income and standards of living;
2. Improved nutrition including improved food supply, distribution, quality, and nutritional knowledge;
3. Control of infectious diseases;
4. Reduction in non-infectious disease mortality;
5. Safe water, sewage and waste disposal, and adequate housing conditions;
6. Disease prevention, reducing risk factors, promoting healthy lifestyle;
7. Clinical care services with improved access and quality;
8. Health promotion and education activities of the society, community, and individual;
9. Social security systems; for example, child allowances, pensions, national health insurance;
10. Improved conditions of employment and recreation, economic and social well-being.

Migration

In many countries migration is the predominant influence on the spatial distribution of the population. Persons may enter a population by moving into it, or leave it by moving out of it. Unlike birth and death, which every individual meets once and only once, migration may occur on multiple occasions, or even may never happen at all. **Migration is geographical movement resulting in permanent change of residence that involves the crossing of a political (country) boundary.** There are two main types of migration:

1. **Internal migration** - within a country;
2. **International migration** - between countries.

Concerning the dynamics of population growth for communities, internal migration is the single most important of the three demographic processes (fertility, mortality, and migration). Differences in birth rates and death rates between communities of the same country are usually small compared to differences between the communities in migration. **Migration is the main form of population redistribution within a country.**

In-migration/immigration refers to migration of people into a new county/country for the purpose of establishing permanent residence; **out-migration/emigration** refers to permanent departure of people from a county/country. **Net migration** refers to the migration balance of an area obtained by subtracting from the number of in-migrants/immigrants for the area the number of out-migrants/emigrants:

$$\text{Net migration} = \text{number of immigrants} - \text{number of emigrants}$$

The net balance may be positive (representing a net population gain for the area) or negative (representing a net loss), or, conceivably, zero.

Migration can be **involuntary** (refugees/asylum seekers), meaning those who involuntarily emigrate from their native country because of persecution, threat of violence, or extreme deprivation, and **voluntary** (economic migrants), motivated by economic aspirations. International migrants are often categorized as either legal or illegal.

Measuring migration presents particular difficulties. There is often a lack of data as legal and administrative record systems are frequently concerned with citizenship. In the absence of direct census data, estimates of migration can be made indirectly. Differences in the size of a population at two points in time (censuses) not accounted for by natural increase or depletion must be due to migration (or errors in data). Surveys

are also used to measure migration in terms of the reasons for, and consequences of migration. Tourists and business travelers comprise the vast bulk of people entering or leaving a country, and so surveys are an inefficient way of identifying immigrants and emigrants.

Migration trends

Net international migration and natural increase (the difference between births and deaths) are the demographic processes that determine the amount of growth or decline in a nation's population. In most European countries and the United States that today have low levels of fertility and mortality, the contribution of net international migration to overall population change overshadows the contribution of natural increase. In many EU countries, immigration is not only increasing the total population, but also bringing in a much younger population. In 2008, 36 % of migrants to EU-27 member states were citizens of another member state; non-EU citizens accounted for 49% of all immigrants. The majority of EU countries in 2008 reported more immigration than emigration.

Implications of migration for health and healthcare

Migration in its various forms has a number of implications for health status, health behaviour and health services utilization for both the sending and receiving communities. **The volume and type of health services consumed depend primarily on the size and composition of the population.** As the population increases or decreases, the demand for health services will follow. Many destination communities have difficulty meeting health care demand because the local infrastructure and the medical personnel pool cannot be expanded rapidly enough. On the other hand, areas losing population cannot easily scale back the infrastructure in order to adjust services to the needs of the residual population.

As population composition changes, not only will overall demand be affected, but **the type of services needed will change.** Changes in age distribution are perhaps the best predictor of changes in utilization, since both the volume and type of services are linked directly to age composition. Changes in educational or income levels are also likely to have a substantial impact on health services. Education plays an important role in the use of a number of services, and income and the ability to pay for health services are important factors in health care utilization. Occupational characteristics may determine the type of insurance available, and even religious affiliation may influence preferences for the type of care obtained or the hospital chosen. For example, as the migrants are mostly young working adults, there is rapid growth among the young working-age population, a population that does not require high levels of health services overall and seldom uses inpatient services. In addition, their younger age structure implies a higher demand for obstetrical services in the short run and pediatric services in the long run. Further, cultural preferences may result in greater or lesser demand for care or for increased demand for non-traditional health care services (e.g., acupuncture, herbal remedies).

Research has indicated that **migrants are often characterized by higher levels of both physical and mental disorders than non-migrants.** This is not to suggest that less healthy individuals choose to migrate - the opposite is probably true, in fact - but that migration itself takes a toll on health. The most clear-cut evidence relates to mental illness symptoms, in that the migration process is stressful to the point of inducing psychiatric symptoms. It has been found that even very affluent executives and their families often suffer traumatic effects due to mobility even when it means substantial career advancement. Dislocation, with its loss of family, friends and schoolmates, involves substantial risks.

The other health status factor related to the migrants themselves has to do with the **particular disorders that migrants carry with them**. In some cases the concern is over the introduction of diseases indigenous to their homelands and not found in the new country (e.g., rare tropical diseases). Of greater consequence, however, has been the reintroduction of certain health problems long ago eradicated in the country.

One migration stream that has particular implications for health care involves the **international flow of physicians and other health care workers**. This reflects both push and pull factors, as physicians trained in other countries may perceive they have limited opportunities or resources in their home country and are pushed out or the shortage of health personnel in the other country pulls health professionals to this country.

4.2.4 Demographic trends and their implications for health and health care

There are very substantial differences between regions of the world in population characteristics and trends and predominant public health issues. **The size of the world's population is growing** at an unprecedented rate. Most of the recent growth has been in the less developed world. **Developing countries with high birth rates are experiencing population growth** exceeding their economic growth capacity. **The population of European countries is growing, while the age structure of the population is becoming older**. A turning point occurred in the early 1990s, when net migration became the main driver of population growth and has since far outpaced natural change in the population. The impact of demographic ageing within the EU is likely to be of major significance in the coming decades. Consistently low fertility levels and higher life expectancy will transform the shape of the EU-27's age pyramid. The most important change is likely to be the marked transition towards a much older population. This trend is already becoming apparent in several countries. The share of older persons in the total population will increase significantly in the coming decades, as a greater proportion of the post-war baby-boom generation reaches retirement. This will, in turn, lead to an increased burden on those of working age to provide for social expenditure required by the ageing population.

These variations have enormous implications for the health and health care priorities of the populations concerned. In the less developed countries of the world, a third of all deaths occur among infants and children aged under five. In the most developed world in contrast, deaths of elderly people aged 65 or more account for 72 per cent whereas those of children under five for less than 3 per cent of the total.

Demographic transition

The transformation of a population with high fertility, relatively high mortality, young age structures, and rapid growth to a population with low vital rates, older age structures, and slow or no growth is called a demographic transition. This transition typically shifts population age structure from one dominated by children and young adults up to age 29 to one dominated by middle-aged and older adults aged 40 and above.

Demographic transition is a long-term trend of declining birth and death rates, resulting in substantial changes to age distribution of a population. The demographic transition model describes the **changes that occur as a country or population moves through stages of development from a population with high fertility and mortality to one with low fertility and mortality**. Demographic transition may be characterized by the following stages:

1. **High and balanced birth and death rates** due to poor living conditions and health care provision. Infant and childhood mortality is high and infectious diseases are a major cause of death. Therefore the **population grows relatively slowly**.
2. **High birth rates and low death rates** due to improvements in living conditions and health care. Infections as a cause of death also begin to decline. This change results in a **rapid growth in population (expansive shape of age-sex pyramid)**.
3. **Low stationary: low and balanced birth and death rates** – the consequence of improved access to contraception, improved literacy of women, increasing urbanization and the tendency to educate children, with a lower value placed on children's work (**stationary shape of age-sex pyramid**).
4. **Stable population with low birth and death rates and graying of the population**: increased proportion of the elderly as a result of decreasing birth and death rates, and increasing life expectancy;

This model is also called “**first**” or **traditional demographic transition** that refers to the historical declines in mortality and fertility as witnessed from the 18th century onwards in several European populations, and continuing at present in most developing countries. The end point of the first demographic transition was supposed to be an older stationary and stable population corresponding with replacement fertility (i.e., just over 2 children on average), zero population growth, and life expectancies over 70 years. As there would be an ultimate **balance between deaths and births**, there would be no “demographic” need for sustained immigration.

In 1986 a new concept of **second demographic transition** was introduced reflecting the changes in demographic trends in industrialized countries characterized by fertility decline. These changes in demographic behaviour of populations started in the 1960s and in Slovakia later in the 1990s. This is a stage characterized by full control over fertility. And, as couples appear to lack the motivation to have more than one or two children, fertility has declined below replacement levels. While there may be an element of postponement of births involved in the very low levels of fertility currently observed, signs are that fertility will continue to stay at a level below that required for the replacement of population. This will result in a **new demographic imbalance between births and deaths**. The effects of this new imbalance are already becoming visible. The gradually increasing imbalance apparently generates a compensatory trend in the third demographic factor of the classical **demographic balancing equation: migration**. According to demographer van de Kaa, the traditional demographic transition was a long term consequence of the decline in mortality, whereas the second transition should be interpreted as a consequence of fertility declining far below the levels long thought plausible. Causes of this trend may have their origin in the weakening of nuclear family as a consequence of the deep changes in value systems and changes in norms and attitudes relating to personal relationships, family and reproductive behaviour.

As countries progress through the stages of the demographic transition, there is usually an accompanying **epidemiological transition**, as rates of certain diseases decline and others become more common. Infectious diseases as a major cause of mortality and morbidity decline while there is an increase in mortality and morbidity from chronic non-communicable diseases, which affect older age groups. The general shift in the burden of mortality and morbidity from infectious diseases and malnutrition characteristic of underdevelopment to non-communicable diseases characteristic of development is referred to as the epidemiological transition. This is a complex process as disease patterns alter as a result of demographic, socioeconomic and technological changes in society.

4.3 Measures of population health

The most commonly used measures of population health are morbidity measures (discussed in the parts on Epidemiology) and mortality measures (already discussed in this chapter). Life expectancy as one of the most commonly used indicators of population health status will be discussed here. However, it should be stressed that rising life expectancy makes it more important for public health professionals to have information also on non-fatal health problems, rates of good health and quality of life. Many of the most common chronic conditions may have serious implications for health status and quality of life but are not directly life-threatening and are not the causes of death. In response to these concerns, increasing attention has been paid, as discussed in this chapter, to the measures of population health that summarize information about mortality and non-fatal outcomes such as healthy life expectancy (HALE) and disability-adjusted life years (DALYs). However, while all these indicators provide critical information about the health status of a population, they do not tell anything about the quality of life. Instruments that are able to assess the quality of life and functioning of people with certain diseases will therefore be also introduced. As life expectancy is also used as one of the indicators assessing the health dimension of human development, which is a concept closely related also to quality of life, the last part of this chapter focuses on the Human Development Index (HDI) – the summary measure of human development.

4.3.1 Life expectancy

Life expectancy is an important health status indicator based on **average number of years a person at a given age may be expected to live given current mortality rates. Life expectancy can be measured at age 0, or at any other specific age.** Life expectancy either at birth (e_0) or further life expectancy at a particular age, say 65 (e_{65}) is calculated from life tables by dividing total person years lived after age zero or 65 and dividing it by the number of survivors aged zero or 65. The level of infant mortality is a powerful influence on e_0 as so many potential person years are lost through an infant death.

Life expectancy at birth is a common measure used to compare health status in and between countries. Life expectancy roughly but comprehensively measures overall population health, as it summarizes, in a standardized format, current information on the health situation of all age and sex groups of populations. As such, it reliably indicates overall health performance in a society at a specific time.

Female life expectancy is now greater than that of males, but there is considerable variation in the extent of this difference. Low-mortality countries generally have larger sex differences in life expectancy than high-mortality populations, reflecting the association between falls in mortality and an increasing female advantage. This is the result of declines in causes of death specifically or primarily affecting women (such as maternal mortality and respiratory tuberculosis), gender differences in health-related behaviour and in exposure to occupational hazards, and the possibly greater susceptibility of men to stresses associated with socio-economic changes as casual factors. In developed countries a large proportion of the sex differential in life expectancy at birth is due to differences in ischemic heart disease, lung cancer and accidents and violence. The epidemic of smoking and attendant smoking-related diseases is undoubtedly a major cause of gender differences in death. Alcohol is also a factor in gender differentials in mortality particularly in Eastern Europe. The elderly population in nearly all countries of the world is predominantly female. Older women experience more disability than older men. This seems to reflect women's greater risk of disability from musculoskeletal disorders and longer survival than men after the onset of disability.

Life expectancy has increased greatly over the past few decades in many emerging economies. Improvement in living conditions, a reduction of certain risk factors (e.g., smoking rates) and progress in health care are the main factors explaining increased longevity. In 2011, life expectancy on average across OECD countries exceeded 80 years, an increase of ten years since 1970 (Figure 4.6.). Switzerland, Japan and Italy lead a large group of over two-thirds of OECD countries in which life expectancy at birth now exceeds 80 years. A second group, including the United States, Chile and a number of central and eastern European countries, has a life expectancy between 75 and 80 years. Among OECD countries life expectancy was lowest in Mexico and Turkey.

Estimating the relative contributions of the numerous health-related and other, mainly socio-economic factors that might affect the variation in life expectancy over time and across countries is difficult. Socioeconomic factors and their relation to inequities in life expectancy are discussed in Chapter 3.

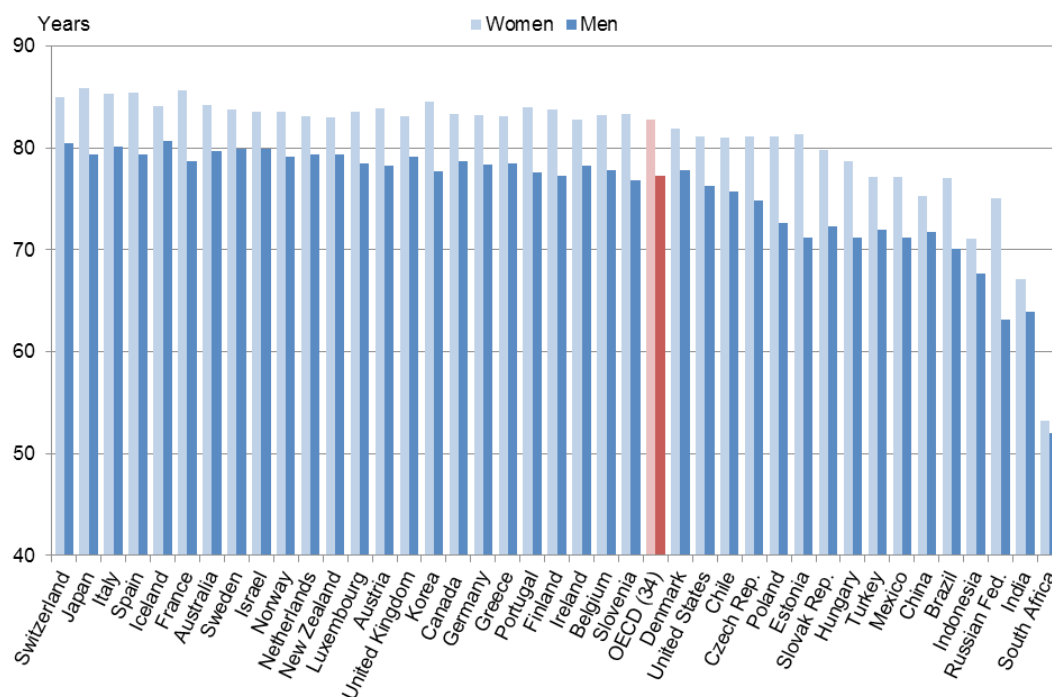


Figure 4.6. Life expectancy at birth by sex, OECD countries, 2011 (or nearest year)

Source: OECD Health Statistics 2013, <http://dx.doi.org/10.1787/health-data-en>; World Bank for non-OECD countries.

4.3.2 Summary measures of population health – HALE, DALYs

Summary measures of population health are measures that **combine information on mortality and non-fatal health outcomes** to represent the health of a particular population as a single number. Traditional life expectancy summarizes solely the time lived between birth and death into a summary measure of the average time lived. The most common use of summary measures is to provide a coherent overall picture as to which diseases, injuries, and risk factors contribute the most to health loss in a given population. Summary measures can be used to:

- Compare the health of populations;
- Monitor changes in the health of populations;
- Inform public health policy on priorities for action;
- Analyse the benefits of public health interventions;
- Help guide an assessment of where health information systems are strong or weak by identifying which data sources required for their calculation are missing, of low quality, or highly uncertain.

These measures can be divided broadly into two families: health expectancies and health gaps, and most commonly used indicators are:

1. **Healthy life expectancy/healthy life years (HALE, HLY)** – summarizes time lived in full health
2. **Disability-adjusted life years (DALYs)** – summarizes time spent in less than full health

Information on age-specific mortality and the epidemiology of non-fatal health outcomes provides a basic input to any type of summary measure.

The concept of summary measures of population health is described in Figure 4.7.

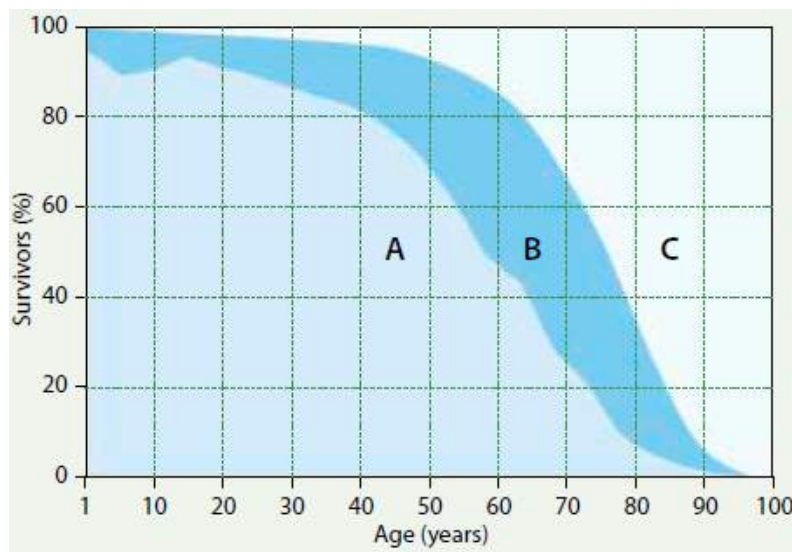


Figure 4.7. Summary measures of population health

Source: Murray, Salomon and Mathers, 2000 In WHO, *The European health report 2005*

In the figure: The curve is an example of a survivorship curve for a hypothetical population. This curve indicates, for each age along the x-axis, the proportion of an initial birth cohort that will remain alive at that age.

Area A = time lived in full health

Area B = time lived in less than full health, weighted for severity

Area C = time lost to premature mortality

Life expectancy = A + B

Health expectancies (such as HALE) = A + f(B)

Health gaps (such as DALY) = C + g(B)

Where f is a function assigning weights to health states in units of years on a scale where 1 is equivalent to 1 year of full health and g is the corresponding inverse function on a scale where 1 is equivalent to 1 year of full health lost because of disease, injury or death.

Healthy life expectancy

Healthy life expectancy (HALE) is the average number of years that people live in good health, free of activity limitation (disability). The underlying health measure is the Global Activity Limitation Indicator (GALI), which measures limitation in usual activities, and comes from the European Union Statistics on Income and Living Conditions (EU-SILC) survey. Comparing trends in HALE and life expectancy can show whether extra years of life are healthy years.

$$\text{HALE} = \text{LE} - \text{YLD}$$

Where LE is life expectancy and YLD are years loss due to disability.

HALE can be used to answer two strategically important questions:

1. Has an increase in health accompanied the increase in longevity?
2. What is the average time that people live in good health, and what is the percentage of time spent in less-than-good health?

The answers are that the general increase in life expectancy has also meant a general increase in healthy years of life, and the proportion of life spent in less-than-perfect health has decreased. This is a major improvement of the health situation. Nevertheless, the health differentials between populations are wider in terms of HALE than in life expectancy estimates only. As social factors are at the root of many of these differentials, the impact of the social determinants of health needs continued monitoring that takes account of both mortality and non-fatal health outcomes. This approach is discussed in Chapter 3.

On average for EU member states, HLY at birth in 2012 was 62.2 years for women and 61.0 years for men. It was greatest in Malta for women (72 years), and in Sweden for men (72 years), and shortest in the Slovak Republic for women (54 years) and in Estonia for men (54 years). Women in Malta can expect to live 86% of life expectancy without limitations in usual activities. For men in Sweden, the value is even higher at 89%. In the Slovak Republic, only 66% of female and 73% of male life expectancy is free from activity limitation. In contrast to the 6.4 year gap in life expectancy at birth for EU member states on average, the gender gap in HLY at birth was only around 1.2 years. For life expectancy at birth the gender gap has always favoured women. However, seven countries had a gender gap in HLY which favoured men, the greatest being 2.0 more HLY for men in Portugal. Although women lived on average longer than men, they live a smaller share of their lives in good health or free of disability than men. Thus, towards the end of life, women have accumulated a larger burden of ill health than men as a result of both longer longevity and multiple illnesses.

Global Burden of Disease - DALYs

Global burden of disease (GBD) refers to the **combined measurement of mortality and non-fatal health outcomes**. The GBD is an important epidemiologic research instrument. Figure 4.8. presents a simplified version of GBD framework and indicates the causal chain of events that matter for health outcomes, identifying the key components and determinants of health status that require quantification.

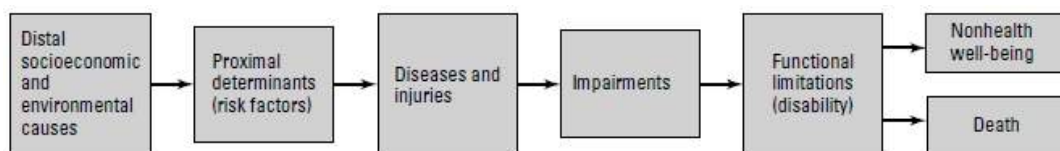


Figure 4.8. Overview of Burden of Disease Framework
Source: Lopez et al., 2006

The Global Burden of Disease Study is a result of collaboration between WHO (medical demographer A. Lopez), the World Bank, and Harvard School of Public Health (physician and health economist Ch. Murray). The aims of the study were to provide information and projections about disease burden on a global scale. The initial GBD study was commissioned by the World Bank to provide a comprehensive assessment of disease burden in 1990 from more than 100 diseases and injuries, and from ten selected risk factors. The study introduced a new metric – **the disability-adjusted life year (DALY) – as a single measure to quantify the burden of diseases, injuries and risk factors.**

The results of the first GBD study were surprising – neuropsychiatric disorders and injuries were major causes of lost years of healthy life as measured by DALYs, and were greatly undervalued when measured by mortality alone. More broadly, non-communicable diseases, including neuropsychiatric disorders, were estimated to have caused 41% of the global burden of disease in 1990, only slightly less than communicable, maternal, perinatal, and nutritional conditions combined (44%), with 15% due to injuries.

Since then, there have been updated estimates for GBD in 1999-2002 and 2004. The GBD cause list was expanded to 136 causes. The last study was carried out in 2010 by the Institute for Health Metrics and Evaluation (IHME), University of Washington, in collaboration with six other institutions, through a network of about 40 expert working groups. The scope has been expanded to 291 diseases and injuries in 21 regions, for 20 age groups, and an estimation of trends from 1990 to 2010. For each cause, there are from one to 24 sequelae. In total, the study includes 1160 sequelae. **Sequelae** are the main pathological conditions resulting from a disease or injury (status post) that could potentially make an important contribution to the burden of a given disease or injury and which could in principle be measured. The sequelae for each disease and injury in the GBD 2010 study were developed by collaborating expert groups in consultation with the core team. For example, anaemia is a sequela of 19 diseases in the cause list and three health states are associated with anaemia: mild anaemia, moderate anaemia, and severe anaemia. GBD 2010 also includes an assessment of 67 risk factors. An important advance has been the improvement of methodological approaches compared to previous GBD studies and they will be discussed further below. To understand what the DALY concept measures, it is essential first to describe how it was constructed in the first GBD in 1990.

The DALY concept

The DALY approach combines information about mortality and morbidity in a single number. DALY is a summary measure that combines time lost through premature death and time lived in states of less than optimal health, loosely referred to as “disability”. **Disability-adjusted life year (DALY) is the unit of measurement of the burden of disease, representing the loss of one year of “healthy” life.** The sum of DALYs across the population, or the burden of disease, can be thought of as a measurement of the gap between current health status and an ideal health situation where the entire population lives to an advanced age, free of disease and disability. DALYs facilitate comparisons of different types of health states or health outcomes. Using DALYs, the burden of diseases that cause early death but little disability (e.g. drowning or measles) can be compared to that of diseases that do not cause death but do cause disability (e.g. cataract causing blindness).

Calculation of DALYs in GBD 1990 study

DALYs for a specific cause are calculated as the sum of the YLLs from that cause and the YLDs for people living in states of less than good health resulting from the specific cause:

$$\text{DALYs} = \text{YLL} + \text{YLD}$$

where: **YLL = years of life lost due to premature mortality**

YLD = years lived with disability

The YLL basically correspond to the number of cause-specific deaths multiplied by the standard life expectancy at the age at which death occurs. The basic formula is the following for a given cause, age and sex:

$$YLL = N \times L$$

where: N = number of deaths

L = standard life expectancy at age of death in years with “ideal“ life expectancy at birth fixed in 1990 at 82.5 years for females and 80.0 years for males (based on the highest observed life expectancies in Japan).

Because YLL measure the incident stream of lost years of life due to deaths, an incidence perspective is also taken for the calculation of YLD. To estimate YLD for a particular cause in a particular time period, the number of incident cases in that period is multiplied by the average duration of the disease and a weight factor that reflects the severity of the disease on a scale from 0 (perfect health) to 1 (death). The basic formula for YLD is the following:

$$YLD = I \times DW \times L$$

where: YLD = years lived with disability

I = number of incident cases

DW = disability weight for cause

L = average duration of the case until remission or death (years)

Example.

The calculation of DALYs of a woman who has been deaf since she was 5 and died when she was 50. Disability weight (DW) of deafness is set at 0.33.

Number of healthy life years (5 yrs) × the disability weight of full health (0) + life years with disability (45 yrs) × disability weight for deafness (0,33) + years of life lost (82.5 - 50 = 32.5 yrs) × the weighting of death (1)

$$DALYs = YLD + YLL$$

$$DALYS = 5 \times 0 + 45 \times 0.33 + 32.5 \times 1 = 47.35$$

The result is DALYs with no discounting and age weighting, to which we will come back later.

Disability weights

A disability weight is a weight factor that reflects the severity of the disease on a scale from 0 (perfect health) to 1 (equivalent to death). Following the GBD terminology, and consistent with the WHO International Classification of Functioning, Disability and Health (ICF), the term “disability” is used broadly in GBD analyses to refer to departures from good or ideal health in any of the important domains of health. These include mobility, self-care, participation in usual activities, pain and discomfort, anxiety and depression, and cognitive impairment. **Disability refers to any short-term or long-term health loss, other than death.**

The Global Burden of Disease Study 1990 asked small groups of participants (medical and public health experts, not general population) to make a judgement about the severity of the condition and the preference for time spent in each severity level. The GBD 2000 project has adopted a similar approach to health state valuation, using a standard health state description based on eight core domains of health (mobility, self-care, pain and discomfort, cognition, interpersonal activities, vision, sleep and energy, affect).

Age weighting and discounting.

In addition to adjusting the value of life years with disability weights, and choosing a particular life expectancy, the value of a life year is modified in GBD 1990 study by:

- Time discounting – the value of a life year now is set higher than the value of future life years, 3% per year discounting is used in GBD;

- Age weighting – the value of the lifetime is weighted so that years of life in childhood and old age are counted less,

Age weighting gives less weight to years lost at young and older ages. Using discounting and age weights, a death in infancy corresponds to 33 DALYs, and deaths at ages 5–20 to around 36 DALYs. Time discounting means that future gains and losses are counted less than if they had occurred today. This is common practice when it comes to valuing material goods. For instance, a bank may require 500 dollars in 10 years' time to compensate for a loan of 100 dollars today. However, it is controversial whether it is correct to apply discounting on human values. It has for instance been asked why future generations should be counted as less valuable.

Main issues in the DALY 1990 concept:

- The DALY is the sum of years of life lost and years of life lived with disability.
- The DALY measures a health gap, relative to an “ideal” life expectancy of 80 years for men and 82.5 years for women.
- The calculations of YLL and YLD are based on incident measures.
- A disability weight is used to characterize each disease or injury.
- Social preferences for the point in time or age at which a death or disability occurs are incorporated into DALY calculations.

The DALY approach in the GBD 1990 study has been criticized for

- Violating the principle of treating people as equal, for discriminating the young, the elderly, future generations (future health benefits), the disabled and women;
- Valuation of health states by disability weights based on judgements of health professionals rather than of the general population, or those with the conditions;
- The use of universal weights rather than weights that would vary with social and cultural environment;
- Making estimates of mortality and burden of disease for regions with limited, incomplete, and uncertain data.

The GBD 2010 methodology

A simpler form of DALY as used by the GBD 2010 study has been adopted. This form is easier to explain and use because of:

1. The use of a **new normative standard life table** for the loss function used to compute YLLs; (life table based on the lowest observed death rate for each from 20 age groups in countries of more than 5 million in population).

$$YLL = N \times L$$

where: N = number of deaths

L = standard life expectancy at age of death in years with “**ideal**” life expectancy at birth fixed at **86 years both for females and males**

2. **Calculation of YLDs simply as the prevalence of each disabling sequela multiplied by the relevant disability weight.**

$$YLD = P \times DW$$

where: YLD = years lived with disability

P = prevalence of disease-sequelae or injury-sequelae

DW = disability weight for that sequela

The GBD 2010 study estimated YLDs by country, age, sex for 1160 sequelae of 291 diseases and injuries. To avoid double counting, a sequela can only appear in the cause-sequela list once even if the same outcome might be claimed by more than one disease.

3. **Adjustment for comorbidity in the calculation of YLDs** – Because many people have more than one disease or injury, particularly at older ages, addition of YLDs across causes, as it was in the GBD 1990 study, may result in overestimation of the total loss of health. The adjustment reduces global all-age YLDs.

4. **Revision of disability weights** based on surveys of the general population (31,000 respondents) for 220 health states – DWs reflect the general population judgements about the ‘healthfulness’ of defined states, not any judgements about the quality of life or the worth of persons, social undesirability or stigma of health states. The number of health states is lower than the number of sequelae because the same health status such as anaemia appears in the cause-sequela list multiple times (e.g., mild anaemia from malaria, or mild anaemia from chronic kidney diseases).
5. **No discounting for time or unequal age weights** – this change results in a substantial increase in the absolute number of DALYs lost and a relative increase in the share of DALYs at younger and older ages.

Leading causes of disability

Global disease burden has continued to shift away from communicable to non-communicable diseases and from premature death to years lived with disability. **Global DALYs in 2010:**

- Were slightly lower by 0.5% compared to 1990;
- 31.2% were from YLDs and 68.8% from YLLs;
- 54% were due to non-communicable diseases (NCD), 35% from communicable, maternal, neonatal, and nutritional disorders, and 11% due to injuries;
- The main changes between 1990 and 2010 are the reductions in infectious diseases, mostly among children, an increase in the HIV/AIDS and tuberculosis category, and increases in a diverse set of NCD and injury categories.

In sub-Saharan Africa, however, many communicable, maternal, neonatal, and nutritional disorders remain the dominant causes of disease burden. The rising burden of mental and behavioural disorders, musculoskeletal disorders, and diabetes presents health systems with new challenges. The GBD 2010 study underscores significant achievements, such as the dramatic drop in child mortality, but diseases such as diarrhoea due to rotavirus and measles continue to kill more than 1 million children under the age of 5 every year, despite effective vaccines against those diseases. GBD 2010 found a startling 44% increase in the number of deaths among adults aged 15 to 49 between 1970 and 2010. This is in part because of increases in violence and the ongoing challenge of HIV/AIDS.

Disability is causing an ever higher share of the burden of disease. Table 4.2 shows the 20 leading causes of YLDs at the global level in 2000 and 2011. There is little change in rankings across this period, and the nine leading causes of YLDs remain unchanged. **Unipolar depressive disorders were the leading cause of YLDs and neuropsychiatric conditions dominate the overall burden of non-fatal disabling conditions.** Back and neck pain was the second leading cause of YLDs. Among other top causes of YLDs were: chronic diseases of the respiratory system, iron deficiency anaemia, diabetes mellitus, hearing and vision disorders, skin diseases and injuries (falls, traffic injuries).

Table 4.2. Change in 20 leading causes of YLDs at the global level, 2000 to 2011

WORLD, 2000			WORLD, 2011			
Cause	DALYs (millions)	Rank	Rank	Cause	DALYs (millions)	
Unipolar depressive disorders	63.9	1	→	1	Unipolar depressive disorders	74.9
Back and neck pain	43.8	2	→	2	Back and neck pain	52.6
Iron-deficiency anaemia	43.3	3	→	3	Iron-deficiency anaemia	42.2
COPD	24.4	4	→	4	COPD	29.8
Anxiety disorders	23.1	5	→	5	Anxiety disorders	27.0
Diabetes mellitus	16.7	6	→	6	Diabetes mellitus	21.8
Other hearing loss	15.7	7	→	7	Other hearing loss	21.3
Falls	15.6	8	→	8	Falls	19.9
Migraine	15.4	9	→	9	Migraine	18.2
Alcohol use disorders	13.8	10	↗	10	Osteoarthritis	17.4
Pervasive developmental disorder	13.6	11	↘	11	Alcohol use disorders	15.7
Skin diseases	13.4	12	↘	12	Pervasive developmental disorder	15.4
Osteoarthritis	13.3	13	↘	13	Skin diseases	15.2
Refractive errors	12.7	14	↗	14	Asthma	13.9
Asthma	12.3	15	↗	15	Road injury	13.5
Road injury	12.1	16	↗	16	Refractive errors	13.4
Childhood behavioural disorder:	12.0	17	↗	17	Schizophrenia	13.1
Bipolar disorder	10.9	18	↘	18	Bipolar disorder	13.0
Schizophrenia	10.7	19	↘	19	Childhood behavioural disorder:	12.4
Endocrine, blood, immune disorder	9.2	20	↗	20	Drug use disorders	10.5
Drug use disorders	8.8	21	↗	21	Endocrine, blood, immune disorder	10.2

Source: WHO methods and data sources for global burden of disease estimates 2000-2011. WHO, 2013.

Figure 4.3 shows the 20 leading causes of DALYs at the global level in 2000 and 2011. The leading causes of disease burden in children declined in rankings across this period and rankings for chronic diseases increased, reflecting trends for improving child survival and population ageing. **Lower respiratory infections are the leading cause of DALYs globally.** The leading causes of death – ischemic heart disease and cerebrovascular disease – remain among the top three causes of burden of disease in 2011. Three primarily non-fatal conditions are also among the 20 leading causes of burden of disease; these are unipolar depressive disorders, back and neck pain and diabetes mellitus. This again illustrates the importance of taking non-fatal conditions into account, as well as deaths, when assessing the causes of loss of health in populations. Five infectious diseases are between the top 20 leading causes of burden of disease globally: lower respiratory infections (first place), diarrhoeal diseases (fourth place), HIV/AIDS (sixth place), malaria (13th) and tuberculosis (16th). In high-income countries, cancer and cardiovascular diseases account for a further 36% of DALYs, mental and behavioural disorders for 11% , and musculoskeletal disorders for 13%. Injuries make up about 11%.

Figure 4.3. Change in 20 leading causes of DALYs at the global level, 2000 to 2011

WORLD, 2000			WORLD, 2011		
Cause	DALYs (millions)	Rank	Rank	Cause	DALYs (millions)
Lower respiratory infections	213.4	1	1	Lower respiratory infections	164.8
Diarrhoeal diseases	173.6	2	2	Ischaemic heart disease	159.7
Ischaemic heart disease	142.6	3	3	Stroke	135.4
Prematurity	130.5	4	4	Diarrhoeal diseases	118.8
Stroke	126.9	5	5	Prematurity	110.7
HIV/AIDS	98.0	6	6	HIV/AIDS	95.2
Birth asphyxia and birth trauma	94.3	7	7	COPD	89.6
COPD	89.8	8	8	Road injury	78.8
Malaria	73.1	9	9	Birth asphyxia and birth trauma	78.2
Road injury	67.9	10	10	Unipolar depressive disorders	75.0
Unipolar depressive disorders	64.0	11	11	Congenital anomalies	57.7
Congenital anomalies	59.6	12	12	Diabetes mellitus	56.4
Tuberculosis	56.7	13	13	Malaria	55.4
Measles	55.7	14	14	Back and neck pain	52.7
Iron-deficiency anaemia	47.1	15	15	Iron-deficiency anaemia	46.2
Self-harm	46.3	16	16	Tuberculosis	42.2
Back and neck pain	43.8	17	17	Falls	40.8
Diabetes mellitus	43.6	18	18	Self-harm	39.8
Protein-energy malnutrition	40.6	19	19	Trachea, bronchus, lung cancers	37.3
Neonatal sepsis and infections	39.7	20	20	Cirrhosis of the liver	34.9
Falls	34.4	21	21	Protein-energy malnutrition	33.2
Cirrhosis of the liver	32.5	23			
Trachea, bronchus, lung cancers	31.0	24	25	Neonatal sepsis and infections	29.1
			46	Measles	14.8

Source: WHO methods and data sources for global burden of disease estimates 2000-2011. WHO, 2013

The findings of the GBD 2010 study highlight the importance of health care professionals who will service the specialties of trauma, rehabilitation, mental health, musculoskeletal disorders and diabetes, which should be reflected accordingly in the content of education for health professionals. The GBD study provides quantification of the diversity of urgent health needs for communities and reminds us that the organized social response to health problems must deal with a wide array of medical and public health priorities for action.

4.3.3 Quality of life and health-related quality of life measures

There are several instruments for measuring the QOL and HRQOL that assess the quality of life and functioning of people with certain diseases across a range of areas and also provide information about satisfaction of patients with their functioning and with the effects of treatment. These measures can identify subgroups with relatively poor perceived health and quality of life and help to guide interventions to improve their situations and avert more serious consequences. There is evidence in literature that self-assessed health status, perceived quality of life and well-being have proved more powerful predictors of mortality and morbidity than many objective measures of health.

Three types of instruments are recognized: generic, disease-specific and domain-specific.

Generic measures

- Aim to address the quality of life and encompass physical, mental and social health
- Are most appropriate to use in studies of general populations
- Unable to identify the condition-specific aspects of a disease
- Enable to compare the results between different diseases and conditions

Disease-specific measures

- Aim to identify the condition-specific aspects of a disease
- They are more sensitive to small, but clinically significant changes
- Able to compare between patients' levels of severity within the same diseases and condition

Domain-specific measures

- Used when the area covered is of particular relevance (social support, self-esteem, coping, depression etc.)

The ideal may be a combination of one or two generic instruments and a number of disease- and domain-specific measures. The measures usually cover multiple domains and dimensions, can be single or multi item and in the aspect of administration, can be administered by interviewers or self-administered.

Quality of life instruments

Currently, there are numerous instruments that capture quality of life and methodological development in this area is still under way. One of the most commonly used QOL **generic instruments** is the **WHO Quality of Life (WHOQOL) instrument**. The WHOQOL Group takes the view that it is important to know how satisfied or bothered people (patients) are by important aspects of their life, and this interpretation will be a highly individual matter. The WHOQOL-100 is a 100-item self-administered instrument focusing on 6 domains of quality of life: physical, psychological, level of independence, social relationships, environment, and spirituality/religion/personal beliefs. Subsequently, the WHOQOL-BREF, a 26-item instrument, was derived from the WHOQOL-100.

There are also **disease-specific quality of life instruments** (e.g. for patients with Parkinson disease and end-stage renal disease).

Generic instruments should also be mentioned here for measuring life satisfaction and well-being such as Cantrill's Ladder and Satisfaction with Life Scale (SWLS).

Measuring health-related quality of life

In HRQOL assessment, two types of measures are used:

1. Health status measures
2. Health value/preference/utility measures.

1. Health status measures describe a person's functioning in 1 or more domains (e.g., physical functioning or mental well-being). Currently, one of the most commonly used **generic instruments of perceived health status** is the **the Short Form Health Survey (SF-36)**, a 36-item measure encompassing 8 domains - physical functioning, social functioning, mental health, role limitations due to physical problems, role limitations due to emotional problems, vitality (energy and fatigue), bodily pain, and general health perceptions - each of which is scored separately from 0 (worst) to 100 (best). The SF-36 domains can be summarized into physical component summary and mental component summary scores.

Another example of a generic self-report instrument is the General Health Questionnaire (GHQ) designed to assess the psychological health status. There are several instruments, both generic and disease-specific, for assessing the functional status (e.g. for

patients with Parkinson disease, multiple sclerosis, coronary heart disease). One such example is the New York Heart Association (NYHA) classification)).

2. Health value/preference/utility measures, in contrast, assess the value or desirability of a state of health against an external metric. These **are generic HRQOL measures** that summarize HRQOL as a single number. There are 2 major families of utility measures, direct and indirect.

- **Direct Health Utilities.** Direct health utilities are usually determined via face-to-face interviews, with computer assisted administration being the state of the art.
- **Indirect Health Utilities.** Indirect health utilities use population-assigned weights to calculate utility scores for particular health states from health status instruments. (e.g. the EuroQoL EQ-5D, the SF- 6D, the Quality of Well Being Self-Administered (QWB-SA) Scale, and the Health Utilities Index (HUI)). The ease of administration (self-administered) of these indirect measures enables them to be used in national surveys.

Application of QOL and HRQOL instruments

- In clinical practice, these can indicate areas in which a person is most affected and help make decisions regarding patient care.
- May be used to measure change in quality of life over the course of treatment.
- Can be used in day-to-day practice as a powerful predictor of mortality.
- May improve the interaction between a patient and doctor by increasing the physician's understanding of how disease affects a patient's quality of life.
- Provide a measure of the relationship between the health care service and patient's quality of life, and also a measure of patient's perception of the quality and availability of health care.
- Provide new insights into the nature of disease by assessing how disease impairs subjective well-being and daily functioning of a person across a whole range of areas.
- Are used in public health policy for decision analysis, economic evaluation of healthcare interventions and evaluation of health policies.
- HRQOL are used to estimate burdens of disease - to assess the impact of different diseases on QOL.

4.3.4 Human development index

Human development index is a measure of human development, meaning the process of enlarging people's choices characterized by many dimensions including a health dimension assessed by life expectancy. The basic objective of development is to create an enabling environment for people to enjoy long, healthy and creative lives. **The Human Development Index (HDI) is a summary measure of average achievement in the key dimensions of human development: a long and healthy life, being knowledgeable, and have a decent standard of living.** Additional dimensions, highly valued by many people, range from political, economic and social freedom to opportunities for being creative and productive, and enjoying personal self-respect and guaranteed human rights. The **components of HDI** are:

1. **The health dimension** – assessed by the **life expectancy at birth** component of HDI, is calculated using a minimum value of 20 years and a maximum of 85 years.
2. **Education** – measured by two indices: **mean of years of schooling for adults aged 25 years and expected years of schooling for children of school entry age** – estimated by UNESCO for adults from survey and census data and for children based on enrolment by age at all levels of education. The two indices are combined into an education index using arithmetic mean.

3. The standard of living dimension – measured by **gross national income (GNI) per capita**. The model value for minimum income is \$100 (PPP) and the maximum is \$75,000 (PPP). PPP is a purchasing power parity exchange rate that equalizes the purchasing power of different currencies in their home countries for a given basket of goods. To compare economic statistics across countries, the data must first be converted into a common currency. Unlike market exchange rates, PPP rates of exchange allow for this conversion to take account of price differences between countries. In that way GNI per capita (PPP \$) better reflects people's living standards. In theory, 1 PPP dollar (or international dollar) has the same purchasing power in the domestic economy of a country as US\$1 has in the US economy.

The scores for the three HDI dimension indices are then aggregated into a composite index using geometric mean on a **scale 0 to 1**. The HDI does not reflect inequalities, poverty, human security, empowerment, etc.; the United Nations offers other composite indicators of some of the key aspects of human development, inequality, gender disparity and human poverty.

The HDI was **conceived by the United Nations Development Programme** in 1990 and first introduced in its first annual Human Development Report (HDR 1990). The HDI is meant to emphasize people and their capabilities as the ultimate criteria for assessing the development of a country as opposed to economic growth alone. The HDI can also be used to challenge national policy choices, asking how two countries with the same level of GNI per capita can end up with different human development outcomes. For example, Kuwait, one of the richest countries in the world, has much higher GNI per capita than Cuba but life expectancy at birth is about 5 years shorter and mean years of education is lower, resulting in Cuba having higher HDI value than Kuwait. These stark contrasts can stimulate debate about government policy priorities. By 2013 HDI values published in the UN 2014 Human Development Report, Norway leads the ranking for 187 countries with a value of 0.944 followed by Australia (0.933), Switzerland (0,917), the Netherlands (0,915) and the United States (0,914). Slovakia with HDI 0,830 was in the 37th position, the Czech Republic with a value of 0,861 ended up in the 28th place followed by Greece (0,853). While the western industrial countries have established themselves in the lead, the emerging countries have improved most notably over the last two decades. China, India and Brazil in particular have made great progress. Countries at the other end of the scale are mainly from Asia and Africa. The lowest HDI value was found in Niger with 0.3337. The top 30 countries in the HDI ranking for 2013 are presented in Table 4.4.

Table 4.4. Human Development Index, top 30 countries, 2013

HDI rank	Country	Human Development Index (HDI)	Life expectancy at birth	Mean years of schooling	Expected years of schooling	Gross national income (GNI) per capita
		Value 2013	(years) 2013	(years) 2012	(years) 2012	(PPP \$) 2011
1	Norway	0,944	81,5	12,6	17,6	63 909
2	Australia	0,933	82,5	12,8	19,9	41 524
3	Switzerland	0,917	82,6	12,2	15,7	53 762
4	Netherlands	0,915	81,0	11,9	17,9	42 397
5	United States	0,914	78,9	12,9	16,5	52 308
6	Germany	0,911	80,7	12,9	16,3	43 049
7	New Zealand	0,910	81,1	12,5	19,4	32 569
8	Canada	0,902	81,5	12,3	15,9	41 887
9	Singapore	0,901	82,3	10,2	15,4	72 371
10	Denmark	0,900	79,4	12,1	16,9	42 880
11	Ireland	0,899	80,7	11,6	18,6	33 414
12	Sweden	0,898	81,8	11,7	15,8	43 201
13	Iceland	0,895	82,1	10,4	18,7	35 116
14	United Kingdom	0,892	80,5	12,3	16,2	35 002
15	Hong Kong, China	0,891	83,4	10,0	15,6	52 383
15	Korea	0,891	81,5	11,8	17,0	30 345
17	Japan	0,890	83,6	11,5	15,3	36 747
18	Liechtenstein	0,889	79,9	10,3	15,1	87 085
19	Israel	0,888	81,8	12,5	15,7	29 966
20	France	0,884	81,8	11,1	16,0	36 629
21	Austria	0,881	81,1	10,8	15,6	42 930
21	Belgium	0,881	80,5	10,9	16,2	39 471
21	Luxembourg	0,881	80,5	11,3	13,9	58 695
24	Finland	0,879	80,5	10,3	17,0	37 366
25	Slovenia	0,874	79,6	11,9	16,8	26 809
26	Italy	0,872	82,4	10,1	16,3	32 669
27	Spain	0,869	82,1	9,6	17,1	30 561
28	Czech Republic	0,861	77,7	12,3	16,4	24 535
29	Greece	0,853	80,8	10,2	16,5	24 658
30	Brunei Darussalam	0,852	78,5	8,7	14,5	70 883

Source: Human Development Report 2014

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5 HEALTH POLICY

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Health policy can be defined as the “decisions, plans, and actions that are undertaken to achieve specific health goals in a specified society.” According to the World Health Organization, a comprehensive health policy should define a vision for the future; outline the roles and priorities of different groups, build consensus and partnerships with all relevant stakeholders and inform people – the recipients of the defined goals. **The prime aim of health policies** worldwide has been **the maintenance and improvement of the health status of populations.** This implies an understanding of human health and disease in order to determine the major biological, social, environmental, and lifestyle factors influencing health status and the burden of disease. The risk factors which influence health differ between countries, thus policies for health will be influenced by different factors in each country and region. Although it may appear that the problems assessed in this chapter mainly are relevant to developed countries, it is important to emphasize that the issues are the same in all countries at all stages of development. Public health problems in the developing world may appear different and greater, but the principles and methods for solution are the same.

Apart from national health policies the regional and local policies are equally important as they tackle the specific problems of the area.

Health-related policy and its implementation is complex. Conceptual models can help show the flow from health-related policy development to health-related policy and program implementation and to health systems and health outcomes. Policy should be understood as more than a national law or health policy that supports a program or intervention. Operational policies are the rules, regulations, guidelines, and administrative norms that governments use to translate national laws and policies into programs and services. **The policy process encompasses decisions made at a national or decentralized level (including funding decisions) that affect whether and how services are delivered.** Thus, attention must be paid to policies at multiple levels of the health system and over time to ensure sustainable scale-up. A supportive policy environment will facilitate the scale-up of health interventions.

There are many topics in the politics and evidence that can influence the decision of a government, private sector business or other group to adopt a specific policy. Evidence-based policy relies on the use of science and rigorous studies such as randomized controlled trials to identify programs and practices capable of improving policy relevant outcomes. Most political debates surround personal health care policies, especially those that seek to reform health care delivery, and can typically be categorized as either philosophical or economic. Philosophical debates center around questions about individual rights, ethics and government authority, while economic topics include how to maximize the efficiency of health care delivery and minimize costs.

The modern concept of health care involves access to medical professionals from various fields and to medical technology, such as medications and surgical equipment. It also involves access to the latest information and evidence from research, including medical research and health services research.

In many countries it is left to the individual to gain access to health care goods and services by paying for them directly as out-of-pocket expenses, and to private sector players in the medical and pharmaceutical industries to develop research. Planning and production of health human resources is distributed among labour market participants.

Other countries have an explicit policy to ensure and support access for all of their citizens, to fund health research, and to plan for adequate numbers, distribution and quality of health workers to meet health care goals. Many governments around the world have established universal health coverage, which takes the burden of health care expenses off of private businesses or individuals through pooling of financial risks. There are a variety of arguments for and against universal health care and related health policies. Health care is an important part of health systems and therefore it often accounts for one of the largest areas of spending for both governments and individuals all over the world. There remains considerable controversy regarding policies on who would be paying the costs of medical care for all people and under what circumstances. For example, government spending on health care is sometimes used as a global indicator of a government's commitment to the health of its people. Many types of health policies focus on the financing of health care services and spreading the economic risks of ill health. Some countries and jurisdictions have an explicit policy or strategy to plan for adequate numbers, distribution and quality of health workers to meet health care goals, such as to address physician and nursing shortages. Elsewhere, health workforce planning is distributed among labour market participants as a *laissez-faire* approach to health policy.

5.1 Health in foreign policy

Many governments and agencies include a health dimension in their foreign policy in order to achieve global health goals. Promoting health in lower income countries has been seen as instrumental to achieve other goals on the global agenda, including:

- Promoting global security – linked to fears of global pandemics, the intentional spread of pathogens, and a potential increase in humanitarian conflicts, natural disasters, and emergencies;
- Promoting economic development – including addressing the economic effect of poor health on development, of pandemic outbreaks on the global marketplace, and also the gain from the growing global market in health goods and services;
- Promoting social justice – reinforcing health as a social value and human right, including supporting the United Nations Millennium Development Goals.

Global health policy encompasses the **global governance structures that create the policies underlying public health throughout the world**. In addressing global health, global health policy “implies consideration of the health needs of the people of the whole planet above the concerns of particular nations.” Distinguished from both international health policy (agreements among sovereign states) and comparative health policy (analysis of health policy across states), global health policy institutions consist of the actors and norms that frame the global health response.

5.2 Health policy and public health

The role of public health is in the determination of priorities among these possibilities for improving health. Theoretically, the role of public health is clear in almost all the systems described here. It has the necessary tools to describe the problems and to devise appropriate mechanisms for their solution. In all the systems, however, the ability for public health to influence health policy is limited. Few of the countries described have effective mechanisms to influence individual health behaviours (for example the smoking of cigarettes) or to consider investment in non-health activities (for example education or employment) which are known to have more profound effects on health status than the use of medical care services. Nonetheless, the framework and structures currently being devised, coupled with concerns about the environment and demography, as well as increasing fiscal constraints in all systems, are forcing all countries to begin to confront these issues. Previously, decisions on expenditure and treatment were largely controlled by those who were providing services. The treatment or service delivered to an individual or community was rarely questioned. With improvements in educational attainments and rising costs of medical procedures, all societies have begun to question health expenditure. Thus decisions on priorities have become more explicit and democratic. Most countries have begun to debate how and what should be done; for example, should preventive services be provided to all the population or should heart transplants be available on demand (dependent on a sufficient supply). As a result, most countries have also begun to spend resources more effectively and to examine ethical issues involved in the setting of priorities and supply of services. Governments may be more concerned to protect their reputations in the eyes of the press (and other powerful institutions) than to implement measures with high public support and dramatically favourable cost-benefit ratios (for example, fluoridation as an administrative measure to protect health). Enhanced coverage with preventive measures applied to individuals appeals to doctors but may, in many circumstances, offer only modest gains in health (for example, the control of hypertension, illustrating the “prevention paradox”). Formal programmes to promote change to healthier ways of life may have small (but still worthwhile) effects compared with the informal processes promoting such changes but both formal and informal processes depend critically on new knowledge. **Investment in new knowledge is therefore the most fundamental component of public health policy** (for example, changes from sexual behaviours associated with HIV transmission, changes from infant care practices associated with sudden infant death, changes from high-risk driving practices, and cessation of cigarette smoking). Combinations of regulatory measures (including taxation) and persuasion are likely to be more effective in changing behaviour than the latter alone, but these are only likely to be politically feasible where there is widespread public appreciation that stronger measures are needed if valued health gains are to be secured (for example, traffic injury reduction and smoking reduction). The mostly world-wide accepted definition of public health is that **“Public health is defined as the art and science of preventing disease, prolonging life and promoting health through the organized efforts of society”**. The overall vision is to promote greater health and well-being in a sustainable way, while strengthening integrated public health services and reducing inequalities. In order to achieve this vision, the public health approach involves working with other sectors to address the wider determinants of health, and with health professionals: primary health care professionals can play a key role in preventing illness and promoting health. Across the WHO European Region, the main challenges facing public health in the twenty-first century include: economic crisis;

widening inequalities; ageing population; increasing levels of chronic disease; migration and urbanization; and environmental damage and climate change. The focus of public health intervention is to improve health and quality of life through the prevention and treatment of disease and other physical and mental health conditions, through surveillance of cases and health indicators, and through the promotion of healthy behaviours. Promotion of hand washing and breastfeeding, delivery of vaccinations, and distribution of condoms to control the spread of sexually transmitted diseases are examples of common public health measures.

Public health is concerned with threats to health based on population health analysis. The population in question can be as small as a handful of people, or as large as all the inhabitants of several continents (for instance, in the case of a pandemic). The dimensions of health can encompass “a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity”, as defined by WHO.

Public health incorporates the interdisciplinary approaches of epidemiology, biostatistics and health services. Environmental health, community health, behavioural health, health economics, public policy, insurance medicine and occupational safety and health are other important subfields. **Modern public health practice requires multidisciplinary teams of public health workers and professionals** including physicians specializing in public health, community medicine, infectious disease, psychologists, epidemiologists, biostatisticians, public health nurses, microbiologists, environmental health officers, public health inspectors, pharmacists, dental hygienists, dietitians and nutritionists, veterinarians, public health engineers, public health lawyers, sociologists, community development workers, communications experts, bioethicists, and others.

Many diseases are preventable through simple, non-medical methods. For example, research has shown that the simple act of hand washing with soap can prevent many contagious diseases. In other cases, treating a disease or controlling a pathogen can be vital to preventing its spread to others, such as during an outbreak of infectious disease, or contamination of food or water supplies. Public health communications programs, vaccination programs, and distribution of condoms are examples of common public health measures. Measures such as these have contributed greatly to the health of populations and increases in life expectancy. **Public health plays an important role in disease prevention efforts in both the developing world and in developed countries, through local health systems and non-governmental organizations.**

As a result of these challenges, the WHO Regional Office for Europe has adopted the European Action Plan (EAP) for Strengthening Public Health Capacities and Services. According to WHO, there are **ten essential public health operations** (EPHO). These codify the services and responsibilities of public health agencies and institutions. Operations are centered on three main areas of service delivery: health protection, disease prevention and health promotion. They are informed by robust public health intelligence and enhanced by enablers. (Figure 5.1)

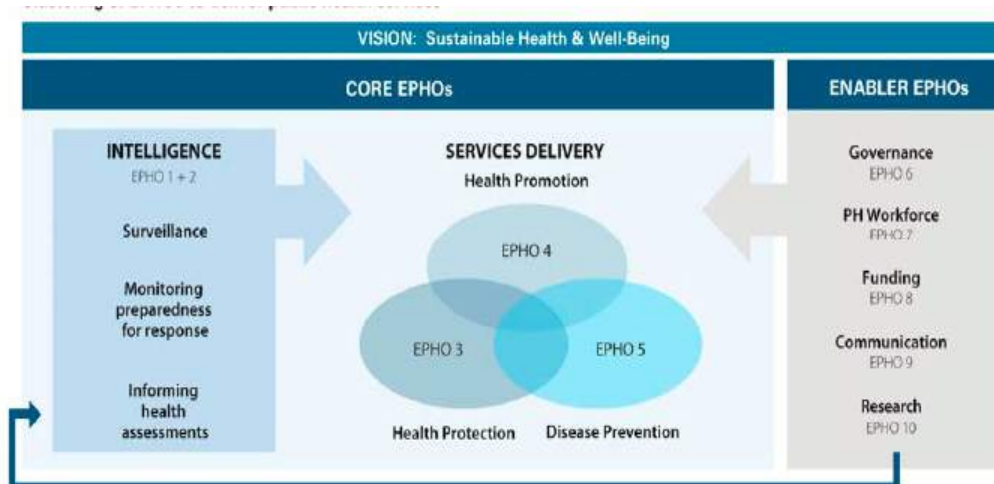


Figure 5.1. Ten essential public health operations
 Source: WHO, *European Action Plan for Strengthening Public Health Capacities and Services*, adopted at regional Committee 62, Malta, 2012

Health care

Health care may be conceived in an economic framework as an exchange of goods. There is a role in all health care systems for an overview of resource allocation, health policy, and population health outcomes: this is the task of health commissioning. Usually this takes the form of national health policies that are adopted by governments for 5-10 years and contain sets of concrete targets to be achieved within that period. They refer to medical services, i.e. personal health care, public health services, i.e. interventions aimed at promotion and protection of population health, health financing, health workforce, medicine policy. Recently adopted health policies deal to a large extent also with intersectoral responsibility for health, equity in health, social health determinants, patient safety and quality of health care, plus medical research as a driver of innovation and new technologies.

5.3 Governance for health

The term “governance” has a broad range of meanings. In the United States and Australia, governance refers to steering rather than *rowing*, even suggesting *steering* to be synonymous with *governance*. From a European perspective the term is more associated with “governing”. The definition proposed by the World Bank centres more narrowly on the issue of power and is universally applicable, defining governance as: “**exercise of political power to manage a nation’s affairs**”. Addressing the relationship between governance and the economy, governance is seen as expressing “the steering capacities of a political system, the ways in which governing is carried out, without making any assumption as to which institutions or agents do the steering”. **Shared governance** focuses on participation and decision-making involvement as not the sole responsibility of one (or even a few) top managers but, rather, a collective engagement of individuals working at all levels and in every part of the organization.

Example: Governance to reduce inequities in health through action on social determinants (see also Chapter 3, Social determinants of health) therefore has the overall

aim of strengthening the coherence of actions across sectors and stakeholders in a manner which increases resource flows to (a) redress current patterns and magnitude of health inequities; and (b) improve the distribution of determinants of the opportunity to be healthy, as well as of risk and consequences of disease and premature mortality, across the population. This implies governance arrangements that are capable of building and ensuring joint action and accountability of health and non-health sectors, public and private actors and of citizens, for a common interest in improving health on equal terms. As state health systems liberalize, there is an increase in private health care provision, often characterized by inadequately regulated profit-making providers. If in these contexts the capacity and mechanisms for regulation, guidance and enforcement are weak, providers are not driven to consider actual need, but rather the ability of the patient to pay. Common results include rising costs of basic health and medical care, and profit-driven criteria for access and availability of services. The impact is borne by the whole of society, but with more catastrophic effects on those that are resource poor, who delay seeking medical help, and pay proportionately more of their household income for treatment and care. Studies show how these health impacts are not only bad for those affected and for the performance of the health sector, but they also have direct and indirect knock-on effects on the achievements of poverty reduction strategies by lowering human development potential. The costs therefore also fall on development ministries, government and the community of international donors. In this way health equity impacts are the responsibility of all stakeholders in society. Governing for equity needs to be improved by developing new and/or strengthened instruments and mechanisms that engage the intended beneficiaries of policies in decision-making processes. Specifically, emphasis should be placed on ensuring that the differential needs of marginalized and at-risk groups are recognized, and that they are involved in resource allocations and in the design, monitoring and review of policies, services and interventions. In doing so, health equity governance could also contribute to promoting and supporting social inclusion and social justice in society(ies). Against this backdrop, governance for health equity has an important role to play in order to develop the necessary legislation and regulations to strengthen joint accountability for equity, across sectors and decision-makers and within and outside of government. This highlights the extent to which governance is important, not only in terms of preventing and mitigating the effects of actions which are likely to produce inequity in health, but also in terms of opportunity to position and sustain health and health equity as important assets which contribute to the attainment of other societal goals and values. This is because many of the determinants of health equity/inequity are also shared priorities for other sectors, government and society. This includes goals such as social inclusion/cohesion, poverty reduction, sustainable development and community resilience, that is, the ability of communities to successfully manage social, economic and environmental “shocks”.

A defining feature of the current era in western countries is the large number of actors and institutions involved in every publicly accountable policy process. In the past, “governing was basically regarded as one-way traffic from those governing to those governed”. As the **number of actors in the policy arena has multiplied**, however, the boundaries between the public and private sectors have become more blurred and central government command over a much more complex policy process has receded. The key tenet is that “political power” no longer exclusively rests with formal political structures. As one political scientist described the new environment, “The policy process is now crowded with more actors ... the government is hardly anymore the most powerful actor in the policy arena”. Instead of a top-down process of imposed political authority, the current policy process involves a large number of different actors. **Gov-**

ernance comprises both formal structures – statutes, judicial decrees, administrative guidelines – and the informal exercise of judgement by the numerous actors involved in implementation. Any subset of rules, laws or practices reflects only part of a broader governance framework. The tools and strategies used by stakeholders to achieve their policy objectives have also evolved and it is now commonplace to refer to governance as a range of old and new tools and instruments through which public policy goals may be achieved and/or delivered.

5.4 Establishing health policy in a global society

Leonard Levy, Anthony Silvagni, Cecilia Rokusek

Globalization has changed the way world health is seen and understood. It challenges boundaries between international and domestic health professional worlds. **Global health implies consideration of the health needs of the entire planet above the needs of particular nations.** Among the many categories that make up the spectrum of health policy which includes decisions, plans, and actions that are undertaken to achieve specific health care goals within a global society are (WHO):

- Personal health care policy
- Pharmaceutical policy
- Policies related to public health
- Medical research policy
- Health workforce policy
- Financing and delivery of health care services
- Access, quality, and health equity

Cock, et al. indicate that funding for global health has reached approximately 30 billion dollars yearly but that too often there is a lack of coordination across the complex architecture of global health. Today, in addition to WHO, prominent funders impacting global health policy include such organizations and agencies as:

- The World Bank
- The Bill and Melinda Gates Foundation
- New multilateral organizations such as the United Nations Joint Programme on HIV/AIDS
- The Global Alliance for Vaccines and Immunisations Global Fund to Fight AIDS

WHO is hampered by funding shortages, donor imposed earmarks, an inflexible bureaucratic and governance structure, and has difficulty prioritizing in the face of unrealistic demands. So many decisions are now made outside the World Health Assembly which is the world's senior and most representative forum for global health discussions. Thus, with a global emphasis on austerity, a need has been generated for the coordination of bilateral and multilateral assistance so that maximal effect is achieved, duplication is avoided, and results can be measured. Therefore, it follows that there must be agreement of what global health is and what agencies can best assume necessary roles that are needed. **Global health as well as the health of an individual nation requires a synergistic engagement by all nations** since we live in an interdependent world. This replaces a model in which donors and recipients characterized earlier international assistance. It also replaces a model where consideration of health policy is very parochial and a nation in isolation of other nations in the global community makes policy without consideration of how such policy may affect others in a global society. Today global health as well as the health in individual nations **is an interprofessional initiative.** It must include coordination by many parties rather than the direction of

one organization or one profession. This is not only a matter of administrative control but also because health care policy that is planned, developed, and implemented inter-professionally will result in a synergy that leads to better health care outcomes which would not be possible if individual health professions work alone.

Global health issues entail recognition that the importance of social, cultural, and financial components of nations in determining what health policy is most appropriate and will be most effective for its population. In addition, health policy must extend well beyond the classical public health model that had focused on infectious disease and maternal and child health. **The concern of global health encompasses the promotion of health equity between nations.** Because of the broad spectrum of global health it must include consideration of population health as well as an inter-professional perspective that combines both the medical and social sciences. Therefore, to properly address global health issues requires input from multiple professions such as medicine, public health and epidemiology, political science, social policy, economics, anthropology, law, and geography.

Global health reflects the realities of globalization, especially the increased movement of persons and goods, and the global dissemination of infectious and noninfectious public health risks. Global health is concerned with protecting the entire global community, not just one nation and its poorest segments, against threats to health and with delivering essential and cost-effective public health and clinical services to the world's population and the individual nations that are part of it. Therefore, a fundamental tenet is that **no country can ensure the health of its population in isolation from the rest of the world,** as articulated in the Global Health Strategy of the United States Department of Health and Human Services. This vision reflects today's health realities but was arrived at through milestones such as the 1993 World Development Report (Investing in Health), the 2000 report of the Commission on Macroeconomics and Health, and the tremendous investment in HIV/AIDS that began earlier this century.

Also a 2014 Hasting Center Report included a review of the not typically considered range of harms to population health traceable to counterterrorism operations. Indicating that the militarization of health care in which medicine is incorporated into warfare is an example that may contribute to fear and distrust among populations and their need of health services. Thus, counterterrorism-related harms also exacerbate global health inequities, the report remarks. It concludes that the **most pressing policy issue is how to integrate concern for health efforts to prevent terrorism.**

When looking globally, there are one billion people who lack access to health care systems. Almost two-thirds of the estimated 56 million deaths that occur each year world-wide are caused by noncommunicable diseases such as cardiovascular disease, cancer, diabetes, and chronic lung disease. Over 7.5 million children under age five die from malnutrition and diseases that are mostly preventable yearly. In 2008 the World Health Organization reported that 6.7 million people died of infectious disease. Each year 9.4 million new cases of tuberculosis is reported with 1.7 million dying of the disease. Pneumococcal pneumonia, prevented by a vaccination, still kills 1.6 million people annually. About 225 million people are acutely ill with malaria and 780,000 die annually. Available for more than 40 years is the measles vaccine costing less than one U.S. dollar but still 165,000 people die from the disease most of whom are less than five years old. Even when one looks at all of the wars and conflicts that take place around the world, they kill fewer people than all these diseases and others combined. Not only are some diseases due to poverty but they also contribute to poverty. For example, WHO reported in a 2010 study that while malaria often is a result of poverty, it also has been a major constraint to economic development due to loss of productivity or income associated with the illness or death.

The 2008 Commission on Social Determinants of Health, WHO, indicated that while talking about health issues, **the most common health problems are caused** not by health issues alone, but also **by the impact of social, political and economic conditions that drives people's lives** (see also Chapter 3 "Social Determinants of Health"). It suggested that policies be enacted that:

- Improve the conditions of daily life including the circumstances in which people are born, grow, live, work, and age.
- Tackle the inequitable distribution of power, money, and resources.
- Measure the problems, evaluate action, expand the knowledge base, develop a workforce that is trained in the social determinants of health, and raise public awareness about the social determinants of health.

Today because of the necessity of having health care provided by a team, all members of such an interprofessional workforce must also be trained in the social determinants of health so that they all are able to be participants in raising social awareness about the social determinants of health care policy.

The Assistant Director-General of Non-Communicable Diseases (NCD) and Mental Health for WHO indicated that even though there is much evidence, **some policy makers still fail to regard NCDs as a global or national priority**. Despite the fact that the majority of NCD-related deaths occur in low- and middle income countries, the perception is that they afflict mainly the wealthy. The impact of health-damaging policies are not always understood, often underestimated by policy makers, particularly in non-health sectors and who are not fully appreciative of the influence of public policies related to tobacco, nutrition, physical inactivity as well as the harmful use of alcohol. Policies are essential to prevent exposure to such risk factors, to address social determinants of disease, and strengthen health systems so as to provide appropriate and timely care for those who have established disease.

Negative effects of globalization result in the rapidly growing burden of NCDs, rapid but unplanned urbanization, and increasingly sedentary lives. Many governments have not kept pace with the needs for policies, legislation, services, and infrastructure that could help protect their citizens from NCDs.

Among the major reasons for unnecessary deaths throughout the globe are human decisions, politics, and ultimately public policies, not just because of natural outcomes. An example includes the way cities are designed including consideration of the density of the population, how land is used, to what degree streets are connected and the ability to walk from place to place, as well as providing access to local public facilities and spaces for recreation. These factors as well as the increasing reliance on cars, may promote physical inactivity in high and middle income countries. Pollution is among the environmental factors which also interact with physical activity. For example, this may lead to increased use of cars contributing to even more air pollution, greenhouse gases, and less physical activity.

Urbanization also results in more violence and crime as well as precipitating depression and social exclusion which can become more pronounced. About 14% of the global burden of disease has been attributed to neuropsychiatric disorders, especially due to depression and other common mental disorders, alcohol and substance abuse disorders, and psychoses.

Liverani, Hawkins, and Parkhurst indicate that there is increasing recognition that the development of **evidence-informed health policy** is not only a technical problem of knowledge exchange or translation, but also a political challenge which is essential in order to understand policy decisions as it affects health. In order to implement changes in health policy there is a need for explicit engagement with the political and institutional factors affecting health evidence in decision-making. This

requires studies and approaches that employ political theory that goes beyond current public health or knowledge utilization studies.

According to Silberschmidt, head of the Division of International Affairs, Federal Office of Public Health in Switzerland, previous efforts for collaboration have been hampered by different perspectives on what particular issues fall within the sphere of global health and by different approaches to linking health, international relations, and development.

While the European Union (EU) is the most dominant political force in Europe, the European Commission (EC) is the guardian of European treaties and acts as the executive branch with its own strategic and operative action. The EC has a health strategy that includes global health, led by a directorate. **An EU whitepaper “Together for Health: A Strategic Approach for the EU 2008-2013” defined four fundamental principles for EC action on health:**

- A strategy based on shared health values;
- “Health is the greatest wealth”;
- Health in all policies, and
- Strengthening the EU’s voice in global health.

The EU’s contribution to global health requires interaction of policy areas such as health, development cooperation, external action, research, and trade. Strengthened coordination of health issues with international organizations such as WHO and other relevant United Nations agencies, World bank, International Labour Organization, Council of Europe, and other strategic partners and countries, will enhance the EU’s voice in global health and increase its visibility to match its economic and political weight.

The health care system of the future must focus on greater efficiency and quality through improved technology, organization, and management. There is growing demand for new leaders who identify policies that can solve the problems we face in health care, both now and in the future. Those involved in the development of health policy must provide ethical leadership, critical thought, and bring a broad understanding of the current health care system both nationally as well as globally.

Areas that must be considered in the conceptualization, planning, and development of health care policy include (see Table 5.1):

- Financing health care
- Clinical issues for health services management
- Quality improvement in health care
- Political issues that affect health care and health care planning
- Supply of health care and related professionals
- Health care marketing
- Health economics
- Health law
- Health services administration
- Delivery of health care services
- Access, quality, and health equity
- Pharmaceutical issues and policies

Too often political establishments such as legislators or health professionals (frequently only from medicine) meet individually to carve out a health care plan or policy. Because of the complexity of the process of delivering health care, while the product of such an approach appears to be well thought out the health care policy that is produced is flawed if not unworkable. Ideally, discussions that take place should include a much broader base of individuals, namely those from several health professions (interprofes-

sional), policy makers such as legislators, economists, legal advisors, and members of the public. This can begin with a series of sessions in which such a representative group meets followed by meetings of smaller subcommittees charged by the larger group to plan components of a health care policy. When the subcommittees complete their deliberations, the larger group can reconvene and interconnect the various components that lead to the development of a **health care policy** that is **cohesive, comprehensive, continuous, collaborative, compassionate, and coordinated** with minimal complexity (Sailing the “ seven seas” of health care).

Kevin M .De Cock, Director of the Centers for Disease Control and Prevention-Nairobi, Kenya, indicates that engagement of **global health is not simply a humanitarian concern but a priority for collective well-being, efficient use of resources, and safeguarding the future**. Furthermore, population growth, increased life expectancy, and decreased age-specific mortality rates in children and young adults, especially those for infectious disease, have yielded an altered global health landscape. The experience that has been acquired from the treatment of HIV/AIDS provides a potential template to manage hypertension and diabetes. Considering this in the development of health policy could enhance cost-effectiveness, facilitate supervision, monitoring, and evaluation as well as improve accountability.

The 2011 United Nations agenda omitted **injuries** even though its incidence is increasing as indicated by the fact that more than 5 million deaths each year worldwide are due to injuries and violence. This includes approximately 1.3 million due to road injuries. Also not included in the United Nations agenda was **mental and behavioural disorders** which are considered the largest contributor to years lived with disability. Addressing this also is imperative in health policy planning.

Generating health policy should be directed towards noncommunicable diseases associated with urbanization and changing lifestyles, such as smoking, physical inactivity, air pollution, unhealthy diet, and excessive alcohol. Needed to be addressed is hypertension, obesity, elevated cholesterol levels which are measurable indicators predicting adverse outcomes. Increasing evidence points to the necessity for health policies that include both mitigation and surveillance of the effects of climate and environmental change.

Developing health policy is a multifaceted project requiring the input from people from many professions as well as from those who are the recipients of the health care that ultimately is provided. Failure to acquire this input may lead to a health policy but one that is doomed to either fail or that makes minimal impact on the population to which it is directed. To assist those who are involved in health policy planning, a template is provided below (Table 5.1) that may make the task more manageable as well as efficiently designed to lead to the improvement of health care outcomes.

Table 5.1. Template for decisions, plans, and actions to achieve specific health care policies in a global society

Areas of Consideration (AOC)	Methods to Address AOC	Responsible and/or Involved Groups and Organizations
Financing health care	<ol style="list-style-type: none"> 1. Indicate method of financing care and paying for service (e.g., single-payer system, fee for service, government financed, etc.) 2. Indicate per cent of care funded by premiums paid by population and what per cent is funded by government. 	<ul style="list-style-type: none"> • Government agencies • Health care workers • Health economists • Patient advocates • Insurers
Clinical issues for health services management	<ol style="list-style-type: none"> 1. Indicate diagnoses that will be paid by health plan and which ones will not. 2. Indicate categories of health care covered and not covered (e.g. is cosmetic surgery covered, contraceptive services, any limits for mental health services, etc.?) 3. Describe the organization structure of the health care system 	<ul style="list-style-type: none"> • Government agencies • Health care workers • Health care administrators
Quality improvement in health care	<ol style="list-style-type: none"> 1. Describe how health policies will be accessible to population 2. Indicate how quality of care will be measured 3. Indicate how the care provided will be equitable 	<ul style="list-style-type: none"> • Health economists • Health care workers • Patient advocates • Biomedical statisticians
Supply of health care and related professionals	<ol style="list-style-type: none"> 1. Assess the health professional education system in the nation and its ability to generate a qualified health care work force 2. Determine ways in which health care professionals will interact in the delivery of health care 3. Identify sources of funds to educate and train health care workers including the educational process and the facilities required 	<ul style="list-style-type: none"> • Health care workers • Trainers of health care worker • Governmental agencies • Insurers
Health care marketing	<ol style="list-style-type: none"> 1. Work with the marketing and advertising communities to develop appropriate ways to inform the public of what services will be available and where the services are located 	<ul style="list-style-type: none"> • Health care marketers • Advertising agencies
Health economics	<ol style="list-style-type: none"> 1. Identify the impact of health care policies on the total national economy 2. Identify ways to provide health care that is not only at high quality but also cost-effective 	<ul style="list-style-type: none"> • Health economists • Health care providers • Patient advocates • Governmental agencies
Health law	<ol style="list-style-type: none"> 1. Work with lawyers who are familiar with health care policy on the legal implications of health care policies 	<ul style="list-style-type: none"> • Health care lawyers • Governmental agencies • Health care providers
Health services administration	<ol style="list-style-type: none"> 1. Describe the methods to be used to include health care policies into the health care system 2. Determine the organizational structure of the health care system 3. Identify how qualified health care administrators will be trained and the nature of the training that they will receive 	<ul style="list-style-type: none"> • Health care lawyers • Governmental agencies • Health care providers • Health care administrators

Areas of Consideration (AOC)	Methods to Address AOC	Responsible and/or Involved Groups and Organizations
Pharmaceutical issues and policies	<ol style="list-style-type: none"> 1. Indicate how research in the development of new drugs can be encouraged 2. Describe ways to reduce the economic impact of the costs of new drugs on patients and health care facilities 	<ul style="list-style-type: none"> • Pharmaceutical company representatives • Health care lawyers • Health care providers • Governmental agencies
Global health implications	<ol style="list-style-type: none"> 1. Determine the impact of national health care policies on other parts of the global community 2. Identify the potential for cooperative activities between nations that may enhance and improve the outcomes of health care policies (e.g., potential for synergism) 3. Identify problems that may result if the health policies of one nation differ significantly from those of other nations 	<ul style="list-style-type: none"> • Representatives from multiple governments • Health care providers • Health care administrators

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6 HEALTH SYSTEMS

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A health system is the sum total of all the organizations, institutions and resources that together finance and provide health care to a defined population and whose primary purpose is to improve health. Why is this an important public health issue?

Health systems are significant **direct determinants** of health:

- They can reduce mortality for major conditions;
- They can help eliminate and prevent infectious diseases;
- They can reduce morbidity.

Health systems also have **indirect effects** on health:

- Create a sense of security, safety, and well-being among those who have secure and convenient access to high-quality health services;
- Create a market for goods and services;
- Create employment;
- Have an important role in reducing health inequalities through health care and public health initiatives that improve health but also through their organizational features, which affect the patterns of service use across social groups.

The aim of health systems is to improve health by: delivering effective and high-quality services in a manner that is equitable and responds to patients' needs.

According to WHO, a health system fulfills **these main functions**:

- Improves the health status of individuals, families and communities;
- Defends the population against what threatens its health;
- Protects people against the financial consequences of ill health;
- Provides equitable access to people-centered care;
- Makes it possible for people to participate in decisions affecting their health and the health system.

The poor state of health systems in many parts of the developing world is one of the greatest barriers to increasing access to essential health care. However, problems with health systems are not confined to poor countries. Some rich countries have large populations without access to care because of inequitable arrangements for social protection. Others are struggling with escalating costs because of inefficient use of resources.

There are several types of health systems. To understand the principles of their classification, the basic concepts and functions of health financing need to be explained first. It is also important for all health professionals to know and apply the concepts of health financing in relation to health planning, management and health care delivery.

6.1 Health financing

Health financing in general refers to raising of resources to pay for goods and services related to health. These resources may be in the form of “cash” or “in kind”. Financing of health care is viewed within the framework of scarcity of resources, their sustainability and their efficiency. All societies have limited resources and must, according to politically determined priorities, provide funds for health care in competition with funds for education, defence, agriculture and others. The availability of limited funds requires making choices. These choices reflect the overall political commitment to health and should, as far as possible, be based on an objective assessment of costs and benefits of available options.

There are several macro and micro aspects of health financing we are going to discuss.

6.1.1 Fiscal and health expenditure context

How much countries spend on health and the rate at which it grows reflects a wide array of market and social factors, as well as countries’ diverse financing and organisational structures of their health systems. The capacity of countries to attain the objectives of health financing policy is affected by factors emanating from outside the health system. In order to set realistic objectives, these factors must be understood. The main contextual factor is the fiscal context.

The fiscal context refers to a government’s current and expected future capacity to spend. A good measure of the current fiscal **context is the ratio of public expenditure (including health expenditure) to GDP** (Gross Domestic Product = final consumption + gross capital formation + net exports). Many factors affect fiscal capacity, including demography (size of the working-age population relative to the entire population) and the effectiveness of the tax system itself (for example, ability to enforce compliance, collections and so on). Public policy choices in terms of the mix of taxes and level of tax rates are also important. These factors indicate why it is essential to understand the fiscal situation and not just the level of income when analysing the context surrounding health financing policy in a specific country.

Governments must be mindful of their budgetary limits; they cannot simply spend to meet all the needs of their societies. This applies to health financing systems as well. The amount that a government spends on health depends in part on its overall fiscal context and in part on decisions that it makes with regard to priorities.

Health expenditure involves money spent from all sources for the entire health sector, regardless of who operates or provides the services. Allocation of resources requires a skillful planning process to balance spending on different sub-sectors of the system and to assure equity between regions and various socioeconomic groups in society.

Total expenditure on health measures the final consumption of health goods and services plus capital investment in health care infrastructure. This includes spending by both public and private sources on medical services and goods, public health and prevention programmes and administration. To compare spending levels between countries we use:

- **Per capita health expenditures in US dollars** (adjusted to take account of the different purchasing power of the national currencies, in order to compare spending levels)
- **Health expenditure as a share (percentage) of GDP**

A comparison of total health expenditures per capita in OECD countries is seen in Figure 6.1. In 2011, the United States continued to outspend all other OECD countries by a wide margin, with the equivalent of USD 8,508 for each person. This level of health spending is two-and-a-half times the average of all OECD countries and 50% higher than Norway and Switzerland, which were the next biggest spending countries. Compared with large European economies such as France and Germany, the United States spends around twice as much on health care per person. Around half of OECD countries fall within a per capita spending of between USD 3,000 and USD 4,500. Countries spending below USD 3,000 include most of the southern and central European members of the OECD, together with Korea and Chile.

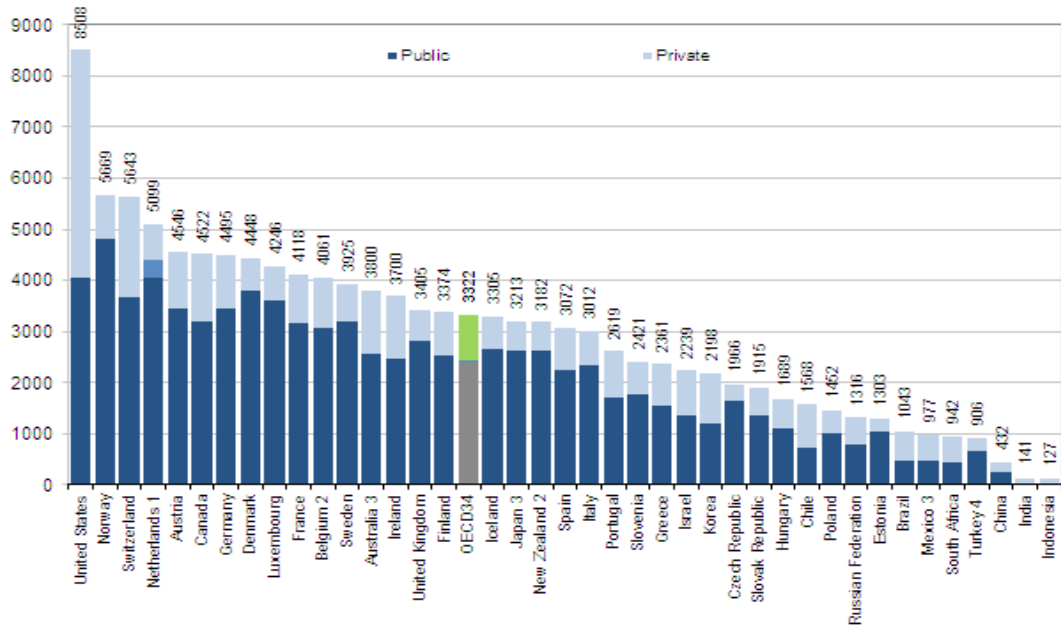


Figure 6.1. Health expenditure in USD per capita, 2011 (or nearest year)

Source: OECD Health Statistics 2013, <http://dx.doi.org/10.1787/health-data-en>; WHO Global Health Expenditure Database.

Changes in health spending to GDP ratio reflect the result of both fluctuations in the rate of health spending as well as growth in the economy as a whole. The economic crisis that began in 2008 ended a long period during which health spending had grown faster than GDP in many OECD countries. **Health spending accounted for 9.3% of GDP on average across OECD countries in 2011** (Figure 6.2.). In 2011, the United States spent 17.7% of GDP on health, remaining well above the OECD average and around six percentage points above the next group of countries, which include the Netherlands, France, Germany, Canada and Switzerland. Of the OECD countries, Mexico, Turkey and Estonia devoted only around 6% of GDP to health – around two-thirds of the OECD average. Outside of the OECD, China and India spent 5.2% and 3.9% of GDP respectively in 2011, while Brazil devoted 8.9% of GDP to health – close to the OECD average.

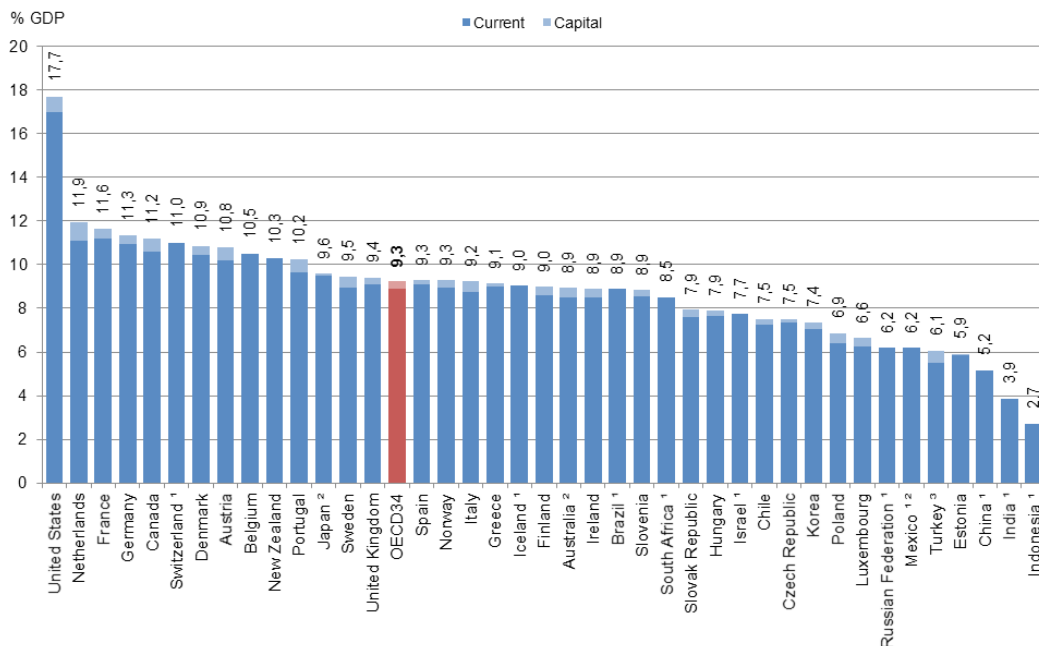


Figure 6.2. Health expenditure as a share of GDP, 2011 (or nearest year)

Source: OECD Health Statistics 2013, <http://dx.doi.org/10.1787/health-data-en> ; WHO Global Health Expenditure Database.

The total per capita expenditure on health, whether as per cent of GDP or as dollars per capita, does not reflect the efficiency with which the resources are used. Many countries not only have low overall levels of health expenditures but also allocate those resources inefficiently. Regardless of how efficiently money is allocated, countries spending less than 4 per cent of GDP on health will have poorly developed health care. Those spending between 4 and 5 per cent of GDP may try to have universal coverage, but often achieve this through low staff salaries, inadequate equipment, and spreading limited resources too thinly. Developed countries that spend between 8 and 16 per cent of GDP on health care have made a value judgment. They have placed health care among the vital priorities in their societies.

6.1.2 Health financing functions

Health financing involves not only methods of raising money for health care, but it has also other functions. Health financing functions according to Kutzin are:

- Collection of funds for health care;
- Pooling funds across time and across the population;
- Purchasing and providing health services.

Figure 6.3 shows the health financing functions and the way how they interrelate.

It also encompasses policies relating to coverage, benefits and cost sharing (user charges). The way in which each of these functions and policies is carried out or applied can have significant bearing on policy goals. **Health financing policy goals in the EU** are:

- Universal coverage;
- Solidarity in financing;
- Equity of access;
- The provision of high quality health care.

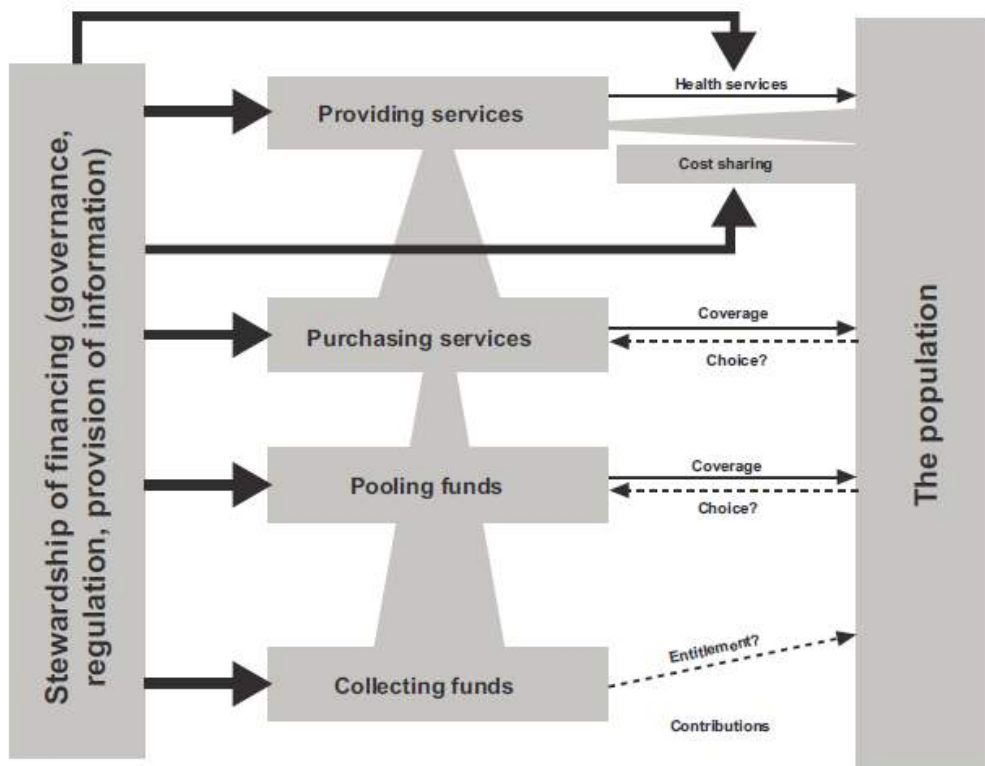


Figure 6.3. Health financing functions.

Source: Thomson, Foubister, Mossialos, 2009. Adapted from Kutzin 2001

Collecting funds for health care

The collection process involves three elements defined in Table 6.1:

1. Sources of financing;
2. The contribution mechanisms used to collect funds, and
3. The organizations responsible for collecting funds.

Table 6.1 The fund collection process: sources of finance, contribution mechanisms and collecting organizations

Sources of finance	Contribution mechanisms	Collection organizations
<ul style="list-style-type: none"> • Individuals, households and employees • Firms, corporate entities and employers • Foreign and domestic NGOs and charities • Foreign governments and multilateral agencies 	<p>Public</p> <ul style="list-style-type: none"> • Direct and indirect taxes • Compulsory insurance contributions (earmarked taxes) <p>Private</p> <ul style="list-style-type: none"> • Private health insurance • Medical savings account • Out-of-pocket payments (direct payments or cost) sharing/ user charges) 	<ul style="list-style-type: none"> • Central, regional or local government • Independent public body or social security agency (jointly, for all social benefits, or for health benefits alone) • Public insurance funds or private non-profit-making or profit-making insurance funds

Source: Thomson, Foubister, Mossialos, 2009 Adapted from Kutzin 2001; Mossialos & Dixon 2002.

Sources of financing: Individuals and corporations are the main source of funding for health care, although some funds may be channelled through non-governmental organizations (NGOs) and multilateral agencies, such as the World Bank.

Contribution and collecting mechanism

Public contribution mechanisms = compulsory tax and social insurance contributions

- **Taxes:** **Direct taxes** are levied on individuals and corporations (for example income tax, corporate tax, property tax). **Indirect taxes** are levied on the consumption of goods and services (for example value-added tax, VAT). Taxes may be collected by central, regional or local governments. In countries predominantly financed through **central taxes** (Ireland, Malta, Portugal and the United Kingdom), the agency responsible for tax collection passes revenue to the Ministry of Finance, which in turn allocates funds for health care to the Ministry of Health. The size of the budget for health therefore depends on political considerations and the negotiating ability of the Ministry of Health in relation to the Ministry of Finance. The major advantage of such a process is relative control over the amount of national income that is spent on health. In some countries, however, this has led to accusations of underfunding. Where **local taxes** are a major contribution mechanism (Denmark, Finland, Italy, Spain and Sweden), central governments allocate subsidies to local government or local health authorities to account for differences in revenue-raising capacity across regions.
- **Social insurance contributions** are almost always levied on earnings (wages, salary). Contributions may be paid by employees and employers and are usually set as a **fixed proportion of income** by the government or by individual health insurance funds. Contributions may cover non-contributors, such as unemployed people, retired people or non-working dependants. Conversely, the government or other body may make contributions on behalf of non-contributors. The majority of the EU countries finance health care mainly through social insurance contributions. Social insurance contributions are either **collected by a central government agency** (Belgium, Bulgaria, Estonia, France, Latvia, the Netherlands, Poland and Romania) **or by the health insurance funds** themselves (Austria, the Czech Republic, Germany, Greece, Lithuania, Slovakia and Slovenia).

Private contribution mechanisms are usually voluntary, set by individual insurers.

- **Private health insurance** plays different roles in different contexts and may be provided by commercial (profit making) companies as well as public and private non-profit making organizations, such as statutory health insurance funds and mutual or provident associations.
- **Medical savings accounts (MSAs)** involve compulsory or voluntary contributions by individuals to personalized savings accounts earmarked for health care. They are used in private health insurance markets in the United States (where they are known as health savings accounts) and South Africa. The only example of MSAs in an EU context is in Hungary.
- **Out-of-pocket-payments (OOP)** take three broad forms: direct payments for services not covered by the statutory benefits package; cost sharing (user charges) for services covered by the benefits package; and informal (under the table) payments. The EU countries that still rely most heavily on OOP payments are Bulgaria, Cyprus, Greece and Latvia.

Pooling funds

Pooling refers to the accumulation of prepaid funds on behalf of a population. Funds may be pooled by a wide range of public and private agencies.

Purchasing and providing health services

Purchasing refers to the transfer of pooled funds to providers on behalf of a population, allowing individuals to be “covered”. The way in which services are purchased is

central to ensuring efficiency in service organization and delivery and quality of care. The state or insurance fund responsible for providing services to patients has several choices about how to provide health care services:

- Reimburse the patient for costs incurred;
- Reimburse the providers for costs incurred;
- Contract with providers and set out agreed terms and conditions;
- Directly employ or own providers.

Where health care is financed mainly through **social insurance contributions**, health insurance funds are responsible for **purchasing health care from a range of public and/or private providers**. In these countries, the relationship between purchaser and provider has traditionally been contractual. In countries where health care is financed mainly through **tax**, the **purchasing function is usually devolved to territorial entities** (regional or local health authorities or specially created purchasing organizations).

Provider payment can be prospective or retrospective:

- **Prospective payment** operates in the form of a **budget** (fixed sum for a fixed period unrelated to activity) and may contribute to cost control. Examples hereof include: **salary**, **capitation** (a fixed fee per patient enrolled with a particular provider or per inhabitant of a specific area) and line-item or **global budgets**.
- **Retrospective payment** is made following the provision of health services and usually takes the form of **fee-for-service** (FFS – an amount per item of service) payment or its variant: **case-based payment** (fixed FFS payment), organized in groups often referred to as **DRGs (diagnosis-related groups** – payment associated with primary diagnosis on admission, often with case-mix adjustment for severity).

In EU health systems:

- **Primary care providers** are most commonly paid through a combination of capitation and FFS payments.
- **Specialists** are more likely to be paid on FFS – where health care is financed mainly through social insurance contributions and they are often salaried employees in predominantly tax-financed health systems.
- **Hospitals** are most commonly allocated budgets but case-based payment (DRGs) is increasingly used either to define budgets or as a retrospective form of payment.
- **Hospital physicians** are paid through salary.

Fee-for-service is historically the common method of paying for doctor's services. In some places, payment may be according to a fixed-fee schedule negotiated between the insurance mechanisms, whether public or private, and the doctors' representatives. Fee schedules are often weighted towards medical specialists who have greater prestige than primary care physicians. Fee-for-service tends to promote an overabundance of the more expensive kinds of care, including surgery, often without real need. This is especially so when the patient is fully covered by health insurance and is therefore better able to pay for the service than a person without insurance. Some insurance systems require participation of the user in the co-payment or user fees or charges. This is often promoted by the idea that it restrains the consumer from seeking unnecessary care, as well as helping cover costs, while opponents justly reply that user fees affect the poorer sector of any population disproportionately and discourage preventive care.

6.2 Typology of health systems

There is no single best approach to health financing; distinctions between “models” – types of health systems – are blurring as countries develop new mixes of revenue collection, pooling and purchasing arrangements according to their needs, their historical, fiscal and demographic context, and their social priorities and preferences. There is considerable variation within health systems as reflected by several classifications.

The **dimensions** which define the health system are:

1. Regulation (resource generation);
2. Financing;
3. Service provision.

Each dimension can be dominated by one of the following **three types of actors**:

1. The state;
2. Societal actors;
3. Private actors.

Combining systematically the three dimensions with the three types of actors gives 27 possible types of healthcare systems. Thus the sheer number of possible types is too high for the typology to be regarded as a useful tool.

The OECD classification from 1987 arrives at three types that have been used regularly for a long time and is useful for understanding the basic classification of health systems. This categorization is based on a single dimension. The extent of coverage and the mode of financing and delivery of health care distinguish:

1. The National Health Service (Beveridge model) – universal coverage, funding from general taxes and public ownership of healthcare delivery.
2. The social insurance model (Bismarckian model) – combines universal coverage with funding coming mainly from contributions and public or private delivery.
3. The private insurance model – is only based on private insurance, which is also the major funding source, delivery is characterized by private ownership.

This typology does not account for the fact that most health systems are mixed types. Now a typology shall be introduced that may serve as a first step in categorizing health systems, although other typologies also can be found in literature using more sophisticated comparisons across multiple dimensions. In practice, four types of health systems can be distinguished based on the three dimensions: financing, regulation, service provision, and roles of the three types of actors: state, societal and private:

6.2.1 The national health service (Beveridge model)

Aneurin Bevan, the British Minister of Health in 1948, is usually honoured as the founder of the National Health Service (NHS). However, it was the Beveridge Report which laid the foundations for the NHS. Other countries introduced similar models later in the 20th century. The Soviet Union and eastern bloc countries had a centrally-planned and state-funded system of health care called the **Semashko model** named after the Minister for Health of the Russian Republic. In both the original U.K. Beveridge and the Soviet Semashko models, **health care is provided and financed by the government through tax payments**. These systems, which merge the insurance and provision functions, are organized and operated like any government department. Staff is generally paid on salary (although, in some cases, doctors can have private patients as well) and they are most often public-sector employees. Ambulatory doctors and other health care professionals can be either public employees or private contractors to the health care authority, with a range of remuneration packages.

Ensuring complete population coverage is particularly easy under such systems, and as they are under the control of the budget, the growth of overall costs has been contained more easily. However, they have weak incentives to increase output, improve efficiency, or maintain quality and responsiveness to patient needs. Countries using the Beveridge plan or variations on it include its cradle – the UK, further Portugal, Spain and the Nordic countries.

6.2.2 The social health insurance model (Bismarckian model)

Chancellor Otto von Bismarck introduced national health insurance to Germany in 1883. In the Bismarck model, **health care is financed through social health insurance**, paid at the place of employment, with a **single-payer system** (one central government agency collecting social contributions and paying for services) or **multi-payer system** (sick funds/health insurance funds paying for services on a contractual basis). Single-payer arrangements have a stronger position *vis à vis* providers and tend to have lower administrative costs than do multiple payer systems. In many countries, private hospitals and clinics are run on a non-profit basis. Independent private contractors generally supply ambulatory care. This system is generally considered to be more responsive to patient needs than the national health system, but less successful in containing healthcare costs, requiring additional regulation and control by the public authorities. The social insurance model can be found in most European countries. Of these, those with a single-payer system are: Belgium, Bulgaria, Estonia, France, Latvia, the Netherlands, Poland and Romania, and those with a multi-payer system (health insurance funds): Austria, the Czech Republic, Germany, Greece, Lithuania, Slovakia and Slovenia. This type of health system also exists in Japan and Korea.

6.2.3 The national health insurance model

This system has elements of both Beveridge and Bismarck. It uses private-sector providers, but payment comes from a government-run insurance program that every citizen pays into. Since there's no need for marketing, no financial motive to deny claims and no profit, these universal insurance programs tend to be cheaper and much simpler administratively than American-style for-profit insurance. The single payer tends to have considerable market power to negotiate lower prices. National Health Insurance plans also control costs by limiting the medical services they will pay for, or by making patients wait to be treated. The classic NHI system is found in Canada, Australia, Italy, Ireland, Taiwan and New Zealand.

6.2.4 Private health system

A private model uses private insurance combined with private (often for-profit) providers. Insurance can be mandatory (Switzerland) or voluntary (the United States), and in the case of the latter, affordable insurance may not be available to some individuals. Payment methods have traditionally been activity based, and the systems have featured a high degree of choice and responsiveness to patient needs, but cost control has been weak. 15 per cent of the US population has no health insurance. Private health systems are in use in Cyprus, USA, South Africa and in some latin American countries – Mexico, Chile.

A framework for typology of national health systems based on the methods of financing, regulation and provision of health care is presented in Table 6.2.

Table 6.2. Typology of health systems.

Type	Financing and regulation	Provision of health services
The national health service (Beveridge model) (e.g. United Kingdom, Norway, Sweden, Denmark, Finland, Spain, Portugal, Malta)	State financing and state regulation – through government taxes and revenues; U.K.and Portugal – national financing, Nordic countries and Italy combine national, regional, and local taxation	Public ownerships of providers – state employees, GPs – capitation
The social health insurance (Bismarckian model) (Central European countries; Greece, Japan, Korea, Israel)	Societal financing and state regulation – compulsory employer/employee tax payment to sick funds/insurance companies (multi-payer system) (single-payer system and Slovenia) government agency collecting untries with single-payer system or through Social Security (single-payer system)	Contracts with public and private providers or patient reimbursement
The national health insurance (e.g. Canada, Australia, Ireland, Italy, New Zealand)	State – taxation – provincial government administration; federal governmental regulation	Private providers - medical services paid by fee-for-service; hospitals on block budgets
Private health system (e.g. United States, Latin America, south African countries, Cyprus,)	Private financing – voluntary private insurance and public insurance State regulation – through Social Security for specific vulnerable populations groups (children, elderly, poor)	Mainly private providers

Sources: Adapted from Tulchinsky, Varavikova 2009; Docteur, Oxley, 2003 and Böhm et al., 2012

Across all OECD countries, health care is financed by a mix of public and private spending and the public sector is the main source of health care financing (Figure 6.4). In Denmark, the United Kingdom and Sweden, the central, regional or local governments finance more than 80% of all health spending. In the Czech Republic, the Netherlands, Luxembourg, Japan, France, Slovenia and Germany, social insurance finances 70% or more of all health expenditure, making it the dominant financing scheme. Only in Chile (45%), Mexico (47%) and the United States (49%) was the share of public spending on health below 50%. After public financing, the main source of funding tends to be out-of-pocket payments. On average it financed 20% of health spending across OECD countries in 2011.

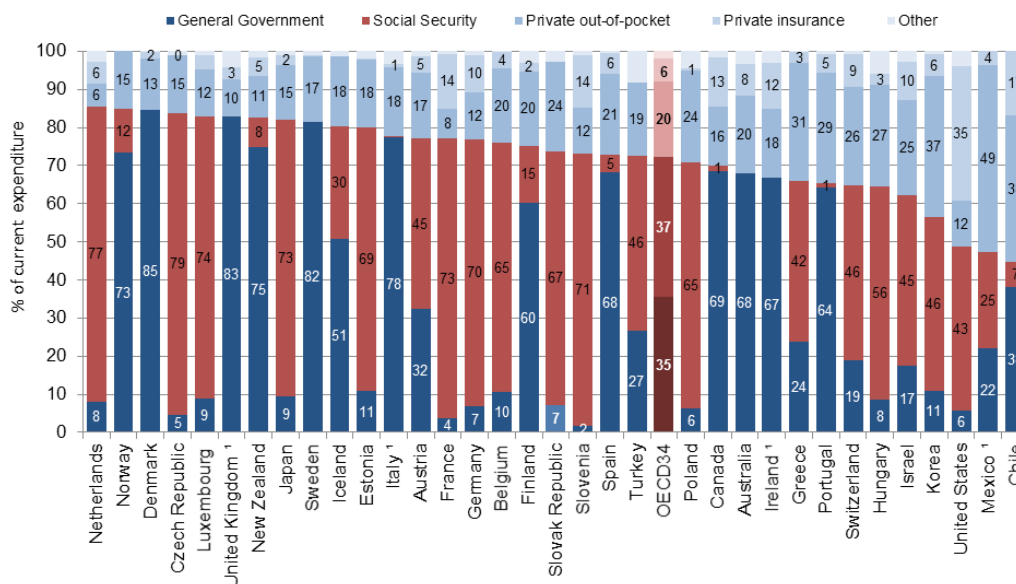


Figure 6.4, Expenditure on health by type of financing, OECD countries, 2011 (or nearest year)
 Source: OECD Health Statistics 2013, <http://dx.doi.org/10.1787/health-data-en>.

Well-functioning health systems are essential to improving health and need to demonstrate good performance. Improved health contributes to social well-being through its impact on economic development, competitiveness and productivity. Therefore high-performing health systems contribute to economic development and wealth and each country should ensure that its health system:

- Distributes the burden of funding fairly according to people’s ability to pay, so that individuals and families do not become impoverished as a consequence of ill health or use of health services; and
- Is responsive to people’s needs and preferences, treating them with dignity and respect when they come in contact with the system.

Therefore we argue that public finance is superior to private finance.

6.3 Health system in Slovakia

Historically the system of financing in Slovakia’s territory was constructed as a Bismarck type, based on social insurance covering accident and sickness insurances. In 1948 this system was transformed with the introduction of national health insurance that unified all types of insurance i.e. sickness, disability and pension. This insurance system was replaced by general taxation in 1966 when all health services became free of charge for all citizens and the state assumed responsibility for financing and managing health care provision. In the years that followed 5% of the state budget was allocated to the health sector although there was substantial lack of transparency in resource allocation. After Slovakia became independent in 1993, general taxation implemented through annual budgets was replaced by the mandatory health insurance system. **As of 2010, the Slovak health system provides universal coverage for a broad range of benefits, guarantees an annual free choice of one of three nationally operating health insurance companies, and is based on solidarity.**

Health expenditure

Total expenditure on health as a proportion of gross domestic product (GDP) increased between 2000 and 2010 from 5.5% to 9% and fell again to 7.9% in 2011. Average spending on health care in OECD countries was at 9.3% in 2011 (Figure 6.2). Slovakia spent 1,915 USD on health care per person in 2011 as the average for OECD countries was 3,322 USD (Figure 6.1). **Public spending on health** fell from 89.4% of total health expenditure in 2000 to 64.5% in 2010 and reached 70.9% in 2011 (Figure 6.5). This decline can be attributed to significant growth in **private health expenditure**, from 10.62% in 2000 to 35.52% in 2010. More than 70% of total private expenditure is made up by out-of-pocket payments (Figure 6.5). The Slovak Republic has seen the biggest increase in household share in health spending among OECD countries, with a rise of 15 percentage points between 2000 and 2010. This increase occurred prior to the economic crisis, and was due to a combination of increased co-payments for prescription drugs and higher spending on non-prescription drugs, greater use of private providers as well as informal payments to public providers.

Collecting funds

The main **sources** of revenue in the health system are contributions **collected by the health insurance companies**, which are formally profit-oriented joint stock companies that, in the period 2008–2011, were only allowed to use their profit for health care purchasing. The contributions are collected from: (1) employees and employers; (2) the self-employed; (3) the “voluntarily unemployed”; and (4) the “state-insured”. The “state-insured” is a term used for the group of mostly economically inactive people for whom the state pays contributions. Private voluntary health insurance plays a very marginal role in the Slovak health system. Co-payments apply for visits to emergency wards, outpatient prescription drugs, transport to hospital, spa treatment and dental care.

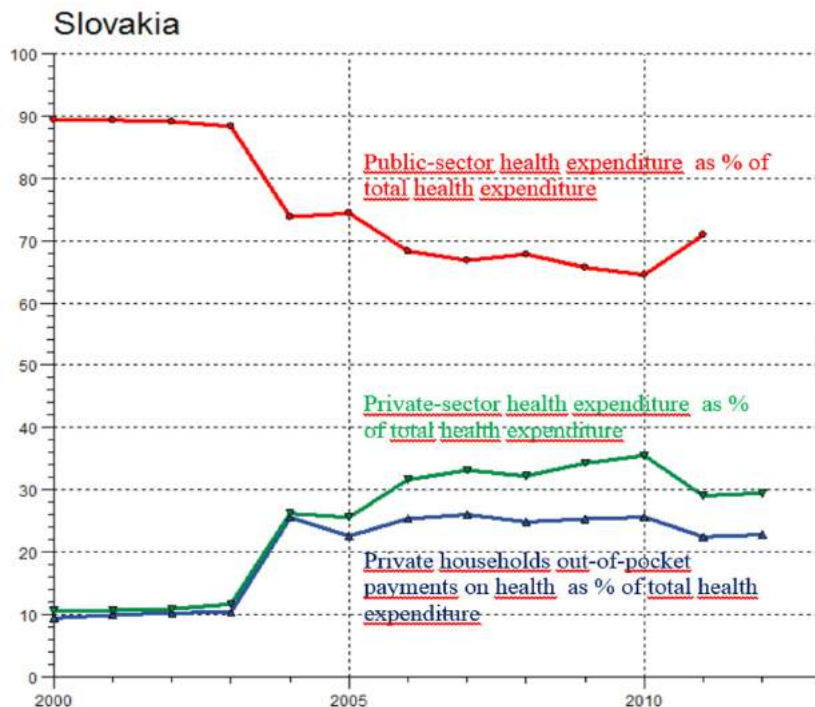


Figure 6.5. Structure of health expenditure, trends in Slovakia.

Source: WHO, HFA-DB, April, 2014

Purchasing and providing health care services

Providers can supply services as self-employed or as employees. In the former case they require a license and a permit, whereas an employee only has to apply for a license. Licenses are granted by the professional chamber concerned, a permit is issued by regional authorities or the Ministry of Health. Providers then have to **contract with the insurance funds**. In specialized and hospital care, the state defines a minimum number of providers within a particular region and health insurance companies are obligated to contract state-owned hospitals. The remuneration in outpatient **primary care is mostly based on capitation fees**, whereas **specialists** are remunerated by **fee-for-service payments**. The fee schedule is negotiated between service providers and the insurance company, but the ministry sets minimum and maximum prices. In **in-patient care** remuneration is set within a **case-based system and DRGs** are going to be introduced shortly. The rates of case payments are also negotiated between service providers and health insurers.

People have a free choice of general practitioner (GP) and specialist. General practitioners play a gate-keeping role, referring patients to specialist care. Inpatient care is provided in general and specialized hospitals. Inpatient care is dominated by state-owned facilities, but outpatient and pharmaceutical care is mainly supplied by private physicians and pharmacists.

Health system performance

The Slovak health system is a system in progress. Major health reforms in the period 2002-2006 introduced a new approach based on managed competition. Although large improvements have been made since the 1990s, according to OECD economic surveys in 2010 and 2012 the health system in Slovakia is less efficient than many other OECD countries in translating high expenditure growth into better health outcomes. Health spending should be made more effective by dealing with:

- Very high private expenditures as out-of-pocket (OOP), partly reflecting informal payments. Rising OOP spending has led to increased inequality as low-income households are most affected by such extra expenditures, but this is not reflected in better health outcomes.
- Low incentives for general practitioners and hospital professionals – salaries of physicians are well below the OECD average, leading many of them to work abroad.
- Very high expenditures on pharmaceuticals, with the growth in consumption also high, possibly reflecting low co-payments for drugs. Since 2011, prescription of generics has been mandatory for certain types of drugs.
- Limited competition in insurance and provider markets

Slovakia is using a multi-company model for health care insurance. However, the market is highly concentrated, with only three insurance funds providing primary health coverage, and the levers for competition on the market for the basic insurance package are much limited. The focus of policy in this case should be to increase competition between health insurers as well as health care providers and also ensure transparency through better public information on costs and quality. A first step in this direction has been the **collection of quality indicators for health care providers**. The aim is to increase transparency, thus allowing insurance funds to better choose providers and allowing patients – who enjoy free choice of provider – to choose doctors and hospitals. The list of quality indicators for health care providers should be further improved to reflect genuine differentiation in quality and should be published regularly in full detail.

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7 COORDINATION/INTERGRATION OF HEALTH SERVICES DELIVERY

Darina Sedláková

Health services are the most visible functions of any health system, both to users and the general public. Health services include all services dealing with the diagnosis and treatment of disease, or the promotion, maintenance and restoration of health. They include personal and non-personal health services. Service provision refers to the way inputs such as money, staff, equipment and drugs are combined to allow the delivery of health interventions. Improving access, coverage and quality of services depends on these key resources being available; on the ways services are organized and managed, and on incentives influencing providers and users. In this chapter we will discuss in more detail the benefits of integrated health services and Chapter 8 will focus on quality management in health care.

Coordination/integration of health services delivery (CIHSC) is defined as the management and delivery of health services such that people receive a continuum of health promotion, health protection and disease prevention services, as well as diagnosis, treatment, long-term care, rehabilitation, and palliative care services through the different levels and sites of care within the health system and according to their needs. The uniqueness of this definition is that it includes public health as a vital part of the health system, and puts people, not necessarily patients, into the centre of attention. In operationalising this definition, intersectoral actions towards including social services, educational sector and legal frameworks are needed throughout the integration process. Viewed along a continuum – rather than as two extremes of integrated or not integrated - the CIHSD itself can then be described as **a process or tool, serving as a means to secure gains in quality, efficiency and continuity of care and ultimately, to achieve improvements in health status and equity outcomes.**

Integrated care has moved from the small niche it traditionally occupied in academia, accessible only to experts in the field and applied merely on a project specific or pilot effort basis, now to the radar of politicians and health system planners worldwide. More than a buzzword for the 21st century, coordinated/integrated health services delivery is a necessity. From changing demographics and increasing chronicity to the persisting threat of communicable diseases, coupled with modern technologies, rising patient expectations and a perpetual context of fiscal constraints, new and innovative approaches to the delivery of health care that ensure high-quality services which are efficient in their provision and delivered according to an individual's needs, must be given top priority. Strengthening the coordination/integration of care is ultimately best viewed as a means, rather than an end in itself, for improved health outcomes.

According to the above definition and in its simplest form, efforts towards the CIHSD must consider the services provided and the settings of care, and further the alignment of the two according to the unique health needs of a given individual (Figure 7.1). As shown, in order to ensure genuinely people-centered services, priority must be given to provide the “right services” in the “right place” (settings) through strategic processes that allow the complementary and coordinated delivery of services from an individual’s viewpoint and their respective needs and preferences.



Figure 7.1 Coordinated/Integrated health services delivery
 Source: WHO, ROADMAP. Strengthening people-centred health systems in the WHO European Region. A Framework for Action towards CIHS, 2013

CIHSD as depicted above is an effect of the harmonious alignment of services and settings of care through the strategic use of processes that work to manoeuvre the system towards more integrated services. The extent to which services along the full continuum of care are experienced in a coordinated/integrated manner can be depicted from the perspective of an individual him/herself. This perspective is described by the concept of continuity of care defined as “the degree to which a series of discrete health care events are experienced by people as coherent and interconnected over time, and consistent with their health needs and preferences”.

Focused on providing the ‘right care’ in the ‘right place’, CIHSD aligns with systems in which care is focused and organized around the health needs and expectations of people and communities, rather than on diseases. People-centered care is broader than the closely-related concept of patient-centered care. Whereas patient-centered care focuses on the individual seeking services – the patient – people-centered care encompasses these encounters with the health system while also including attention to the health of people in their communities and the crucial role of citizens in shaping health policy.

Table 7.1 shows the distinction between conventional (patient-centered) care and disease-specific programmes, and the broad, all-encompassing scope of people-centered health services delivery.

Table 7.1. Distinguishing features of people-centered care

Convention care	Disease-specific programmes	People-centered care
Focus on illness and cure	Focus on priority disease	Focus on health needs
Relationship limited to the moment of consultation	Relationship limited to programme implementation	Enduring personal relationship
Episodic curative care	Programme-defined disease control interventions	Comprehensive, continuous and person-centered care
Responsibility limited to effective and safe advice to the patient at the moment of consultation	Responsibility for disease-control targets among the target population	Responsibility for the health of all in the community along the life cycle; responsibility for tackling determinants of ill health and maintaining health
Users are consumers of the care they purchase	Population groups are targets of disease-control interventions	People are partners in managing their own health and that of their community. Their preferences and motivations are integrated into care planning.

Source: *The World Health Report 2008: Primary Health Care Now More Than Ever*. Geneva: World Health Organization

7.1 Aims and benefits of CIHSD

The coordination/integration of health services delivery aims to remove gaps in care or poor coordination in care that adversely affect care experiences and ultimately, health outcome. The overarching **aim of CIHSD is to overcome the challenges of fragmentation by creating linkages between services along the full continuum of care and to do so according to the individual's needs**. Importantly, this does not mean that everything has to be integrated into one package. Rather, the aim is to ensure that services are not disjointed from the perception of the service user and that each individual can easily navigate through the system's various levels and settings of care.

The potential benefits of more comprehensive CIHSD can be viewed from the perspective of a number of health system stakeholders. For the public or patients, more coordinated and integrated services aim to provide a means to reverse or prevent the adverse outcomes of fragmented care, including overuse of drugs, adverse hospitalizations and medical errors, and to reduce redundant work, tests and procedures. The CIHSD has additionally been said to reinforce aspects such as coordinated transfer and use of information by providers; empowerment of citizens; improved access to appropriate services; individualized care; consistency in personnel, and a fluid patient-provider relationship. For providers and the system as a whole, coordination and integration of services can help reduce the length of hospital stays, and the numbers of unnecessary hospital admissions and admissions to long-term care.

7.2 CIHSD in practice

A continuously growing literature base has allowed a cataloguing of a range of examples of how CIHSD might be adopted in practice. Some of these initiatives falling under the integration of health services umbrella are outlined below (Figure

7.2) aligned with the following orientations common to their approach: system (re-) design in the delivery of services; support and shared information among professionals; improved information integration through the use of modern technologies (e.g. clinical registries and patient records), and self-management or integrated patient care towards individual empowerment and satisfaction of their personal health needs.

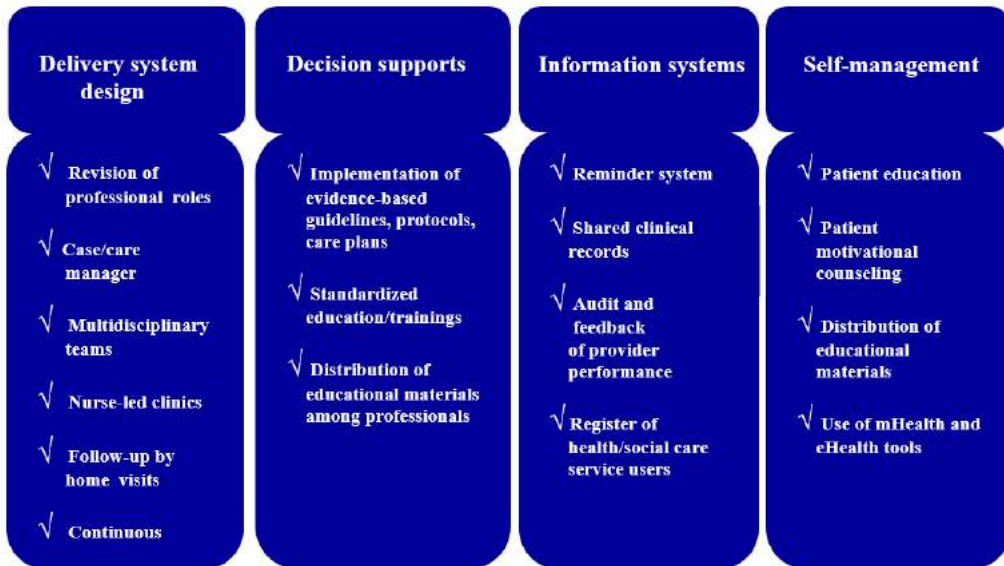


Figure 7.2. Examples of initiatives towards the CIHSD
Sources: Powell Davies et al. 2008; RAND 2012; Nolte and McKee 2008

7.3 Improving health outcomes through the CIHSD

The transformation of services towards more coordinated/integrated care is best seen as a means to health system strengthening, rather than as an end in itself. The effects of these transformations are captured below (Figure 7.3.), depicting the following cascade of relations:

1. Using strategic and targeted initiatives towards the CIHSD as entry points to rethinking the delivery of services – implemented as individual efforts or in combinations with one another. These processes share as their common aim to ensure that services are perceived as connected and coherent by the individual/service user.
2. The context to which these processes must conform is defined by the structure of the health system and must span the full range of services as shown below, while also considering the interfaces between these and the varied settings of care – from public health services, primary, secondary and specialist care, to the broader setting of community, social and home care services and the cross-cutting role of pharmacies.
3. In removing health system bottlenecks and barriers through the processes applied across core services and settings of care, it may then be possible to secure improvements in the quality, continuity and efficiency of health services delivery (intermediate outcomes) and ultimately in population health level and equity (final outcomes).

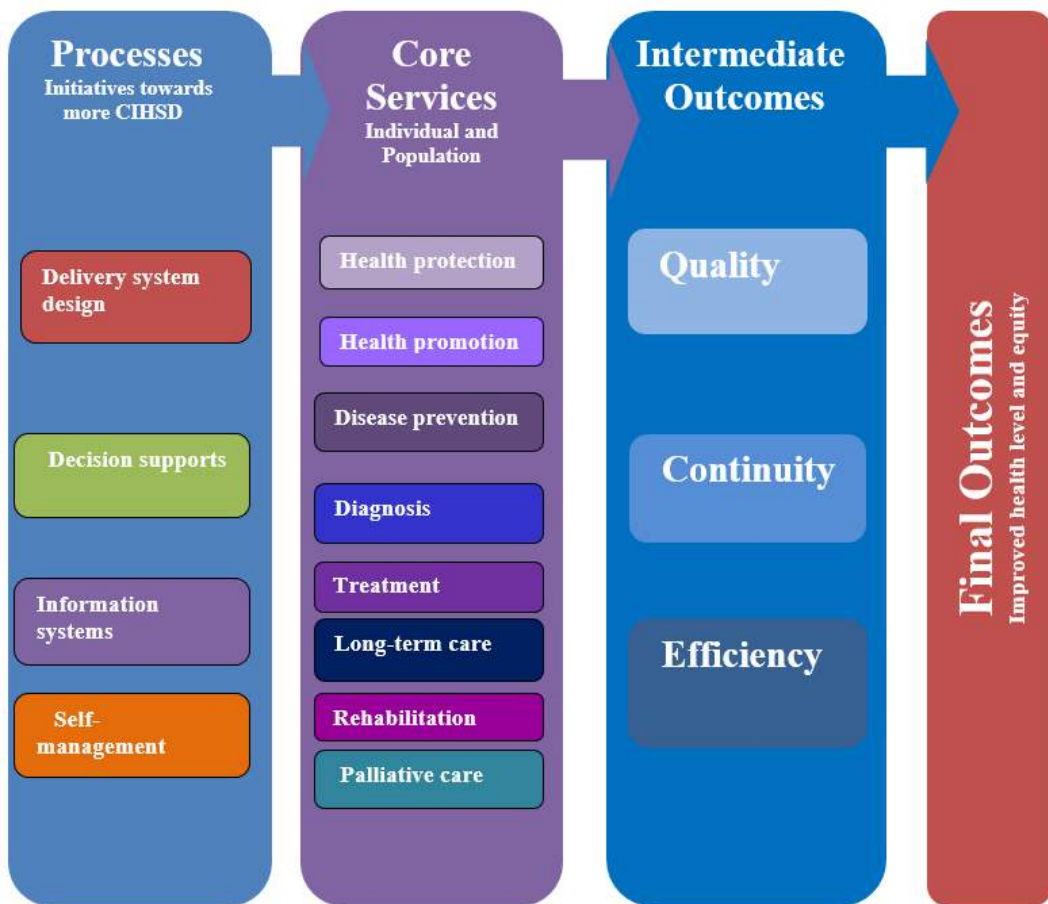


Figure 7.3 Improving health outcomes through the CIHSD
 Source: WHO. *Towards People-centred Health Systems: An Innovative Approach for Better Health Outcomes.* Copenhagen: WHO Regional Office for Europe, 2013. Adapted.

We note of particular importance and unique to this approach to health system strengthening through the transformation of services for more comprehensive CIHSD is the ability to ensure that services are delivered in accordance with the individual's needs and preferences. Improved continuity of care as an intermediate outcome is exclusive to this approach and thus, places the CIHSD as a key priority in order to secure high quality, people-centered health systems that are efficient in the delivery of services, according to the context (epidemiological, demographic, fiscal, environmental factors etc.) to which they must respond.

There is now a wide range of evidence on specific interventions or initiatives towards more comprehensive CIHSD. Commonly cited gains include improvements concerning hospital utilization, quality of life, functional health, patient satisfaction and on process outcomes, such as adherence to guidelines and compliance with medication, improved access to appropriate levels of care as well as better individual experiences with care received. Evidence is also available capturing the gains of more comprehensive CIHSD from the perspective of the individual service user and health care provider. When there is consistency in health providers (relational continuity), users report that they receive the right information at the right time and in a sensitive manner.

Challenging the status quo is never easy. Changing the delivery of care to provide more coordinated/integrated health services is an effort towards high-quality, sustainable, people-centered health systems. These transformations call for a paradigm shift in thinking health, actively involving people to participate in the organisation of health systems, and strengthening communities to create healthy environs.

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8 QUALITY IN HEALTH CARE

Michaela Kostičová

Quality of health care is considered to be a usual component of professional health care performance. Traditionally quality assurance has been meant to apply predominantly, or even exclusively, to health care itself as provided directly to patients by legitimate health care practitioners and used to be practiced on an intuitive basis for a long time. Most health professionals are convinced that they are performing optimally, and the very thought of having someone provide oversight of their work often provokes an angry response. One reason could be, as it is stressed in the World Health Organization strategy Health for All, the fact that almost all individual health service institutions and providers lack basic information about the quality of the care they provide in their daily practice.

8.1 Definitions of quality of health care

The quality of something can be determined by comparing a set of inherent characteristics with a set of requirements. If those inherent characteristics meet all requirements, high or excellent quality is achieved. If those characteristics do not meet all requirements, a low or poor level of quality is achieved. **Quality is, therefore, a question of degree.** As a result, the central quality question is: How well does this set of inherent characteristics comply with this set of requirements? A requirement is a need, expectation, obligation or standard. It can be stated or implied by an organization, its customers, or other interested parties. One of the basic principles of quality is prevention and continuous improvement. This means that **quality is a never-ending process** whose goal is to spot dysfunction as quickly as possible after it occurs. In quality improvement the goal is not only to improve the average performance but also to reduce inappropriate variations in the process.

Quality of health care can be understood in diverse ways, using different terms, labels and models. There are many possible definitions. An overview of the most frequently applied definitions of quality of health care is presented in Table 8.1.

Table 8.1. Definitions of quality of health care

Author/Organization	Definition
Donabedian (1980)	Quality of health care is the kind of care which is expected to maximize an inclusive measure of patient welfare, after one has taken account of the balance of expected gains and losses that attend the process of care in all its parts.
Department of Health (UK) (1997)	Quality of health care is: <ul style="list-style-type: none"> • Doing the right things (what); • To the right people (to whom); • At the right time (when); • And doing things right the first time.
Council of Europe (1998)	Quality of health care is the degree to which the treatment dispensed increases the patient's chances of achieving the desired results and diminishes the chances of undesirable results, having regard to the current state of knowledge.
WHO (2000)	Quality of health care is the level of attainment of health systems' intrinsic goals for health improvement and responsiveness to legitimate expectations of the population.

Source: Legido-Quigley H, McKee E, Nolte A, Glinos I, 2008

In a 1990 report, the **Institute of Medicine (IOM)** authors reviewed over 100 definitions and parameters of quality of health care according to the presence or absence of 18 dimensions. Based on this review, the authors arrived at a **widely accepted definition** of quality of health care: **“The quality of health care is the degree to which health services for individuals and populations increase the likelihood of desired health outcomes and are consistent with current professional knowledge”**. The definition:

- Includes a measure of scale or degree;
- Quality encompasses all aspects of care by referring to health services;
- Identifies both individuals and populations as targets for quality assurance efforts;
- Is goal oriented, quality outcomes are desired without specifying for whom, thus allowing the possibility of differing perspectives on which aspects of quality are most important (professional, patient, public, political...);
- Recognizes the importance of outcomes;
- Highlights the importance of individual patients' and society's preferences and values;
- Underlines the constraints placed on professional performance by the state of technical care and emphasizes that the link between the quality of care and outcomes is rarely causal by stating that which is measured is a likelihood or probability;
- The phrase 'consistency with current professional knowledge' indicates that quality of care can only be judged relative to what is known at that moment in time.

8.2 Dimensions of quality of health care

The first step towards assessing, measuring and assuring quality is to deconstruct it into its core dimensions. **Dimensions of quality of health care are definable, preferably measurable and actionable, attributes of the health system that are related to its functioning to maintain, restore or improve health.** The most common used dimensions for quality of health care are based on the **six dimensions proposed by Maxwell**:

1. **Effectiveness** is the degree to which processes result in desired outcomes, free from error and appropriate to the clinical needs and based on the best current evidence. Comparison between actual performance and the performance that ideally or under specified conditions, could be expected to be achieved. *In questions: Does the intervention produce the desired effect? Is it carried out well?*
2. **Relevance to need** refers to how a system treats people to meet their legitimate non-health expectations. The emphasis here is on the patient's report of her or his experience with specific aspects of care and goes beyond her or his general satisfaction or opinion regarding the adequacy of care. *In question: Is the patient satisfied?*
3. **Accessibility** is the ease with which health services are reached. Access can be physical, financial or psychological, and requires that health services are a priori available (distance from the sources of care, transportation, organizational factors- opening hours, ethnic and religious preferences). Accessibility quantifies whether a health service or treatment is available to the person needing it, at the time it is needed. *In question: Can people get this treatment/service when they need it?*
4. **Acceptability** is conformity to the realistic wishes, desires and expectations of patients and their families. Accessibility is a part of acceptability. *In questions: If right and available does this patient want it? How humanely and considerately is this treatment/service delivered? What does the patient think of it? How would I feel if it were my nearest and dearest? What is the setting like? Are privacy and confidentiality safeguarded?*
5. **Equity** (or equitability) defines the extent to which a system deals fairly with all concerned. Equity, in this context, deals with the fair distribution of healthcare and its benefits among a people. Depends on access, effectiveness and acceptability of the care received. *In question: Is this patient or group of patients being fairly treated relative to others?*
6. **Efficiency** is the system's optimal use of available resources to yield maximum benefits or results. It describes a system's ability to function at lower costs without diminishing attainable and desirable results. Refers to the extent to which objectives are achieved by minimizing the use of resources. *In question: How does the unit cost compare with the unit cost elsewhere for the same treatment/service? Is it carried out in a cost effective way?*

Less commonly used dimensions:

- **Safety** is the degree to which health care processes avoid, prevent, and ameliorate adverse outcomes or injuries that stem from the processes of health care itself. According to the IOM, patient safety is “**freedom from accidental injury due to medical care, or medical errors**”.
- **Continuity** addresses the extent to which healthcare for specified users, over time, is coordinated across providers and institutions. *In question: Did it progress without interruption, with appropriate follow up, exchange of information and referral?*
- **Timeliness** is a related concept that is used in several country frameworks and refers to **the degree to which patients are able to obtain care promptly**.

The IOM definition of quality qualifies outcomes as having to be desirable. But for whom should they be desirable? This perspective on quality, and the priority given to particular dimensions of quality, can depend on who the interested party is. Table 8.2 gives a summary of the different perspectives of quality depending on who is considering it.

Table 8.2 Differing perspectives of quality of health care

Interested party	High-priority elements of quality
Consumers/patients/public (i.e. those who demand and receive the care)	Responsiveness to perceived care needs. Level of communication, concern and courtesy. Degree of symptom relief. Level of functional improvement
Practitioners/clinicians (i.e. those who deliver the care)	Degree to which care meets the current technical state of the art. Freedom to act in the full interest of the patient. Accountability to 'professional standards'
Commissioners/funders/purchasers (i.e. those who sanction and pay for the health care)	Efficient use of funds available for health care. Appropriate use of health-care resources. Maximum possible contribution of health care to reduction in lost productivity. Accountability to politically set philosophy, objectives, targets, goals

Source: Shekelle P, Pencheon D, Melzer D, 2006

8.3 Quality management in health care

Quality does not develop on its own. For quality to be achieved, a systematic evaluation and improvement process must be implemented. This process is known as quality management. **Quality management involves quality planning, quality measurement, quality assessment, quality assurance and quality improvement.** Quality management refers to how health care managers understand, explain, and continuously improve their organizations to allow them to deliver quality and safe patient care, promote quality patient and organizational outcomes, and improve health in their communities.

8.3.1. Quality measurement in health care

In order to assess and improve quality, it first must be measured. An important dimension of measuring (and thus defining) quality is to make the standards against which one is assessing quality explicit and preset. Donabedian proposed that we can **measure the quality of health care by evaluating its structure, processes and outcomes.** He argued that “good structure increases the likelihood of good process, and good process increases the likelihood of good outcome”. Ideally, any system of assessment would include indicators of structure, process and outcome as they examine different aspects of the care provided in health systems while using process and outcome measures on their own may be misleading.

Donabedian defined:

Structure (or input) **as the conditions under which care is provided - attributes of the settings** in which care occurs and **the resources** needed for health care.) This would include

- **Material resources** (facilities, capital, equipment, drugs, etc.);
- **Intellectual resources** (medical knowledge, information systems);
- **Human resources** (number, variety, qualifications of health care professionals).

Structure indicators may represent necessary conditions for the delivery of a given quality of health care but they are not sufficient. Their presence does not ensure that appropriate processes are carried out or that satisfactory outcomes are achieved by the health system.

Process denotes the use of resources in terms of **what is done in giving and receiving care.** This can be classified into

- **Patient-related processes** (prevention, diagnosis, treatment interventions, education, etc.);

- **Organizational processes:**

- **Supportive processes** – administrative and technical support, supply with drugs, etc.);
- **Managerial processes** – marketing, quality management, financing.

Process measures represent the closest approximation of actual health care offered and are the most clinically specific of the three types of indicators. Process data often provide a more sensitive measure of quality than outcome data, since a poor outcome does not necessarily result from a failure in the provision of care, thus measures of health care quality are dominated by process measures rather than outcome measures.

Outcomes describe the effects of health care on the health status of patients and populations. Outcomes include:

- Changes in health status (mortality, morbidity, disability or quality of life);
- Changes in knowledge acquired by patients and family members that may influence future care;
- Changes in behaviour of patients or family members that may influence future health;
- Satisfaction of patients and their family members with the care received and its outcomes.

Outcomes are more generally perceived as poor measures of quality of care as they are only partially attributable to health services and may be more strongly influenced by other factors such as nutrition, environment, lifestyle or socio-economic circumstances.

Structure, process and outcome are not attributes of quality. They are only kinds of information one can obtain, based on which one can infer whether quality is good or not. There is a predetermined relationship among the three approaches, so that structure influences process and process influences outcomes as it is presented in Figure 8.1.

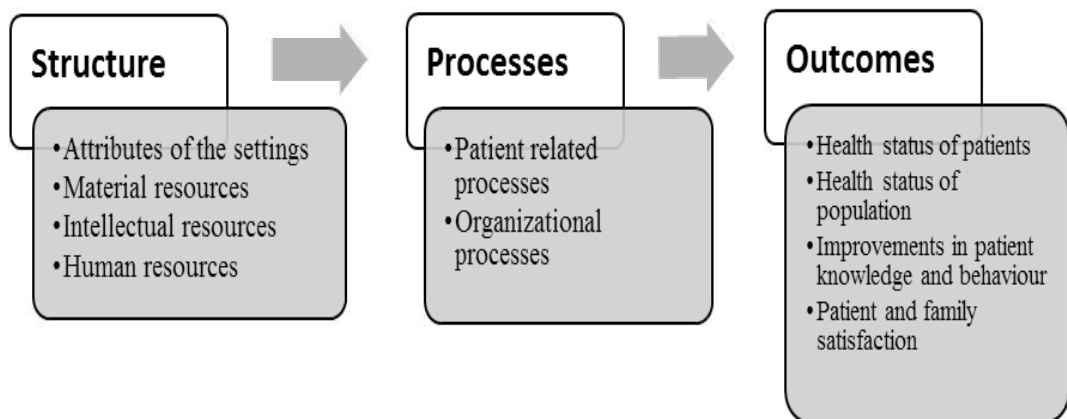


Figure 8.1 Relationships between characteristics of structure, process and outcomes in health care

For example, in an internal medicine practice with multiple physicians, the number and credentials of physicians, physician’s assistants, nurses and office staff are considered structure measures. The percentage of elderly patients who appropriately receive an influenza vaccine is considered a process measure, and the percentage for elderly patients who are diagnosed and treated for influenza is considered an outcome measure for this practice.

8.3.2 Quality assurance and quality improvement in health care

One cannot assure or guarantee quality. One can only increase the probability that care will be “good” or “better”. It is an activity by which we obtain information about the level of quality produced by the health care system and, based on an interpretation of that information, take the actions needed to protect and improve quality. This action can take one of two forms:

- **Activities meant to educate and motivate persons directly, and**
- **Readjustments in system resources and design.**

However, most of health care is better conceived of as a service and here the process of quality assurance and quality control become far more difficult. Services are immeasurably complicated by their interpersonal, human and hence psycho-social nature. When behavioural and social variables are involved, it is usually difficult to specify, let alone agree on standards. If patients, employers and indeed providers themselves are to be assured that these standards will be met, some kind of system will be necessary and it will have to be managed whatever its level or scope. Central to all this will be the commitment and competence of staff whose development to meet the requirements of the system will be a necessary component.

All health services are provided within and/or between organizations. Although their methods of operation and specific organizational characteristics may differ according to its purposes, focus and values, they are running on the same principles as other organizations, so it is important to focus on management and models of quality management used in other sectors of industry and services.

8.4 External models of quality management in health services

The current tendency can be identified in enacting the different models and approaches to quality management in health care within European countries; these differences are determined by specific national circumstances of the countries. **The main external quality management models** used in health care organizations in Europe are:

- ISO (International Organization of Certification) model – certification against ISO 9000 standards;
- Accreditation of health services, and
- Excellence model of EFQM (European Foundation for Quality Management) and CAF (Common Assessment Framework)

8.4.1 ISO model – ISO 9000 standards

ISO is the International Organization for Standardization. It is located in Switzerland and was established in 1947 to develop common international standards in many areas. Its members come from over 150 national standards bodies. ISO’s purpose is to facilitate international trade by providing a single set of standards that people everywhere would recognize and respect.

The ISO 9000 series of standards relating to quality management are considered most relevant to health care. The ISO 9000 standards were first published in 1987 as generic management system standards. ISO 9000 applies to all types of organizations; it is irrelevant what size they are or what they do. It can help both product and service oriented organizations achieve standards of quality that are recognized and respected throughout the world.

ISO 9000 series of quality management standards are:

- ISO 9000 discusses definitions and terminology and is used to clarify the concepts used by the ISO 9001 and ISO 9004 standards.
- ISO 9001 contains requirements and is often used for certification purposes.
- ISO 9004 presents a set of guidelines and is used to develop quality management systems that go beyond ISO 9001.

Benefits of ISO 9000 standards for health services:

- Standards provide a generic, internationally widely accepted method of approaching quality improvement; the international badge of quality gives substantial credibility;
- Specifics of application to health care could be adjusted;
- Payers are familiar with standards and begin to require health care organizations to comply with them;
- The effect of efforts to comply with ISO 9000 standards will provide focus for the quality improvement efforts of an organization;
- Attaining ISO 9000 certification can make an organization more competitive;
- Comparisons with accreditations and other models are much easier, less time-consuming, and less costly.

Disadvantages of application of ISO 9000 standards in health services are:

- Application to health care could be complicated;
- ISO certification only indicates that the quality system is capable of meeting standards but does not necessarily indicate that every service meets the requirements of the customer;
- ISO standards only relate to processes in organizations, not to outcomes;
- ISO 9001 requirements describe what must be done to make up a quality system, not how to set it up.

8.4.2 EFQM Excellence Model

The European Foundation for Quality Management (EFQM) is a non-profit foundation established in 1988 by leaders of fourteen companies who were convinced that a new membership organization based in Europe was necessary to promote higher standards of management through shared knowledge and mutual recognition. EFQM helps its member organizations implement their strategies by sharing what works between them. This mission extends beyond the borders of Europe, to wherever organizations are willing to open their doors to structured assessment and exchange. **The EFQM Excellence Model is the most widely used organizational framework in Europe and is the basis for the majority of national and regional quality awards.** Used as a tool for assessment, it delivers a picture of how well the organization compares to similar or very different kinds of organizations. The EFQM model is not widely used in the health care sector. The EFQM Excellence Model:

- Is a structure for the organization's management system;
- Can be used as part of a self-assessment;
- Provides a framework for comparison with other organizations;
- Helps to identify areas for improvement;
- Is based on continuous quality assessment and improvement.

The EFQM Excellence Model is a non-prescriptive framework based on 9 criteria (Figure 8.2). Five of these are 'Enablers' and four are 'Results'. The 'Enabler' criteria cover what an organization does and how it does it. The 'Results' criteria cover what an organization achieves. 'Results' are caused by 'Enablers' and 'Enablers' are improved using feedback from 'Results'. The Model, which recognizes there are many

approaches to achieving sustainability, is based on the premise that: Excellent Key Results, Customer Results, People Results and Society Results are achieved through Leadership driving the Strategy that is delivered through People, Partnerships and Resources, and Processes, Products and Services. The EFQM Model is presented in diagram form below. The arrows emphasize the dynamic nature of the Model. They show innovation and learning helping to improve enablers that in turn lead to improved results.

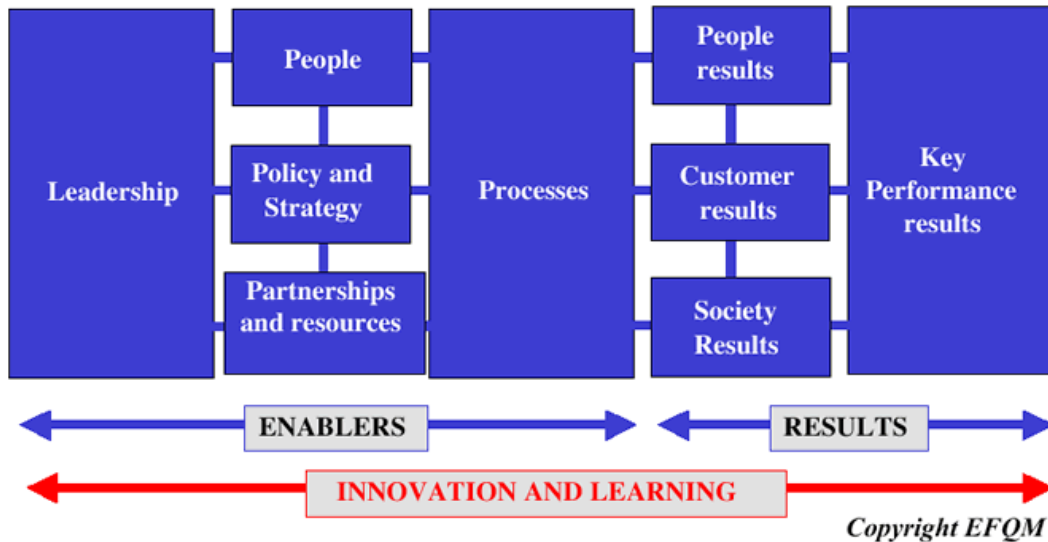


Figure 8.2. The EFQM Excellence Model
 Source: The European Foundation for Quality Management. www.efqm.org.

The Common Assessment Framework (CAF) is inspired by the EFQM Excellence Model and is designed especially for public-sector organisations taking into account their characteristics. As many health care organizations are public-sector organizations, the CAF as an easy-to-use, free tool can assist them in using quality management techniques to improve their performance. Highly appreciated in the CAF implementation is the involvement of staff. The CAF is a result of the co-operation among the EU ministers responsible for public administration, the first version was introduced in 2000. A CAF Resource Centre (CAF RC) is at the European Institute of Public Administration (EIPA) in Maastricht.

8.4.3 Accreditation

The concept of accreditation in health care has at least three different meanings, which is why the term can sometimes be rather confusing. These relate to accreditation of health professionals, health care delivery programs and facilities. Accreditation is primarily relevant where there is a choice of provider and a desire to have an alternative to government control of external quality assurance. In this respect there is a difference between accreditation, certification and licensing. In general, licensing is obligatory, by inspectors, using minimal standards of structure and inputs. Accreditation, which was often voluntary in Europe in the past, is increasingly being funded or managed by governments. **Accreditation is a process in which an entity, separate and dis-**

tinct from the health care organization, usually non-governmental, assesses the health care organization to determine whether it meets a set of standards requirements designed to improve the quality of care.

The Joint Commission on Accreditation of Healthcare Organizations (JCAHO) or Joint Commission (JCI) is well known in the health care industry for its work in accrediting hospitals for over 70 years. It evaluates and accredits more than 16,000 health care organizations in the USA and around the world. The organization was formalized in 1951 as Joint Commission on Accreditation of Hospitals (JCAH) and the organization gradually assumed responsibility for certifying other types of health care organizations, and in 1987 the organization's name was changed to the JCAHO to reflect the broadening scope of its organizational activities. The mission of JCI is to continuously improve the safety and quality of care in the international community through the provision of education and consultation services and international accreditation. Joint Commission International (JCI) accreditation can help international health care organizations, public health agencies, health ministries and others to evaluate, improve and demonstrate the quality of patient care in their nations while accommodating any specific legal, religious and cultural factors within a country.

JCI standards and evaluation methods are:

- Designed to stimulate and support sustained quality improvement;
- Created to provide a framework for risk reduction;
- Focused on creating a culture of patient safety;
- Developed by health care experts from around the world;
- Created by health professionals specifically for the health care sector;
- Applicable to individual health care organizations and national health care systems.

Studies from countries with long tradition in health care quality assurance, such as Netherlands, Spain and Italy, pointed out that implementation of industrial models such as ISO and EFQM models can prove useful mainly for hospitals in a number of ways. Some studies recommend to start with implementation of the ISO model as the first step to quality improvement and then continue with accreditation or the EFQM model. There is evidence in literature that any of these models is better than none, but it should be stressed that implementation of any model is unlikely to improve quality of health care without a commensurate fit with the internal and external environment of the health care organization. External pressures are insufficient to truly motivate individuals and health care organizations; the key success factors in working towards the quality improvement goal are commitment of health managers and health professionals to continuous quality improvement and the skill to participate in it.

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9 EXAMPLE PUBLIC HEALTH STRATEGY – STRATEGY TO COMBAT TUBERCULOSIS

Ivan Solovič

World warns of tuberculosis (TB). It is expected that 32% of the world's population (1.86 billion people) is infected with tuberculosis, there are each year 8 million new cases, of which 3,520,000 are microscopically positive; 2.8 million people die each year from diseases directly or indirectly related to tuberculosis. WHO estimates for the years 2000-2020 indicate that TBC will infect another billion people, 200 million will get sick and 35 million will die unless there are improvements to health care.

Already in April 1993, WHO declared a general emergency endangering tuberculosis – “global emergency”. It was the first time such a statement concerned an infectious disease. Two years earlier in 1991, WHO published in response to the growing global incidence of tuberculosis the internationally recommended strategy for tuberculosis – DOTS (direct observation of treatment short course – directly controlled treatment under medical supervision).

In 2006, a state of increased readiness – “global alert” – was declared concerning tuberculosis as the threat posed by the disease matters to nearly everyone. The fight against tuberculosis takes place at several mutually interlinked levels:

1. Global level
2. Regional level
3. National level
4. Local level

9.1 Global level

Globally, the (worldwide) fight against tuberculosis is coordinated by **the World Health Organization**.

The World Health Organization (WHO) was established by approval of its status in New York in July 1946 and ratified by Member States of the United Nations (UN) including the Czechoslovak Republic, with the ratification having entered into force on 7 April 1948. This day became the founding date of WHO, or the World Health Day, in the UN calendar. Direction and objectives of WHO activities since 1976 are aimed at the development of health services, disease prevention and disease control, recovery care environment, education of medical staff, medical research and the design of research activities in the development of health services and to develop and support programs. The current program structure and the resulting objectives are focused on improving people's health as a matter of public interest. WHO has a number of large-scale programs and strategies that are being implemented and observed.

The Czechoslovak Republic was one of active members of WHO, participated in the development of WHO and became the thirtieth full member of WHO. The Slovak Republic as an independent state became a member of the WHO as the world's 183rd country on 4 April 1993. The Slovak Republic actively cooperates with WHO.

Tuberculosis was and still is a priority area of concern for WHO. WHO emphasizes that the time has come to realize the destructive potential of tuberculosis; The danger is in the air for everyone who lives and breathes. The world must act responsibly on tuberculosis in terms of prevention, early diagnosis, treatment and comprehensive long-term care. In today's globalized world, infectious diseases in particular spread faster than ever.

The **“Stop TB Strategy”** is the main document for coordination of the fight against tuberculosis. The vision of this strategy is a “world free of tuberculosis”. The ambitious goal of WHO is to eliminate tuberculosis as a global health problem by 2050 to the criterion of global incidence of TB of less than one case per million of the world population. The WHO set the goal of this program to reduce the global burden of TB by 2015 **in line with the Millennium Development Goals (MDGs) and the Stop TB Partnership tasks**. The strategy has imposed four tasks and four endpoints.

The basic components of the strategy to halt the spread of tuberculosis are:

1. To promote the spread of DOTS;
2. Prevention, control and implementation of activities against TB/HIV and MDR-TB;
3. Strengthening health systems – in terms of human resources, finance, management, information systems;
4. To align the interests of all health care providers – public and public-private components;
5. Strengthen communities, promote the rights of TB patients;
6. Encourage research – development of new drugs and vaccines.

The Stop TB strategy is based on the DOTS strategy, which plays a key role in the effort to reduce the incidence of tuberculosis. The **WHO DOTS strategy** released in 1991 is a strategy to treat tuberculosis, meaning directly controlled treatment under medical supervision (**directly observed treatment/DOTS**). It combines five elements – the fundamental principles that must be met in order to achieve effective control of TB:

1. Political commitment to effective TB control;
2. Case finding through sputum in people with symptoms;
3. Standardized treatment with the AT 1 line for a period of 6-8 months carried out under proper case management conditions, including direct observation in the first two months;
4. Uninterrupted supply of all essential antituberculous drugs (AT) and wise control of them;
5. Standardized system for recording and reporting, enabling monitoring and evaluation of treatment outcome.

DOTS-Plus strategy builds on the DOTS strategy. It uses five basic principles (elements) from the DOTS Strategy and aims to prevent the occurrence and spread of drug resistance by providing a systematic approach to the management of multidrug-resistant TB (MDR-TB). For standardized or individualized treatment, DOTS-Plus uses the second line antituberculous drugs preparations according to WHO protocols. Terms of effective TB control are based on the DOTS strategy and constitute the first step in the fight against drug resistance.

The global plan to stop TB for 2006-2015 (The Global Plan to Stop TB 2006-2015) builds on the Global Plan for 2001-2005 that is based as well on the Millennium Development Goals (MDGs) and the Stop TB Partnership tasks.

The expected targets of the Global Plan to Stop TB WHO are:

- Extend equal access for all to quality diagnosis and treatment;
- Treat 50 million people;
- Save 14 million lives;
- State in 2010, a new drug against tuberculosis after 40 years;
- Develop a new safe, effective and affordable vaccine by 2015;
- Reduce by 2015 the global burden of TB in terms of incidence and death rates by 50% compared to the 1990 level. That means to reduce the incidence of the disease below 155 per 100 thousand people, and to reduce the death rate to 14 or less per 100 thousand people annually including people infected both with TB and HIV;
- Reduce the number of people who die from TB in 2015 to less than 1 million.

The strategies to halt the spread of tuberculosis and surveillance (epidemiological surveillance) are a process of monitoring tuberculosis as a disease – its incidence, nature, change, treatment outcomes. Their main mission is to ensure a consistent approach to the care of patients with tuberculosis according to international standards.

WHO has set the standard definition of tuberculosis cases, which are characterized by localization disability, bacteriological test results, diagnosis, severity and history of previous anti-tuberculosis treatment.

Goals of treatment of tuberculosis are:

- Cure the patient, with rapid elimination of most bacilli;
- Prevent death from tuberculosis or late consequences of the disease;
- Prevent relapse;
- Prevent the occurrence of drug resistance using a combination of antimycobacterial drugs;
- Reduce the transmission of TB to others.

WHO every year on the occasion of the **International Day against Tuberculosis (24 March)** declares a slogan that can best reach the professionals as well as world opinion and appeal both to their attitudes to this insidious disease and attract their attention to combat it.

There are several obstacles to success of the current strategy for the prevention, diagnosis and treatment of tuberculosis:

1. Inadequate diagnostic tools – until definitive diagnosis is confirmed, the patient can infect many close contacts. Microscopy is less sensitive in patients with HIV, the culture examination is slow and not everywhere in place;
2. Long and complicated treatment regimens – 6 to 9-month course with a combination of different drugs in different doses and varied incidence of side effects;
3. Limited effectiveness of vaccine – the BCG vaccine used today provides protection against disseminated forms of TB especially in young children, but not adults, where it is most infectious;
4. MDR-TB – tuberculosis resistant to drugs due to improper or inadequate treatment, is difficult to treat and has a higher incidence of side effects;
5. The HIV pandemic – HIV increases susceptibility to TB;
6. Poverty – can be not only a cause but also a consequence of tuberculosis.

WHO emphasizes that global progress (slowing down and stopping the increase in incidence) can only be achieved through:

- A global approach to prevention led by WHO;
- Better coordination of national centers and programs in cooperation with multinational centers in the implementation of knowledge and prevention programs;
- Increased funding for TB control by both governments as well as by non-governmental and charitable organizations;
- Increase in the interest of the general public in the status of the fight against TB.

The World Health Assembly in 2012 called health ministers with the World Health Organization to develop strategies to combat tuberculosis after 2015, including accompanying objectives and their assessment in 2014. The World Health Organization in collaboration with the Stop TB Partnership began the process of developing strategies to combat TB after 2015 after a thorough analysis of the global epidemic of tuberculosis. WHO formulated and proposed new objectives, prepared the components and contents of the new strategy and started extensive consultations on the Framework objectives. Strategic and technical advisory group of WHO (STAG-TB) with a group of Stop TB partners, including civil society and affected communities supported procedure for another fight with tuberculosis and also provide feedback on the proposal activities. The framework has been consulted in global and regional meetings with managers of national programs to combat tuberculosis. The final draft strategy was presented to the World Health Assembly in 2014 and was also approved.

The vision of the new WHO strategy after 2015 – a world without tuberculosis

The aim is to eliminate deaths from tuberculosis and tuberculosis elimination as a PUBLIC problem. For 2025 the target is to halve the number of deaths and morbidity from tuberculosis compared to 2015.

Objectives for 2025:

1. Reducing deaths from tuberculosis by 50% compared to 2015;
2. Reducing the prevalence of tuberculosis by 50% compared to 2015;
3. Target group of MDR-TB patients – allow access to the new treatment.

Components:

1 Innovation in treatment of tuberculosis

- a) Rapid diagnosis of tuberculosis with universal fully sensitive diagnostics, systematic screening of risk groups of contacts.
WHO estimates that each year there is half a million new cases of multidrug-resistant tuberculosis (MDR-TB) worldwide. Current treatment regimens for MDR-TB patients have many problems: the treatment takes 20 months or more, and requires daily administration of medications that are more toxic, less effective and more expensive than those used in the treatment of drug-sensitive tuberculosis. Globally, less than half of all patients who start treatment for MDR-TB, were successfully cured.
- b) For the first time since more than 40 years, a new drug for tuberculosis has entered clinical practice with a new mechanism of action – bedaquiline, approved both by the FDA (US Food and Drug Administration) and EMA (European Medicines Agency).
- c) Activities aimed at cooperation and management of TB/HIV co-infected patients;
- d) Preventive treatment of high-risk groups, vaccination of child population.

2 The policy support systems

- a) Government's commitment to provide adequate resources for the care of patients with tuberculosis, tuberculosis monitoring and assessment;
- b) Commitment of communities, civil social organizations, and of public and private care providers;
- c) Regulatory framework for the registration and notification of cases, quality of treatment and its rational use, and infection control;
- d) Ensuring universal health coverage for patients with tuberculosis, social support and other determinants associated with tuberculosis.

3 Intensive research and innovation

- a) Development of new rapid diagnostics, drugs and vaccines;
- b) Operational research optimization, implementation and adoption of innovations

Principles:

1. Promotion of human rights, ethics and justice;
2. Adoption of the strategy and its objectives at the country level;
3. International cooperation and global support.

Strategy to combat TB by 2015 – goals/vision/processes

Proposal:

- Tuberculosis, as a disease of the poor, is a measurable indicator of equitable development.
- The inclusion of tuberculosis the Millennium Development Goals of the United Nations contributed to progress in global tuberculosis control.
- WHO strategies for TB helped cure 51 million patients and saved the lives of 20 million patients.
- The Millennium Development Goals for 2015, consisting of efforts to halt and reverse the incidence of TB, have been achieved.
- Compared to 1990, TB-related mortality rate decreased by 41% and will be reduced by half in 2015.

However,

- The reduction in the incidence of tuberculosis is too slow to accommodate the vision of a world free of tuberculosis.
- 1.4 million people die each year from tuberculosis, and 8.7 million people are suffering from it.

Table 9.1. The proposed pillars and principles of the strategy to combat TB by 2015

I. pillar	II. pillar	III. pillar
Integrated, patient-centered care and prevention	Assertive policies and support systems	Intensified research and innovation
A. Early diagnosis of tuberculosis including universal drug susceptibility testing; and systematic screening of contacts and high-risk groups	A. Political commitment with adequate resources for tuberculosis care and prevention	A. Discovery, development and rapid uptake of new tools, interventions and strategies
B. Treatment of all people with tuberculosis including drug-resistant tuberculosis; and patient support	B. Engagement of communities, civil society organizations, and public and private care providers	B. Research to optimize implementation and impact, and to promote innovations
C. Collaborative tuberculosis/HIV activities, and management of co-morbidities	C. Universal health coverage policy, and regulatory frameworks for case notification, vital registration, quality and rational use of medicines, and infection control	
D. Preventive treatment of persons at high risk; and vaccination against tuberculosis	D. Social protection, poverty alleviation and actions on other determinants of tuberculosis	

Global support and international cooperation

The global fight against tuberculosis has been joined by the International Council of Nurses (ICN), which in 2004 issued a recommended practice for nurses in the care and control of tuberculosis and multidrug-resistant tuberculosis (**TB Guidelines for Nurses in the Care and Control of Tuberculosis and Multi-Drug Resistant Tuberculosis**).

These documents will help nurses (with practical instructions) in their important role in the detection of cases, providing care and treatment of TB patients, explain nursing approach to plan and provide care for patients with this disease and seek to improve access and quality of care throughout the treatment. The documents emphasize the need for modification of the procedure of TB control in their implementation of local tuberculosis control programs and the role of nurses in the implementation. ICN believes that nurses are in a position to support TB control programs and strategies to implement elements of DOTS Plus and DOTS.

9.2 Regional level

Regional level is in our case the region of Europe. The tasks, actions and activities in the WHO European region are being coordinated by the WHO Regional Committee for Europe (WHO EURO) based in Copenhagen. The WHO objectives and programs are adjusted and adapted to the European region (European countries and countries of the former Soviet Union plus Israel). In 1980, WHO EURO approved **the Health for All by the Year 2000** as its first health policy programme – a European strategy to achieve health for all. This programme will remain a permanent part of European health care even after 2000, although the last 20 years across the European region have seen changes (political, social, economic, environmental, technological and other) that necessitate updates to the program. These changes are: changes in the concept of health, demographic changes, changes in the nature of existing and the occurrence of new infectious diseases, increase of the incidence of non-communicable diseases resulting from environmental influences and lifestyles of people, intensification of globalization, development of new technologies, increase in migration.

On the Health for All by the Year 2000 builds the **WHO Health 21 - Health for All in the 21st century**. The programme entails (in accordance with its name) 21 goals.

The goals are set for implementation depending on type and characteristics by 2020 or earlier. A major part of the programme is monitoring and periodic evaluation of results that are meant to be comparable across countries.

Goal number 7 aims to reduce the incidence of infectious diseases. By 2020, the adverse health effects of infectious diseases (including tuberculosis) are meant to be substantially reduced by systematic implementation of programmes for the eradication, elimination and control of infectious diseases relevant to public health. Of substantial importance in the fight against tuberculosis also are other objectives (mainly nos. 14 to 21) that emphasize management of health care financing, multi-sectoral responsibility, mobilizing partners and other aspects.

WHO EURO cooperates in the fight against TB in Europe with the **European Centre for Disease Prevention and Control (ECDC)**. The ECDC was established in 2005 to protect the health of citizens of the European Union (EU) from infectious diseases. ECDC's mission is to identify, assess and communicate current and emerging threats to human health posed by infectious diseases. The ECDC serves as information, knowledge and business support center and strengthens all institutions and EU countries in their efforts at investigating, preventing and combating infectious diseases. ECDC's work mainly focuses on the 27 EU countries and three additional countries of the European Economic Area (EEA) – Iceland, Liechtenstein and Norway.

Tuberculosis is considered by the ECDC a major threat among infectious diseases in the Region. Surveillance (epidemiological surveillance) is the process of tracking infectious diseases that allows to take effective measures to protect the population from TB, follows changes in the nature of the disease, its incidence, treatment outcomes, and so on. **Surveillance of tuberculosis in the EU is provided by the ECDC** by collecting data through the various national centers, which transmit the data electronically through the TESSY.

European governments are aware of the threat of tuberculosis. At the WHO European Ministerial Forum on Tuberculosis held on 22 October 2007 in Berlin, ministers of Member States of the European Region of WHO together with the Director of the European Regional Committee of WHO and other high-ranking partners agreed that **tuberculosis has again become a major and growing threat to population health** and the WHO European Region adopted a declaration on tuberculosis – **the Berlin Declaration on tuberculosis**. It expressed a willingness and desire to solve the problem of tuberculosis in the European Region, and a commitment to politically and financially support the implementation of the objectives and tasks of the Stop TB Strategy.

9.3 National level

Promotion, protection, security, and improvement of the health status of the population and the provision of health care to citizens in Slovakia both are state priorities defined in the state health policy. The **State Health Policy** adopted by the government on 8 November 2000, while aligned with the Constitution of the Slovak Republic, takes into account the recommendations contained in the document Health for All in the 21st century – health policy for Europe of the WHO European Regional Committee. Its objectives span a long-term perspective and define the health care system for the first decade of the 21st century. The State Health Policy constitutes the political, economic and organizational framework of activities aimed to promote health, healthy lifestyles, to improve the living and working environment, to increase the efficiency and quality of health care and to limit the negative effects of diseases. Its purpose is to direct the interests and aspirations of all sectors of society to health as a key factor in the development of society and to create an environment in which the conditions for the promotion and protection of health, the right to health care and the accessibility and equality in its provision will be guaranteed to citizens.

The health policy focuses on 11 priority tasks:

1. Reducing disparities in health in the SR;
2. A healthy start in life;
3. Youth health;
4. Healthy ageing;
5. The development of palliative care and medical ethics;
6. Improving mental health;
7. Reduction of infectious and non-infectious diseases and injuries;
8. Healthy and safe environment;
9. Reduction of negative habits and promotion of healthy lifestyles;
10. Cross-sectoral responsibility for health;
11. Quality management in health care and other sectors.

The tools for achieving the public policy objectives of health are:

- Policy, which has a major role in its implementation;
- Legislation – all the tasks outlined in the principles of the state health policy are consistently pursued through legislative measures (especially laws on the provi-

sion of health care and health insurance on the protection of public health, laws relating to the financing of the health system and legislation that promotes the formation and operation of support and health services; also vital are laws regulating the components of lifestyle, such as laws aimed against the consumption of addictive substances – tobacco, alcohol, drugs), expert guidance and adoption of new and amendments to existing concepts of medical fields;

- Economy;
- The health insurance system;
- State medical drug policies – an integral part of the state health policy, its aim is to ensure availability of safe and quality pharmaceuticals to citizens;
- Integrated health efforts – ensure the fullest possible integration of services in primary, specialized, institutional and subsequent health care through new organizational and economic approaches, compliance with the provision of preventive and dispensary care in the outpatient sector, increase quality and efficiency in the provision of health care in inpatient facilities;
- Education – a high level of continuity with the education of health professionals in the field and in managing, but also educating the public on the promotion and protection of health;
- Media coverage – provides an appropriate way transmission of information to citizens;
- Research – support through the use of modern methods of epidemiology in investigation and assessment of the health status of the population in Slovakia, as well as the planning, implementation and evaluation of effective intervention methods, creation of conditions for expansion of surveillance in line with WHO tendencies;
- Partnership – relies on a wide network of governmental and non-governmental organizations and institutions, interest groups, communities, schools, private companies, churches, scientific societies, and the media.

In accordance with accepted principles of public health policy, health sector is responsible for the implementation of the targets of the WHO programme “Health for All in the 21st century.”

In the fight against tuberculosis, Slovak Republic acts in accordance with the goals, objectives and instruments of the national health policy, the objectives of international programmes and strategies as well as WHO recommendations for national tuberculosis programmes. Slovakia is a leader among national states globally in the protection of its population from tuberculosis, although there are groups and areas in which one must be aware not to run out of options to control the disease.

9.4 Local level

Local programmes to combat tuberculosis are developed by experts from specific lower-level territorial units where in a given territory or region, there is a high incidence of TB and/or MDR-TB, or HIV/TB coincidence. The tasks and objectives of the national programme are adapted to the conditions (social, cultural, economic) of each particular area. It is important to engage local authorities, experts and the public in the programme to combat TB and to ensure support by higher-level authorities (mainly technical and financial).

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