Chapter 5: Determinants of Health

In the next two chapters, we move from defining health and identifying its domains, to understanding its dynamics–in other words, how health conditions change.

Health processes are always dynamic. Since the appearance of the first humans, people have interacted with the physical environment and other species. Human health has been affected by droughts and rainy seasons, animal illnesses, and the triumphs and losses of predator species. The natural environment has also been transformed through the social organization of human populations. Against the background of their genetic make-up, the relationship of humans to others and to the natural environment has determined the appearance and disappearance of different diseases, and other causes of death and disability, including injuries.

The concept of health transitions includes both the transformation of health conditions and the determinants of health status. To understand the factors that drive health change, we must first account for factors that determine health at any point in time. The conceptual scheme that follows attempts to identify those factors, while specifying their interrelationships in a framework of hierarchical multicausality where factors operate at different levels of determination. The final link in this chain is the individual, in whom disease processes must express themselves. As we will argue, higher levels of determination impose structural limits to variation in lower levels.

There is a growing consensus that health and disease are determined in a multicausal way,[1,2,3] and that they need to be approached from a comprehensive and interdisciplinary perspective. In order to do so, it is necessary to integrate the multiple determinant factors into a coherent analytical framework. Several attempts have been made to identify and elucidate such factors.[4,5,6,7,8] The framework we will propose next tries to organize conceptually the complex multicausality of health conditions and systems. This framework is summarized in Figure 1, where the main relationships between health and its determinants are outlined. We will not attempt to examine thoroughly each of those relationships, nor will we review the available empirical evidence pertaining to them. Instead, we will concentrate on the basic analytical aspects.

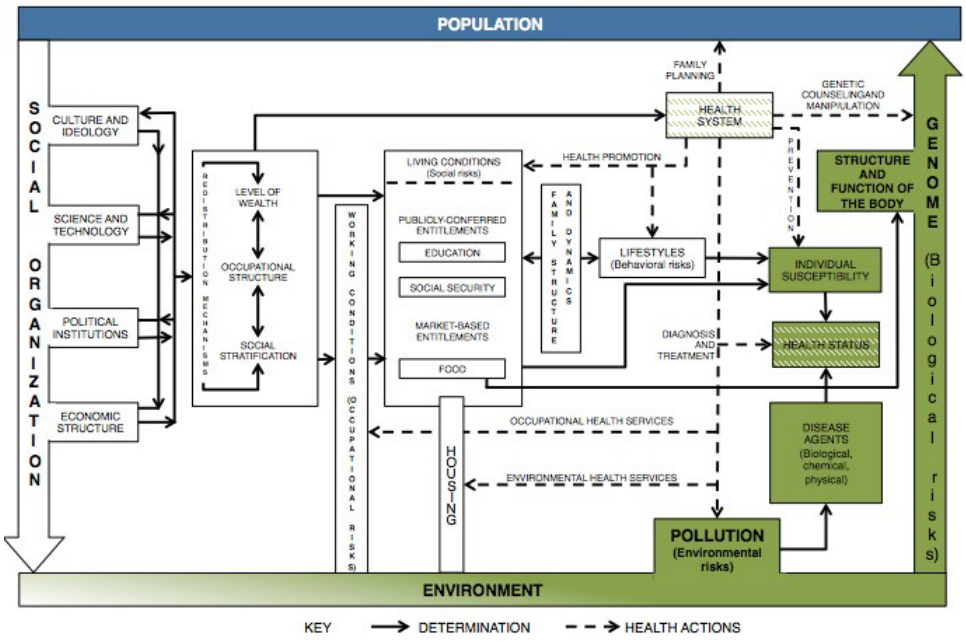

Figure 1: The Determinants of Health

The starting point in Figure 1 is the relationship between the population and its physical environment. From the standpoint of health determination, the most important population attributes are size, growth rate, age structure, and geographic distribution. With respect to the environment, altitude, climate, natural resources, and types of parasites and vectors continue to exert important influences for specific disease processes. However, the fundamental attribute shaping the nature of the human habitat is the extent and quality of urbanization.

Population and environment are linked through two major bridges. The first one is social organization, through which human beings develop the necessary structures and processes to transform nature.* The second one is represented by the genome, which transforms the deepest constitution of human populations in response to changes in the environment. These four elements set the broadest limits for the analysis of health determination. Indeed, all health phenomena occur in a population whose members have a certain genetic constitution and organize themselves socially to transform the environment. Specific relationships of determination take place within this basic frame. It should be pointed out that our conceptual formulation does not assume a diffuse multicausality, where everything influences everything. Instead, it arranges determinants according to a hierarchy; this principle is schematized in the right-hand side of Figure 2, which summarizes the main relationships proposed in Figure 1.

* For an influential examination of the social factors affecting health, see: WHO Commission on Social Determinants of Health (2008). Closing the gap in a generation: health equity through action on the social determinants of health. Final Report of the Commission on Social Determinants of Health. World Health Organization: Geneva. (Executive Summary). Available: http://whqlibdoc.who.int/publications/2008/9789241563703_eng.pdf

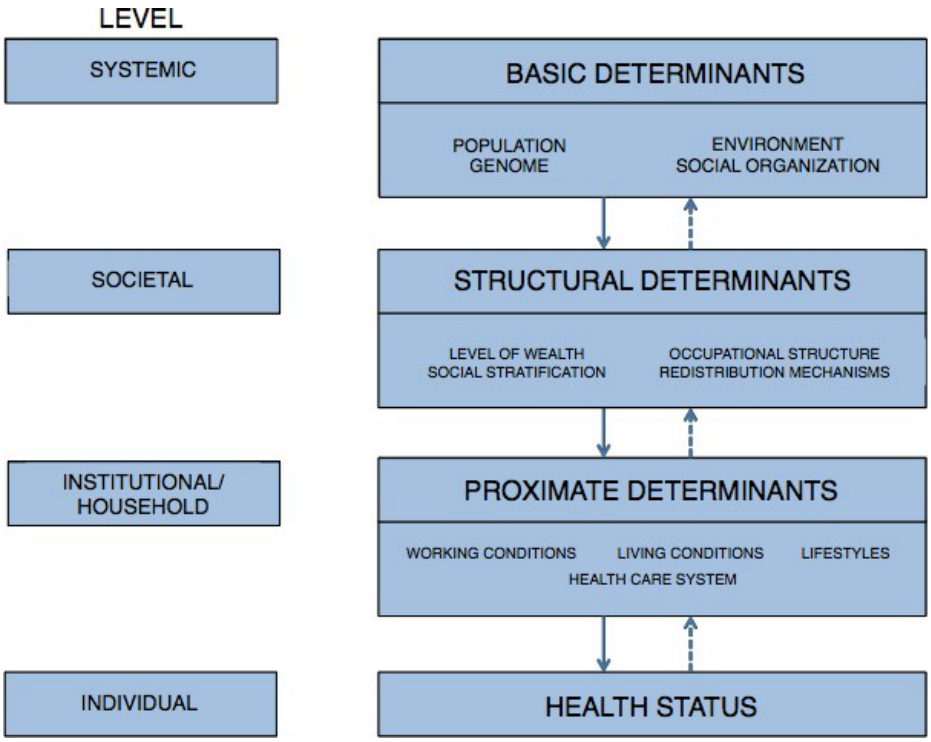

Figure 2: Types of Determinants and Levels of Analysis in Health

In order to analyze these relationships in greater detail, it is convenient to start from the left side of Figure 1, which focuses on the social determinants. As can be seen, there are four major dimensions of social organization: economic structure, political institutions, science and technology, and culture and ideology. Together, these dimensions determine the total level of health of a society and the rules for stratifying different groups. Two major factors mediate the differential access of those groups to the total wealth pool: on the one hand, the occupational structure; on the other, the redistribution mechanisms utilized by the State, notably taxes and subsidies.

It is beyond the scope of this book to elaborate on the complex relationship among these various categories, which is the subject of many of the most lasting and profound debates in the social sciences. For our purposes, suffice it to say that these elements constitute the structural determinants of the health and disease process. Together, they constrain the variation of a set of proximate determinants, namely, working conditions, living conditions, lifestyles, and the health care system (see Figure 2).

Lifestyle is a behavioral manifestation of beliefs and information that families have. The access to information that shapes beliefs and lifestyles has changed radically with the advent of the Internet, because of access to information. In the past, the challenge was access. Now, it's a problem of curation, of making sense of the information.

The separation between working and living conditions is, of course, arbitrary. The purpose is to highlight the critical importance of work both as a direct determinant of the worker's health status and as an indirect contributor to the health of the rest of the family. In recognition to its direct effect, working conditions are portrayed in Figure 1 as part of the immediate environment of the worker. Such an effect is due to the occupational risks that derive from working conditions.

At this point, it is necessary to highlight the central position given to the category of risk in our analysis. Risk is defined by Last as "a probability that an event will occur, e.g., that an individual will become ill or die within a stated period of time or age."[9] For the purposes of this book, health determinants can be conceived of as risk factors, that is to say, processes, attributes or exposures that determine the probability of occurence of disease or other health outcomes.

As shown in Figure 1, living conditions occupy a central position among the proximate determinants of health. In turn, living conditions depend mainly on what Sen calls the 'exchange entitlement' of an individual or family, i.e., the alternative bundles of good and services that the individual can acquire in exchange for what he or she owns.[10] For our present purpose, it is very important to distinguish two types of entitlements, according to whether they are publicly conferred or market based. This distinction is based on the rules governing access to goods and services. Simply stated, market based entitlements are goods and services which can be obtained through trade or production exchanges that are governed by the logic of the market.[†] In contrast, publicly-conferred entitlements are goods and services that, through the intervention of some collective actor–generally the State–are removed from market distribution and made available either as a supplement to market exchange or as a social right; they are considered as a requisite for equality of opportunity, which provides the ethical foundation for market competition.[11] Evidently, it is not enough for the State to declare certain goods or services to be a social right, i.e., through a constitutional amendment; it is necessary to analyze the extent to which such a declaration is put into practice.[12] The distinction between market-based and publicly-conferred entitlements varies across time and among societies. Furthermore, access to the same good (e.g., certain foodstuffs) may be governed by the market for some social groups but by the State for others (e.g., those earning less than a specified minimum). Despite these complexities, it is possible, in almost all circumstances, to make the proposed distinction.

Within the sphere of market-based entitlements, food and housing are of special interest due to their effects on health[13] Among other processes, food intake involves nutrition, which conditions biological development and thus affects the structure and function of the body, including its resistance to infection. In turn, housing is represented in Figure 1 as a bridge between living conditions and environment, since it constitutes the immediate habitat of human beings. Moreover, while a house in good condition may be a protection against environmental risks, poor housing conditions add to deleterious environmental factors because they too are sources of pollution.[14] Among the principal elements that link housing with the environment are water supply and sanitation, which have been proposed as important determinants of health.[15,16]

In terms of health effects, education and social security stand out among the most important publicly-conferred entitlements. In particular, female education has been shown to be a critical factor in child health, although the precise mechanism through which this effect is exerted remains a matter of debate.[17,18,19,20,21,22] With respect to formal social security systems, it is convenient, for the purposes of this book, to distinguish them from health care services, even though in many countries a single institution may be responsible for both.

Strictly speaking, social security services refer to benefits that assure minimum levels of economic and social well-being. They include social insurance services, considered as economic and social fringe benefits for

[†] Strictly speaking, the term consumption can be applied to any good or service, regardless of its rules of access. Nevertheless, here we use this term in a restricted sense to refer only to goods and services that are acquired mainly through market mechanisms.

workers who pay premiums, as well as social assistance services for vulnerable persons who are not required to pay.

It is necessary to point out that, apart from being a means for redistributing access to certain goods and services, publicly-conferred entitlements also have economic, political, and ideological value. In an economic sense, they represent a means for the survival of large sectors of the population. They also have a political value in a double sense: on the one hand, they are the object of demands by social groups; on the other, they are means to exercise political control. In this last sense, the ideological value of entitlements must also be understood as a way of legitimizing a social system. These multiple values explain, at least in part, the unequal character of publicly- conferred entitlements in many countries, which often contradicts the declared universality of access to them. Hence these entitlements– notably social insurance–have been mainly directed towards groups involved in the formal sector of the economy, where the aforementioned values can be more effectively realized. As we will see when we discuss health reforms, a big part of the political agenda in recent years has been to expand those entitlements beyond salaried workers.

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As indicated earlier, the summation of market-based and publicly- conferred entitlements defines living conditions. Through the mediation of family structure and dynamics, living conditions affect the next proximate determinant of health status, i.e., lifestyles. Lifestyles are also directly affected by culture and ideology, as well as laws, regulations, taxes, subsidies, and the pressures of commercial enterprises (though these relationships are not portrayed in Figure 1 for reasons of simplification). As Coreil et al have argued, the notion of lifestyle has gained wide currency in the health field without an adequate conceptual analysis. The most common usage reduces its meaning to specific individual behaviors that are interpreted as risk factors.[23] This usage does not take proper account of the sociocultural context of behavior, which was central to the original sociological meaning of lifestyle. Coriel et al propose that this concept be applied to behaviors that are shared by a social group in a specific context. In this sense, it represents a conceptual bridge between cultural and behavioral patterns.

In accordance with this broader perspective, Figure 1 makes a fundamental distinction between living conditions and lifestyles. The former refer to the objective material situation in which the different social groups exist; the latter represent the way in which those social groups translate their objective situation into patterns of behaviors. Therefore, living conditions generate what could be called ‘social risks,’ while lifestyles produce ‘behavioral risks.’ Considered as a whole, both define the quality of life. Undoubtedly, an exhaustive conceptual development will require an operationalization of the categories of living conditions

and lifestyles. However, for the time being it suffices to establish their position in the determination of health status.

Up to this point, our analytical scheme has defined different kinds of risks that are generated throughout the determination chain. As we pointed out previously, the concept of risk has a central role in our frame of reference. Indeed, a dynamic conception cannot be restricted to visualizing an ideal state of health and a state of disease as the two extremes of a continuum;[24] instead, it must incorporate the various gradations within the continuum, that is, the risk levels. It can be postulated that the complex interaction among basic, structural, and proximate determinants (Figure 2) defines a whole spectrum of risk levels.

Since the concept of risk indicates a certain probability of suffering a loss of health, it necessarily refers to population groups (which offer the denominators for estimating probabilities). At a given moment, a high risk situation may experience a change of state and bring about a health loss. It is in this step between risk and loss that the individual dimension of health is realized. Indeed, the population attribute of risk is translated, at the individual level, into a corresponding attribute that might be called 'susceptibility' to disease agents. As Figure 1 shows, susceptibility is a phenomenon where working conditions, living conditions, and lifestyles –determined by social processes– converge with body structure and function, as determined by biological processes. Susceptibility is also a product of the interaction between the internal and the external milieus, the balance of which determines health, according to Dubos and other advocates of the ecological conception.1 Thus, the transformation of the environment by human beings generates pollution, understood in a broad sense as the presence of biological, chemical, and physical agents that may act upon susceptible individuals and potentially produce disease. It should be noted that this broad definition of pollution includes not only the active introduction into the environment of disease agents as a result of human activity, but also the failure to remove agents that occur naturally.

In a feedback loop of determination, the health care system may, in its turn, influence: 1) the basic and structural determinants (by means of family planning, environmental health services, and genetic counseling); 2) the proximate determinants (by means of occupational health services and health promotion); 3) individual susceptibility (through preventive actions in a restricted sense, such as vaccinations); and 4) health status once it has been determined (through diagnostic and therapeutic services).

The complete set of processes included in our theoretical framework can be summarized as portrayed in Figure 2. A fundamental element of the framework is that, as shown on the left side of this figure, five analytical levels can be distinguished: systemic, societal, institutional, household and individual. The systemic and societal levels correspond to the basic and structural determinants, respectively. In turn, the proximate determinants can be analyzed at two levels: the social institutions that give them an organizational expression and the family processes that articulate their expression in the household.[25] Finally, health status is defined, as mentioned earlier, at the individual level. From top to bottom, each analytical level 'explains' (or sets the limits of variability of) the factors operating at the level below; from bottom to top, 'explanations' of elements at each level (or the limits of actual existing alternatives) have to be sought through the characteristics and operation of factors from levels above.

This figure should be seen simply as a schematic device to portray the notion of hierarchical multicausality that underlies our theoretical framework. In no way, does the figure suggest that the higher analytical levels are intrinsically more important or complex than the lower ones. On the contrary, many of the conceptual breakthroughs in explaining and improving health status will come from a better understanding of the subtle

interactions operating at the institutional, household, and individual levels. Furthermore, our formulation does not imply a unidirectional flow of determination. While the solid arrows in Figure 2 do postulate a dominant direction of determination, the dotted arrows illustrate the existence of important feedbacks.

Summary and key ideas

This chapter has provided a conceptual framework to organize the complex relationships between multiple determinants that underlie changes in the health conditions of a population. Specific relationships of determination take place within a basic frame comprised of the population, its genetic constitution, the physical environment within which it resides, and its forms of social organization. The multiple determinants at work within this frame operate at five hierarchically- organized levels – systemic, societal, institutional, household and individual – with each analytical level limiting the variability of the factors operating at the level below. The complex interaction among determinants defines a spectrum of risk levels for the population that is translated into susceptibility to disease agents at the individual level.

The framework that has been developed here allows us to appreciate the complex determination of health processes and to identify areas for future research. In particular, each of the five revolutions mentioned in the prologue to this book has the potential of modifying the determinants of health in the future.

This framework provides the basis to understand the mechanisms for change, which constitute the next element in articulating a theory of the epidemiologic transition, which will be the subject of the next chapter.

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For further reading:

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