

## Natural and Social History of the Health-Disease Process as an Epistemological Model for Medical Education (Part 1)

Arturo G. Rillo<sup>1</sup>, Beatriz Elina Martínez-Carrillo<sup>1</sup>,  
Marta Liliana Palacios-Jaimes<sup>1</sup>, Imelda García-Argueta<sup>1</sup>,  
Graciela Sánchez-Rivera<sup>2</sup>, Juan Hernández-Hernández<sup>3</sup>

<sup>1</sup>Faculty of Medicine / Autonomous University of the State of Mexico, Mexico

<sup>2</sup>Faculty of Higher Studies-Iztacala / National Autonomous University of Mexico, Mexico

<sup>3</sup>Higher School of Medicine / National Polytechnic Institute, Mexico

Corresponding Author: Arturo G. Rillo

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**Abstract:** In order to characterize the epistemological models of medical sciences of use in medical training, the study was carried out from the field of philosophical hermeneutics. From the analysis of documentary sources a horizon of understanding of the historical evolution of the theoretical models of medical sciences is constructed. Recovering the study of Antonio Arredondo, 11 explanatory models of the health-disease process are identified, which are grouped into 6 epistemological models: deterministic, animistic, ecological triad, risk approach, sociocultural approach, systemic approach. Two fundamental aspects stand out in relation to medical education: the conception of the ontological, epidemiological and healthcare dimension of the disease; and the application of the principle of causality to the genesis and evolution of the disease. It is concluded that the dimensions of the disease and the causal relationship are the axes to support the model of the natural and social history of the health-disease process as an epistemological model for the medical sciences and their teaching.

**Keywords** - Epistemological model, health-disease process, medical sciences, medical education, medical causality.

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### I. Introduction

Science is a human activity of an intellectual, socially determined, politically and culturally structured nature that, in its historical reconstruction, uses epistemological models with the purpose of formulating and demonstrating hypotheses, testing and describing phenomena, establishing communication with the scientific community [1,2] and, since the last third of the twentieth century, widely used in the teaching and learning of science [3].

In the field of medical sciences, the model expresses the representation of explanatory and predictive questions about the evolution of health and disease in the context of the world of life. The model allows scientists to describe, interpret and explain the phenomena that derive from the dialectic of the health-disease process to broaden the understanding of the complex facts of life and the world; in a way that they elaborate hypotheses, they test their validity and they make possible the elaboration of predictions by means of the construction of theories that incorporate scientific models [3,4]. This type of models function as intermediaries in the generation of medical knowledge by linking the abstractions of the theory, the concrete actions of an experiment and the explanation or understanding of the phenomena of the social, natural and spiritual world.

The generation of medical knowledge of a scientific nature based on this scheme, conflicts with the Gettier [5] problem linked to knowledge as a true and justified belief; that is, if medical knowledge is a true and justified belief, what is the certainty of medical knowledge? How is medical knowledge constructed? How is this type of knowledge evaluated?

The conflict of the foundation of medical knowledge guides the epistemological debate towards the application of scientific models [6] in different areas of science [7]; and it extends the analysis of the logical forms of the expression of knowledge in relation to the levels of explanation and understanding of reality, considering the articulation between theories, models, experiments and observations through epistemological models [8].

Epistemological models are conceptual constructs in which ideas, theories and paradigms converge, to concretize representations of reality that allow us to offer the explanation of facts and phenomena as they occur in the world of life [6]. In addition, epistemological models give meaning to intervention processes [9]. In the

case of medical sciences, the intervention processes of infectious diseases, chronic diseases and injuries stand out [11]; as well as interventions in public health [12] or education for health [13].

Following the line of reflection of Rosenblueth and Wiener [1], two types of epistemological models of utility in science are distinguished: the theoretical and the materials. A material model represents a complex phenomenon through a simpler system that has some properties similar to those selected for the study in the original complex system. Examples of these models include models of nutritional intervention [14], or the application of models to the practice of nursing in public health [15]. The theoretical model is of symbolic type, by means of which an idealized, relatively simple phenomenon is represented, which shares the structural properties of the phenomenon identified from the original facts that are presented in the world; For this reason, different variables are introduced gradually and successively, which propitiate an adequate representation of the model with reality in accordance with the advances of scientific knowledge [1].

Among the theoretical models in the field of medical sciences, biomedical and biopsychosocial are hegemonic to understand the evolution of the health-disease relationship in a time line at individual and population level; applied as scientific or intervention models. The first emphasizes the disease, is reductionist and bases the health-disease relationship with biological variables [16]. The second incorporates the psychological, social and cultural dimension in the health-disease relationship, so that it is considered holistic in nature [17].

On the other hand, it highlights the model of the natural history of the disease and the levels of prevention, developed in 1953 by Leavell and Clark [18]. In 1971, Juan Cesar García [19] incorporated various paradigms fostering the development of the patient's social role and the health team in the evolution of the health-disease process dynamics, orienting the preventive activities that both the patient and the health team should develop. Recently quaternary prevention has been incorporated, understood as the actions that are established with the purpose of avoiding or mitigating the excesses of the unnecessary intervention of the health personnel at the diagnostic, therapeutic or preventive level and that can generate an "added damage", be it an injury, another organic or psychic disease, when previously there is not [20,21]. Advances in the epistemological analysis of the health-disease-integral care triad, has led to the formulation of a model that represents the theoretical unity of the health-disease binomial centered on the concept of holopathogenesis [22]. The horizon of understanding that Almeida-Filho constructs through holopathogenesis refers to the process of over-determination of the diseases and conditions taken as a whole, in order to concentrate, on the one hand, different facets of the object of health that include encrusted aspects of biomolecular, immunological, physiopathological, clinical, epidemiological and ecosocial nature; and on the other hand, it supports the holopathogenic model as a theoretical-conceptual framework of a comprehensive nature that enables the unification of health and disease theories [23].

In this context, how to enable knowledge of the health-disease process during the educational process to learn medical sciences? By defining the scope of influence of medical practice, it is noted that the four models coexist in the process of generating medical knowledge. That is to say, medical science is based on scientific models of biomedical nature, the application of medical knowledge to the clinic is limited to the approach of the biopsychosocial model and to carry out interventions recourse to the prevention levels of Leavell and Clark; whereas the holopathogenic model makes it possible to understand the transition from the classroom to the medical office. This implies that the reality of the health-disease process that is presented to the medical student is fractioned, so that the following question arises: Is it possible to use an epistemological model for the teaching of medicine that makes it possible to understand and represent the complexity of the health-disease process?

The answer can be explored through the history of medicine because it reflects the history of diseases and models of medical care. On the other hand, the philosophy of medicine explores different paths through which human thought has traveled to understand the dialectic of the health-disease process, but it does not delve into epistemic models that show, theoretically or materially, the advances of the sciences medical. In this line of reflection, a problematic field circumscribed to the following questioning is identified: Is there a model of epistemic nature that shows theoretically or materially the possibilities of application and development of medical sciences in their integration for medical training?

This is a question that is complex given the diversity of epistemological models that coexist in the field of medical sciences today; for the same are magical-religious models as interdisciplinary. The research process leads to recovering the natural and social history of the health-disease process as an epistemological model of scientific nature, which offers the possibility of: promoting the advancement of scientific research; the practical and technological application of these advances in the field of medical sciences; the configuration of the pedagogical sense in the training of the physicians. Therefore, to enter initially in this problematic field, the study was conducted in order to characterize the epistemological models of medical sciences useful in medical training.

## II. Method

A documentary analysis study was made from the interpretive hermeneutic approach [24]. The epistemological position from which the study is based is the philosophical hermeneutics elaborated by Hans-Georg Gadamer. Gadamerian hermeneutics offers the possibility of understanding the human being's experience of being-in-the-world from the tradition in which it is situated [25]; so that each time he interacts with the world of life, he understands differently. By belonging to a tradition, understanding approaches the mobility of meaning and the historicity of man; so that the objectivity of the understanding lies in the consciousness of the effective history [26]. In this direction, the design of the study included four moments: starting point, horizon of meaning, destructive moment and constructive moment [27]. In this communication the results obtained are presented when developing the starting point and the sense horizon; so it shows the historical analysis of the different models that have been described and characterized in the field of medical sciences, attending to the following categories of analysis: health and disease concept; causality of health and disease that underlies the model. In the second part of the study, the results related to the destructive moment and the constructive moment will be exposed.

## III. Results and Discussion

The models have been used by scientists to represent aspects of the world for specific purposes, propitiating the incorporation of theories, laws, hypotheses, principles, specific conditions of the phenomena involved in the portion of reality that they try to understand [28]. These models arise from the practical activity of the human being; that is, its interaction with the world of life. In the field of medical sciences, several models have been developed that, although they are aimed at understanding the disease, have tried to explain the health-disease process. Currently, the causal models of the health-disease process are articulated with models of health care and educational models. The epistemological models of an educational nature are oriented to the formation of human resources in health; or, they allow intervention schemes based on the principles of health education with the intention of promoting health culture.

In 1992, Armando Arredondo [29] published a study in which he established the differentiation of explanatory models of the health-disease process. The differentiation was based on the identification of determining factors and conditioning factors of health and disease, based on the following criteria: working hypothesis of the model, variables included in the model, fundamental characteristics, advantages and disadvantages, time of emergence and main representatives of the model. Result of his analysis, he identified the following models: magic-religious, sanitarian, social, monocausal, multi-causal, epidemiological, ecological, historical-social, geographical, economic, interdisciplinary. Each of these models responds to the conception of health and disease prevalent during the time in which it develops, moving from the conception of spiritual influences that encourage punishment or beneficial favors to the concretion of the integration of the determinants of health (Table 1).

**Table 1 Concepts of health and disease in explanatory models of the health-disease process**

Model	Concept of health and disease
Magic-religious	Health and illness are the result of forces or spirits. They represent a punishment or a divine good.
Sanitarian	The disease results from the unhealthy conditions surrounding the individual.
Social	The disease is generated in the conditions of work and life of man.
Monocausal	The disease is the response to the action of an external agent on the organism; health implies the absence of the agent. It is a biological and individual phenomenon.
Multi-causal	The disease is caused by the simultaneous influence (interaction) of several factors belonging to the individual, the environment and the disease agent.
Epidemiological	To the multi-causal model, it incorporates the causal network and with it the identification of risk factors.
Ecological	Health and disease is the result of agent-host-environment interaction.
Historical-social	There are differential profiles of the health - disease process in relation to the historical context, the mode of production and the social classes. All the causal factors are permeated by the historical-social.
Geographical	The disease results from the interaction of pathological factors and factors typical of the geographical environment (geological factors).
Economic	Health is a good of consumption and investment. It incorporates the theory of human capital.
Interdisciplinary	The state of health-disease, results from the interaction of factors that are addressed in an interdisciplinary manner and that operate hierarchically at different levels of determination.

Source: Prepared from the information provided by Arredondo [29].

Considering the cause of the disease and health, as well as the general characteristics of each model and the variables that intervene in them, they can be distributed in deterministic models and probabilistic models (Table 2). The deterministic models are characterized by analyzing the causal relationship strictly and linearly; that is, causality is a constant, unique and perfectly predictable connection between two events, where one is the cause and the other the effect; emphasizing that under stable conditions, the modification of the cause induces a subsequent change in the effect [30,31]. In this sense, the monocausal model of health and disease is clearly

deterministic. Probabilistic models are characterized by uncertainty, the multiplicity of causes and the randomness with which the phenomena of health and disease are presented [31,32]. Among these are animist models, based on the ecological triad, based on the risk, sociocultural or systemic approach. Table 2 shows the distribution of previously defined epistemic models to explain the health-disease process, in correspondence with the causal models, highlighting the variables associated with the causal relationship.

**Table 2 Correspondence of the causal and explanatory model with reference to its main representatives and variables associated with the cause relationship**

Causal Model	Explanatory Model	Variables	Representatives
Deterministic	Monocausal	Causal agent	Pasteur and Koch
Animist	Magic-religious	Divine designs, unknown forces	Shamans, healers, sorcerers, spiritists
Ecological Triad	Multi-causal	Factors of the individual, of the disease agent (pathogen) and environmental	Leavell and Clark
	Ecologic	Assign a specific value to each factor involved	Susser
Risk Approach	Epidemiological	Identification of risk factors	MacMahon and Pugh
	Geographical	The geographical environment as a determining factor in the health-disease process	Jacques C. May
Sociocultural Approach	Sanitarist	Environmental conditions	Max von Pettenkofer Smith and
	Social	Social organization, lifestyle, agent factors and environmental factors.	Peter Frank, Virchow and Ramazzini
	Historical-social	Historical dimension, means of production, social class, lifestyle	Berlinguer, Laurell and Breilh
	Economic	Income, consumption patterns, lifestyle	Anne Mills, Gilson and Muskin
Systemic approach	Interdisciplinary	There are basic determinants at the systemic level, structural determinants at the socio-structural level, determinants close to the institutional-family level and, at the individual level, the health state itself.	Julio Frenk et al.

Source: Prepared from the information provided by Arredondo [29].

Next, the characteristics of each of the explanatory models indicated in tables 1 and 2 are presented.

### 3.1. Magic-religious model

In this model, both disease and health will be the result of multiple forces or spirits that enter into interaction with the human being. Illness is the "divine" punishment that results in an inappropriate and reprehensible behavior by religious tradition; but it is also a state that tests religious faith [29]. It is a model recognized by its prehistoric origins, where the unknown psychic forces, benign spirits, malignant entities and different deities, are the determining and conditioning variables of the state of health or illness of the human being [33]. To prevent the disease, the patient had to modify their lifestyles in response to the obedience of norms and taboos, so as not to aggravate the spirits/gods [33]. The restitution of the state of health is aimed at healing through the execution of magical and/or religious rites. In the event that the actions are insufficient, inadequate or do not appease the spirits, the death of the patient is understood and accepted [33].

One advantage of the model is the use of natural remedies, whether physical, mineral or biological; However, by associating the beneficial principles of these remedies with the animistic influences of their worldview, scientific knowledge of health and disease is limited, which represents its main disadvantage. The model is presented in primitive societies and the average age; surviving to the present through the healing activities of shamans, sorcerers, healers, priests and spiritualists [29,33]. But contemporary healing practices are also observed in different complementary and traditional medicines, describing themselves as healthy practices based on religion [34]. In the last decade, evidence has accumulated that establishes the positive relationship between religion and spirituality with the state of health of the patient who suffers from mental, infectious or chronic-degenerative diseases. Consequently, spirituality is shown at the beginning of the 21st century as a factor that contributes to improving the health and illness conditions of both the patient and the population [35].

This model is confined to a multi-causal approach that derives from the experience that provides the healing and healing states to address the disease; but the nature of the cause of illness fosters the passive-receptive attitude of the patient.

### **3.2. Monocausal model of the disease**

The direct antecedent of the monocausal model of disease is the miasma theory, which was gradually replaced by the microbial theory at the end of the 19th century. The studies of Agostino Bassi (1773-1856) on the disease of the sign or moscardina (illness of the silkworm) published in 1835 and 1836, demonstrated for the first time, that the disease was caused by a living entity, contagious and that could be transmitted of natural form by contact direct or infected foods [36]. Subsequently, Pierre-Fidele Bretonneau (1778-1862) through his studies with typhoid fever, comes to think that "to each disease its cause, for each harmful agent a well-defined pathological effect" as a fundamental principle of the doctrine of etiological specificity between 1821 and 1826; as early as 1855, it indicated: "a special germ of each contagion, gives rise to each contagious disease: the epidemic plagues are not generated or disseminated, except by their reproductive germ" [37].

The work carried out by Louis Pasteur (1822-1895) related to variolization led to the use of the scientific method in the identification of disease-producing biological agents, but also to define the patient's ability to defend themselves through immunological responses [38]. For 1880, Robert Koch [39] enunciated the following postulates to determine the infectious agent of the disease and that later would make sense to the monocausal model of the disease:

- Pathogenic bacteria should always be isolated from sick animals and never from healthy animals.
- When an animal is sick, the bacteria should be isolated in pure culture.
- If the bacterium is inoculated to another individual, the disease must reproduce.
- The bacteria must be isolated again in pure culture.

In this context, the health-disease process is determined by the active presence of external agents directly producing disease [29]. The disease is a phenomenon dependent on a biological agent that produces alterations in tissues and organs of the patient, who generates a biological response to defend against the aggression of the microorganism. The model was developed primarily for the study of infectious-contagious diseases, since the pathogenic agent (microorganism) is sought, but it was possible to transfer it to identify the direct cause of each disease [30,32]. This model made it possible to scientifically introduce the disease through the investigation of physiological mechanisms of the disease, for example, the studies conducted by Walter Cannon (1871-1945); as well as the regulation and control of biological responses of the organism as shown by the studies carried out by Louis Pasteur; and pharmacological research, based on the concept of pharmacological receptor and the use of experiments on animal species proposed by Paul Ehrlich (1854-1915), revolutionized the individual treatment of the patient.

Transcending its origins during the second half of the 19th century and the beginning of the 20th century to explain infectious diseases, it was possible to adapt to the study of chronic-degenerative and genetic diseases [40]; so it was possible to modify its principles from the paradigm of the biomedical approach, but preserving the deterministic nature in understanding the causality of the disease.

### **3.3. Models supported in the ecological triad**

Several models assumed the paradigm of incorporating into the causal mechanisms of production of the state of health or disease the dialectic of the setting of the ecological triad constituted by the agent, the host and the environment [41]. Among these models, the multi-causal and ecological model stand out, in which the simultaneous influence of factors that acquire significance when interacting as a whole is assumed, that is, they establish agent-guest-environment-type relationships; so the equilibrium of this relationship will be the conditioner of the health status of the individual and the population [29].

The development of these models implies a multiple causal relationship for an effect; that is, through the analysis of the variables involved in the development of the disease, the multiple causes of the disease in question are determined, recognizing more than one participant factor in the study phenomenon, on which preventive action can be taken [42]. The multicausal model does not establish the specific weight of each factor and continues an emphasis on the biological and individual, while the social is included in the environment [29]; however, the analysis of the causal inference in epidemiology carried out by Rothman [30,32] modifies the interpretation in the conceptualization of the participation of different causal factors in the production of a disease, or in its case, the possibility of producing multiple effects as well [43].

The ecological model is attributed to Mervyn Susser as its main exponent [44]. This model also establishes the possibility of interaction between the agent, the host and the environment as causes of disease. The importance of the model, and its distinction with others, lies in the dialectical perspective in which a multilevel approach is constructed to understand the multicausality in the production and evolution of the disease [45].

### **3.4. Models based on the risk approach**

Focusing the analysis of the dialectic of the ecological triad on those factors that are likely to be modified or not in the participation to imbalance the agent-host-environment equilibrium, the risk approach

supports models of the epidemiological and geographical type, although not currently it is exclusive to them. Both models are characterized by guiding the multicausal analysis of the health-disease process through the identification of causal networks to determine the importance of the risk factors statistically associated with the production of disease [29].

As Juan José García [46] recalls, the term risk has different meanings, one of which is that it constitutes the probability that healthy people, but exposed to certain factors, acquire or develop a given disease. Such factors, called risk, are characteristics that are accompanied by an increase in the probability of a pathological process occurring, which means that they are statistically associated with the occurrence of a damage, although this association may or may not be causal.

The analysis of causal networks as a tool to explain the appearance and development of the disease is used to identify the possibilities of intervention and reduce the damage. Proposed by Brian MacMahon, Thomas F. Pugh and Johannes Ipsen in 1960 [47], the causal network rehabilitates the conceptualization of the multiple causality of the disease, in addition it oriented the epidemiological investigation and allowed to characterize different risk factors linked to the evolution of the disease using the methodology of the cohort studies and the analysis of epidemiological cases [48]. These three elements give meaning to the epidemiological model.

The geographical model of the disease necessarily induces the memory of the oldest traditions of medicine; for Hippocrates attributed the development of the disease to the place where the patient lived, also emphasizing the influence of air and water. For 1977, Jacques M. May [49] points out the influence of environmental factors dependent on geographical location to explain the presence and evolution of the disease, so that medical geography analyzes the relationships between pathogens and "geogens". Like the epidemiological model, the geographic model is confined to the multifactorial analysis of the health-disease process, each assigning importance to the elements of the ecological triad.

### **3.5. Models built from the sociocultural approach**

From the time of Hippocratic medicine, the participation of sociocultural factors in the evolution of the disease was known. But it will be until the middle of the 20th century when environmental conditions are integrated with social organization, lifestyles, means of production, social class, economic income and consumption patterns, in the analysis of the determinants of health-disease process. This integration of multiple factors that are associated with the production and evolution of the disease, and consequently of health, are shaping a group of models that focus on a social determinism that gives meaning to medical interventions and health care, both individually and in the population. Among the models included in this category, the sanitarian, the social, the historical-social and the economic stand out.

The unhealthy environmental conditions associated with the social stratum of the individual and the production of disease were recognized in the nineteenth century, pointed out promptly by Max von Pettenkofer (1818-1901) to configure the so-called sanitarian model [50]. The material conditions of life triggered by the industrial revolution, allowed reflection on the material conditions of life linked to the disease, mainly those that derive from work. In the social model, labor and cultural determinism in the development of the health-disease process goes back to the approaches made by Bernardino Ramazzini (1663-1714) giving rise to occupational medicine [51], Johann Peter Frank (1735-1821) marking the hygienist course of social medicine and public health [52], and Rudolf Virchow (1821-1902) noting that "medicine is a social science, and politics is nothing more than medicine in larger scale" [53].

It is now recognized that health and disease are linked to the material conditions of life of the human being, that is, to the social relations of production and reproduction of living conditions. In this sense, the primary determinants of health status present a social-historical dimension that contributes to understanding the health-disease process; so that the historical-social model makes possible the criticism of the prevention measures of the disease and leads to exposing the inconsistency of these measures while the relations of exploitation and domination in the social relations of production remain unchanged [54]. Given the inequity of health services, the economic model that highlights the importance of health in the constitution of human capital is developed, as well as the economic analysis of health to identify the efficiency of health care programs promoted by the government. state; so that in this model, the state of health is promoted without limiting itself to exposing the state of the disease, but taking into account the state of well-being and balance that health provide in the face of suffering and death derived from the state of illness [55].

Each of these models continues to develop independently, however its integration is aspired. In this sense, the biopsychosocial model proposed by Georg L. Engel in 1977 [17], is shown as an effort to transcend the understanding of the health-disease process promoted by the biomedical model of a monocausal nature.

### **3.6. Model referred from the systemic approach**

The systemic approach is based on three fundamental concepts: system, ecosystem and epidemiological system. The first is defined as a set of related elements in such a way that a change in the state of any of its

components causes a change in the state of the other elements. The ecosystem implies the dynamic interrelation of living and inanimate beings; Therefore, any event that qualitatively or quantitatively transforms the ecosystem, be it by increase or decrease, deletion, change or inclusion, will necessarily modify the relationships until then in force, tending to a new equilibrium that may be less functional than the previous one. The epidemiological system is the set formed by the pathogenic agent, the susceptible subject and the environment, endowed with an internal organization that regulates the determinant interactions of the production of disease, together with the factors linked to each one of the elements of the system [56].

Conceptualized from a structuralist perspective, the interdisciplinary model identified by Arredondo [29], exposes the state of health and disease through the interaction of factors that are approached in an interdisciplinary manner and operating hierarchically at different levels of determination: individual, systemic, socio-structural, institutional-family. The reconstruction carried out by Julio Frenk [57] and his team of collaborators in 1991, shows the tendency to search for the unification of an explanatory theory of the transition mechanisms of health from a deterministic approach; giving continuity to the transitional paradigm of the epidemiological change of the disease at the population level proposed by Omran in 1971. Trend that is currently oriented to the development of a holistic approach called P4 systems medicine (predictive, preventive, personalized and participatory) [58].

### **3.7. Epistemological content of explanatory models of health and disease**

The identification of the different models that aspire to represent the health-disease process through history, overlap at present, because the same continues to recognize the influence of religion and spirituality on the evolution of the disease as participation of healthy lifestyles and socio-cultural determinants, in the search for the balance represented by the health-disease binomial. In this sense, the models analyzed respond to the theory of change by adjusting to the structuralism applied to the medical sciences, so that their differences are located in the variables considered for their construction. This propitiates the multiplicity of models; however, they are closely linked when analyzing the causal mechanisms involved in the production of the disease, thus we have monocausal and multicausal models. Depending on the dialectic dynamics of the causal relationships between the factors involved in the development of the health-disease process, it can be argued in models of deterministic or probabilistic type.

In relation to medical education, transiting from one model to another has epistemic implications that include two fundamental aspects: 1) the conception of the ontological, epidemiological and care dimension of the disease; 2) the application of the principle of causality to the genesis and evolution of the disease. This determines the difficulty in overcoming the Flexnerian model of medical education that is divided into three areas: biomedical, clinical and sociomedical [59].

## **IV. Conclusion**

The initial incursion to explore the existence of a model of epistemic nature that has the goodness of showing, theoretically or materially, the possibilities of application and development of medical sciences in their integration for medical training, led us towards the models proposed fundamentally by Arredondo and later to those described by Almeida Filho. However, the review carried out of the aforementioned models does not exhaust the development of proposals linked to a deeper and more specific analysis of each of the models linked to the understanding of the health-disease process in the field of medical sciences.

The results show, in a general way, that the multiplicity of models is determined by the scientific discipline from which the model is exposed; thus medicine describes its own models, just as nursing reconstructs its models from the paradigm of care, the same happens with psychology, medical sociology, medical anthropology. On the other hand, the diversity of models can be related to conceptual models, causal models, explanatory models, formative (educational) models, medical and health care models, intervention models.

During the development of this stage of the study, the amplitude of theoretical positions and practical applications was verified; but also the absence of the delimitation of the problematic field was corroborated, which became a limitation for the study, since it will require in the future, the characterization of this area of philosophical interest. However, the contribution of this communication is recognized in two senses: contribute to the philosophical debate of the relationship between medical sciences and their theoretical models of understanding and explanation of the health-disease process.

Finally, it is recognized that the models reviewed represent different characteristics of the reality in which the health-disease process is developed, so that it is concluded that the dimensions of the disease (ontological, epidemiological and care), and the causality relation, they are the axes that make it possible to base the model of the natural and social history of the health-disease process as an epistemological model for the medical sciences and their teaching. This foundation is presented in a second installment of the study.

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