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PUBLIC POLICY ON PREVENTIVE HEALTH FOR CHRONIC, CATASTROPHIC, RARE AND ORPHAN DISEASES IN THE ARMED FORCES OF ECUADOR

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ABSTRACT

The present analysis is oriented towards an examination of preventive health policies with regard to chronic, catastrophic, rare, and orphan diseases within the Ecuadorian Armed Forces. The primary objective of the initiative was to assess the relevance, scope, and impact of the strategies implemented in this domain, with consideration for both national legal frameworks and the distinct requirements of military personnel and their families. To carry out the research, a qualitative descriptive approach was used, based on the review of documents and semi-structured interviews with different stakeholders in the public health system and in the health system of the Armed Forces. The analysis was enriched using the logical framework methodology, which facilitated the identification of key problems, their causes and consequences, as well as the creation of a tree of objectives to guide the formulation of possible solutions. The findings were further substantiated by data from the Armed Forces Social Security Institute, thereby enhancing the robustness of the conclusions derived.

The findings indicate that, despite the existence of regulations emphasizing the significance of prevention, there remain deficiencies in collaboration among institutions, resource allocation, and the sustainability of prevention programs. Furthermore, the necessity to enhance the training of military health personnel and to ensure global coverage has been identified as a means of minimizing the vulnerability of patients and their families. The research underscores the pressing need to implement a preventive public policy within the Armed Forces that transcends the prevailing legal framework. This policy should aspire to achieve equity, sustainability, and effectiveness in healthcare. The findings of this study provide a significant contribution to the field of strategic decision-making, thereby opening new avenues for research in the realm of preventive health for specific groups.

KEYWORDS: Public Policy, Preventive Health, Chronic Diseases, Catastrophic Diseases, Rare Diseases, Orphan Diseases, Armed Forces of Ecuador.

1. INTRODUCTION

Noncommunicable diseases, which include chronic, rare, and catastrophic diseases, represent a significant threat to global public health. According to the World Health Organization (WHO), approximately 70% of global deaths in 2019 were attributable to these diseases, underscoring their escalating impact on morbidity and mortality. In contrast to communicable diseases, non-communicable diseases do not result from acute infections. Rather, they stem from complex processes related to lifestyle, genetic factors, and the environment. This complexity complicates early diagnosis and adequate treatment of non-communicable diseases.

In Ecuador, official statistics indicate that non-communicable diseases have emerged as a primary cause of mortality and disability among the population (Ministry of Public Health, 2020). This situation has exposed deficiencies in the health system's structure, particularly regarding preventive measures. At the institutional level, these limitations are also observed in the health system of the Armed Forces, where the lack of preventive medical control has resulted in a continuous increase in the incidence of these diseases. Consequently, members of the Armed Forces and their families confront a dual challenge: exposure to arduous and perilous work environments, compounded by the dearth of preventive programs that facilitate the avoidance of complications and the mitigation of the impact of these diseases.

The crux of the issue lies in the conspicuous discrepancy between the existence of regulatory frameworks and public policies that prioritize prevention, and the tangible investment patterns in healthcare that reveal a disproportionate allocation of resources toward curative medicine in comparison to preventive medicine (Pan American Health Organization, 2018). This phenomenon gives rise to a constrained distribution of economic resources, deficiencies in collaboration between institutions, and the unsustainability of programs designed to address these diseases. Within the domain of military affairs, this predicament is further exacerbated by the absence of explicit directives to address the needs of active and reserve personnel, along with their respective families.

The aim of this research stems from the necessity to fortify preventive health policies within a pivotal sector such as the Armed Forces, where the operational effectiveness of its members is inextricably linked to their health. Ensuring early diagnosis, equitable access to suitable treatment, and

the implementation of sustainable programs have been demonstrated to enhance patient well-being and contribute to national security and defense. The Economic Commission for Latin America and the Caribbean has determined that investment in preventive health has a multiplier effect on the social and economic development of countries. This effect is characterized by a reduction in long-term costs and an increase in productivity.

From an academic perspective, this study contributes to an under-researched field of research: the prevention of chronic, catastrophic, rare, and orphan diseases in military settings. The study's significance stems from its comprehensive examination of prevailing public policies and its proposal of a set of guidelines derived from a logical framework. The objective of these guidelines is to address the deficiencies identified in the analysis. In practical terms, the findings of the study serve as a vital resource for the formulation of health policies that are tailored to the unique circumstances of the Armed Forces of Ecuador.

In this context, the primary objective of the research is to evaluate the preventive health policy within the Armed Forces of Ecuador, recognize its progress and limitations, and establish guidelines that strengthen the institutional capacity to deal with chronic, catastrophic, rare, and orphan diseases. Accordingly, the objective of the present study is twofold: firstly, to facilitate the establishment of a healthcare system that is more effective and equitable; and secondly, to promote academic discourse concerning the management of healthcare within specific population demographics.

2. THEORETICAL FRAMEWORK

2.1. *Conceptualization of Preventive Health and NCDs*

Preventive health is defined as a series of measures aimed at anticipating and reducing the prevalence of diseases by promoting healthy lifestyles and identifying risk factors in a timely manner (WHO, 2020). In this context, noncommunicable diseases (NCDs) are distinguished by their protracted duration, gradual progression, and the intricacy inherent in their management, encompassing cardiovascular diseases, cancer, chronic respiratory diseases, and diabetes (PAHO, 2018).

Within the framework of NCDs, chronic diseases necessitating ongoing medical intervention can be categorized as follows: catastrophic diseases, which demand costly treatments and exert significant influence on both society and the family unit; and

rare or orphan diseases, characterized by their low prevalence and necessitating a particular emphasis in public health (Ministry of Public Health, 2020). As the World Health Organization (WHO) has indicated, "the use of tobacco, physical inactivity, alcohol abuse, and unhealthy diets increase the risk of death due to one of the noncommunicable diseases (NCDs)" (p. 7).

2.2. International and National Regulatory Framework

At the global level, the 2030 Agenda for Sustainable Development underscores the significance of Goal 3, which emphasizes "ensuring a healthy life and promoting well-being for all at every stage of life." This goal stipulates the reduction of premature deaths from NCDs as a paramount objective, to be achieved through the implementation of prevention and treatment strategies (UN, 2015). In the context of Latin America, the Pan American Health Organization (PAHO) has noted that the absence of sustained investment in prevention has resulted in increased health system expenditures and constrained the response capacity of governments (2019).

In Ecuador, the Organic Law of Public Health stipulates that the state is obligated to provide comprehensive care for NCDs in accordance with the principles of availability, accessibility, and quality. Nevertheless, public resources continue to be allocated to curative medicine, while initiatives for promotion and prevention are being neglected (Organic Law of Public Health, art. 1). The result of these factors is the formulation of policies that lack coherence and a paucity of long-term sustainable programs.

2.3. Regulatory Framework in the Armed Forces

In the military sector, the Armed Forces Social Security Act (2011) allocates the responsibility for funding healthcare programs and the provision of medicines to the Armed Forces Social Security Institute (ISSFA). Moreover, the Regulations on Sickness and Maternity Insurance stipulate that "the ISSFA will collaborate with the Directorate of Health of the Armed Forces (DISAFA) in the implementation of strategies to promote health, prevent diseases, and address the most common health problems with the greatest impact on the military population and its dependencies" (ISSFA, 2014, art. 39).

However, in practice, deficiencies in administrative and bureaucratic management are observed that result in delays in diagnoses and treatments, thereby affecting the effectiveness of

preventive measures. Moreover, the institution's reports underscore the significant impact of metabolic problems, including hypertension, diabetes, and obesity, on military personnel. These conditions account for a cumulative expenditure exceeding \$25 million in medical care between 2015 and 2020 (ISSFA, 2021).

2.4. Epidemiological Diagnosis: Global and National Overview

On a global scale, in 2019, noncommunicable diseases (NCDs) accounted for 74% of deaths, amounting to 41 million fatalities (WHO, 2020). In Latin America, the Economic Commission for Latin America and the Caribbean (ECLAC) has noted that the region's demographic and epidemiological evolution has led to an increase in the prevalence of chronic diseases. This, in turn, has exerted pressure on public health systems.

In Ecuador, the STEPS Survey (MSP, 2018) revealed that cardiovascular diseases are the leading cause of mortality, with diabetes and cerebrovascular diseases ranking second. The National Institute of Statistics and Census (INEC) reported that diabetes mellitus was the underlying cause of 50 deaths. According to Machado (2019), the number of new cases has increased by an average of 37,000 per year over the past decade, with a total of 000 individuals affected. Furthermore, in the year 2020, the number of fatalities resulting from cerebrovascular accidents exceeded 5,000 (Dávalo, 2021).

2.5. Previous Research and Comparative Experiences

A substantial body of research has demonstrated the importance of implementing preventive policies within military environments. In accordance with the findings of Martínez and Gómez (2017), military entities that prioritize preventive measures have demonstrated a notable capacity to curtail absenteeism and curtail health expenditures. In Colombia, military health studies have demonstrated that the absence of preventive programs contributes to an increase in the prevalence of hypertension and diabetes among active-duty personnel (Ruiz, 2019). In the United States, the Department of Defense (DoD) has implemented initiatives aimed at preventing obesity and cardiovascular conditions. These initiatives have yielded a 15% reduction in associated expenses over a period of less than five years (DoD, 2018).

This background suggests that prevention is not only cost-effective but also improves military operational capability by ensuring that personnel are

kept in adequate health. However, Ecuadorian studies are limited in scope and typically encompass a general analysis of NCDs, excluding the military population and the formulation of specific public policy guidelines.

2.6. Gaps Identified in Literature

Despite the extensive corpus of literature addressing NCDs and preventive health, there are notable lacunae in the implementation of such strategies within military contexts in Latin America. Most of the research in this field focuses on the civilian population, neglecting to consider the epidemiological and labor characteristics of the armed forces. Moreover, the existing regulatory framework is deficient in its absence of impact assessments, which are essential for gauging the true effectiveness of these measures.

Therefore, the objective of this research is to provide an exhaustive analysis of the public policy of preventive health in the Armed Forces of Ecuador. The central aim of this research is to suggest guidelines based on scientific evidence that will allow the military health system to overcome existing deficiencies and strengthen its sustainability.

3. PROJECT OBJECTIVES

3.1. General Objective

Design public policy guidelines to strengthen preventive health policies for chronic, catastrophic, orphan and rare diseases of vulnerable groups belonging to the Armed Forces of Ecuador.

3.2. Specific Objectives

- a) Analyze the public policy on preventive health at the level of the Armed Forces, and compliance with the current regulatory framework.
- b) To carry out a diagnosis of the impact of NCDs at the health level on the members of the Armed Forces and the economic implications for the institution.
- c) Identify good practices in preventive health at the level of chronic, catastrophic, orphan and rare diseases with the highest incidence.
- d) Propose public policy guidelines focused on preventive health, applying the logical framework methodology to strengthen the institutional policy established in the Armed Forces.

4. METHODOLOGY

The methodology used in this study will be qualitative based on the documentary information

collected and semi-structured interviews that were conducted with different actors that are part of the public health system, and the Armed Forces system.

4.1. Data Collection and/or Information Gathering.

4.1.1. Type of Data

Primary sources: A series of semi-structured interviews were conducted to identify the non-communicable diseases (NCDs) with the highest incidence in the Armed Forces and to ascertain the type of difficulties experienced by patients. According to the available data, insights were gained into the role of preventive medicine within the institution. To this end, a series of interviews were conducted with administrators, doctors, and patients, as well as a focus group with members of the different branches of the Armed Forces.

Secondary sources: Documentary information was collected on current legislation in preventive health of NCDs. This type of information proved useful in conducting a diagnosis of the legal framework regarding NCDs and preventive health in Ecuador and in the Armed Forces. A comprehensive review of reports from international and national organizations was conducted to ascertain the morbidity and mortality statistics associated with this disease. In the specific case of the Armed Forces, it was possible to extract information from figures concerning medical care and health costs from the relevant databases, reports, and reports of the institution. In the context of the analysis of good practices in preventive health for NCDs, reports from the primary countries in the region were used.

4.1.2. Collection Methods

The research method employed was semi-structured in-depth interviews. For the implementation of this particular instrument, analytical units were methodically arranged, encompassing actors responsible for hospital administration, a physician specializing in preventive health from a public institution, a patient of the Armed Forces afflicted with an NCD, and a group of members of the Armed Forces who are users of the military institution's health system, via videoconference through the Zoom platform.

The collection of documents under consideration constitutes a compendium of various genres. The utilization of this instrument was intended to facilitate the identification and acquisition of pertinent information relevant to the object of study. This encompasses legal documents, reports, accountability documents, and other relevant

materials concerning preventive health and non-communicable diseases (NCDs). The information was initially classified, subsequently categorized, and finally arranged into units of analysis.

4.1.3. Methods of Analysis

Logical framework. This methodological approach facilitated the formulation of the proposal for public policy guidelines, which was the primary objective of the study. This methodology identified the actors involved in the problem to establish their rights, duties, and responsibilities. Subsequently, the problem tree was established, thereby identifying the central problem to be solved, as well as its causes and effects. Considering the issues, a structured framework of objectives was devised, facilitating the formulation of alternative solutions to the underlying causes of the problem. The proposed alternatives, employing an adapted version of the logical framework methodology, enabled the formulation of a set of public policy guidelines. It is imperative to acknowledge that this adaptation does not entail the formulation of a logical framework matrix, as its primary focus is directed towards the planning, monitoring, and evaluation of projects. A program was finally developed to implement one of the guidelines that had been identified as a priority.

4.1.4. Type of Analysis to be Carried Out

The analytical approach employed in this study is qualitative, with a descriptive orientation. This methodological framework enabled the formulation of a diagnosis concerning the legal framework and the status of preventive health with respect to chronic, catastrophic, orphan, and rare diseases. A subsequent analysis of the available data facilitated the comprehension of the economic situation currently confronting the health system of the Armed Forces. The present qualitative analysis was meticulously executed in four stages:

First stage: A comprehensive collection of bibliographic information pertaining to the documentary was subsequently assembled, thoroughly processed, and subjected to rigorous analysis. Prat (2015) offers a definition of literature review as the process of searching, collecting, arranging, assessing, and criticizing information on a particular subject, thereby providing a comprehensive overview of the issue at hand. Arias (2012) defines documentary research as "a process that involves search, retrieval, analysis, critique, and interpretation of secondary data, that is, data obtained and recorded by other researchers in documentary sources, including printed,

audiovisual, or electronic formats." As is characteristic of research in this field, the objective of this design is to contribute new knowledge" (p. 27).

Within this stage, semi-structured interviews were conducted to ascertain the criteria or perception of key actors in the field of preventive health and NCDs. A diagnosis of the present state of the health system of the Armed Forces was made using videoconference interviews on the Zoom platform. The participants in these interviews included hospital administrators, doctors, and patients. AA. is tasked with the identification of deficiencies within the system that necessitate immediate attention.

In the second stage, an analysis was conducted of the figures concerning the provision of medical care by patients who are members of the Armed Forces (active, passive, and entitled persons). Additionally, figures were analyzed at the level of medical care and costs that the ISSFA must cover to attend to its insurance. This analysis enabled the measurement of the economic impact that NCDs have on the institution's budget. A comprehensive analysis was conducted by examining operational plans, financial reports, and annual accountability reports. This analysis was utilized to evaluate expenditures at both the level of care and the level of medications.

Third stage: A diagnosis of good practices in preventive health focused on non-communicable diseases was carried out. The selection of these practices was determined by a range of secondary sources, drawing from successful experiences in other countries within the region. The analysis conducted enabled the identification of effective practices in the domains of legislation, public policy guidelines, and preventive health programs or plans, which have demonstrated the capacity to reduce the morbidity rates of NCDs.

The fourth stage entailed the formulation of a proposal for public policy guidelines aimed at fortifying the preventive health system for the armed forces population. This population is particularly vulnerable to the development of non-communicable diseases due to the nature of their activities. The proposal was developed through the application of the logical framework methodology.

5. RESULTS

The following actions were carried out for the presentation of the results of this study: The following aspects will be analyzed in this study:

- A general analysis of the regulatory framework of public policy on non-communicable diseases (NCDs) and preventive health

- A diagnosis of NCDs in the case of the health system of the members of the armed forces and their impact on the institution's budget
- A comparative analysis of good international practices with respect to preventive health

The proposal for preventive health public policy guidelines focused on the Armed Forces is contingent upon the acknowledgement that this particular population is more exposed to this type of disease. This exposure is a result of the role of the Armed Forces in defending sovereignty and territorial integrity.

5.1. Analysis of the Regulatory Framework at the level of Preventive Health and NCDs.

5.1.1. Analysis of the Ecuadorian Regulatory Framework in the Area of Preventive Health.

The following articles provide a foundation for the analysis of the limitations or deficiencies in Ecuadorian legislation concerning preventive health and catastrophic non-communicable diseases.

Article 359 of the Constitution of the Republic of Ecuador, in its second section, states the following:

Article 359 stipulates that the national health system is to consist of the institutions, programs, policies, resources, actions, and actors in health. It is to encompass all dimensions of the right to health, ensuring promotion, prevention, recovery, and rehabilitation at all levels. Furthermore, it is to promote citizen participation and social control. (Constitution of the Republic of Ecuador, 2008)

Article 360 of the Constitution of the Republic of Ecuador, in its second section, states the following:

Article 360 stipulates that the system is obligated to guarantee the promotion of health, prevention, and comprehensive, family, and community care. This guarantee is to be based on primary health care, and the system is to articulate the different levels of care. Furthermore, the system is to promote complementarity with ancestral and alternative medicines.

The comprehensive public health network is to be incorporated into the national health system, comprising a cohesive array of state entities, social security institutions, and ancillary providers under the jurisdiction of the state. These entities will be integrated through a network of legal, operational, and complementary links, as delineated in the Constitution of the Republic of Ecuador (2008).

Article 361 of the Constitution of the Republic of Ecuador, in its second section, Health, stipulates the following:

Article 361 stipulates that the state is responsible

for the stewardship of the health system through the national health authority. The state is tasked with the formulation of national health policy and the regulation, supervision, and control of all health-related activities and the functioning of entities in the sector. (Constitution of the Republic of Ecuador, 2008)

The Constitution also establishes the financing of health services and the special social security regime that the Armed Forces should have.

Article 366 stipulates that public financing in the healthcare sector must be executed in a timely, regular, and sufficient manner. This financing is to be derived from permanent sources within the General State Budget. The allocation of public resources will be determined by population criteria and health needs.

Article 370. The Armed Forces may have a distinct social security regime, in accordance with the law. Their social security entities will be integrated into the comprehensive public health network and the social security system (Constitution of the [...]).

Republic of Ecuador, 2008)"

In light of the constitutional framework and the responsibility that health actors must assume (institutions of the public health network, the IESS, ISSFA, ISPOL, among others), there are limitations in the leading role that Preventive Health should have to attend to and guarantee the necessary services required by people suffering from NCDs.

Moreover, despite the constitutional provisions for the financing of health and the special social security regime of the Armed Forces, there is a lack of full compliance with this allocation of resources in practice, resulting in financial deficits at the institutional level that hinder the provision of effective and quality care.

The following articles of the Organic Law of Public Health (LOSP) are also worthy of particular attention:

Article 6 of the LOSP delineates the responsibilities of the Ministry of Public Health in the domain of health, stipulating the following:

The fifth mandate is to regulate and monitor the implementation of technical standards for the detection, prevention, comprehensive care, and rehabilitation of communicable, non-communicable, chronic-degenerative diseases, disabilities, and public health problems that are declared priorities. It also includes determining the communicable diseases that must be reported, ensuring the confidentiality of the information (Organic Law of Public Health). In the same LOSP, Article 10 stipulates that all members of the System

To execute health-related activities at the national level, it is essential that the following conditions be met:

Article 10 stipulates that individuals enrolled in the National Health System are obligated to adhere to the policies, programs, and standards of comprehensive and quality care. These standards encompass a range of actions, including the promotion, prevention, recovery, rehabilitation, and palliative care of individual and collective health. The implementation of these actions is subject to the principles and approaches delineated in Article 1 of this Law. (Organic Law of Public Health)"

As indicated in the articles, Ecuadorian legislation provides for the protection of the health of persons suffering from NCDs, to guarantee the effective enjoyment of their right to life. The regulations also underscore the significance of public policies aimed at the "detection, prevention, comprehensive care and rehabilitation" of the population with chronic, catastrophic, rare and orphan diseases. Nevertheless, the public health programs that have been developed thus far have not effectively protected this vulnerable group that requires priority attention.

As the Ministry of Health asserts, public health problems necessitate comprehensive attention, which includes the prevention of risk situations and encompasses educational, health, social, psychological, ethical, and moral solutions, privileging the right to life guaranteed by the Constitution (Ministry of Health, 2015). In the context of the LOSP, there has been discourse concerning the development of specific programs, including those focused on the prevention and control of tobacco consumption, the prevention of alcohol consumption, and the prevention and control of NCDs. Nevertheless, there is presently a conspicuous absence of specific or concrete programs to minimize or combat NCDs. Furthermore, there is a paucity of promotion, control, monitoring, and prevention of patients suffering from these diseases.

5.1.2. Analysis of the Regulatory Framework on Preventive Health of the Armed Forces

The Law on Social Security of the Armed Forces Constitutional Edition of the Official Register 168, 04-V -2021 (Law 169) Chapter V On Sickness and Maternity Insurance Art. **The following assertion is made in Section 51**

"Chapter V"

The topic of this investigation is health and maternity insurance.

Article 51.- Sickness and Maternity Insurance is a benefit designed to safeguard the well-being of the

insured, including active and reserve personnel, their dependents and beneficiaries, aspiring officers and troops, and conscripts. This protection is provided through the following services:

According to the provisions outlined in the Armed Forces Social Security Law of 2011, the primary objective of this initiative is to establish a comprehensive framework for the implementation of preventive medicine measures within the armed forces.

The 2014 Regulations of Maternity and Sickness Insurance of the ISSFA, Title II of the Sickness and Maternity Insurance, Chapter III of the document.

According to the literature on preventative medicine, specifically articles 39 and 40, it is important to note that...

Article 39 stipulates that the ISSFA is responsible for collaborating with the Directorate of Health of the Armed Forces (DISAFA) in the formulation of strategies aimed at promoting health and preventing diseases and health problems that have a high frequency and significant impact on the military population and its dependents. In doing so, the ISSFA is required to consider the epidemiological profile of the insured population or the statistics and studies prepared by the DSEM.

Art. According to the provisions stipulated in the Comprehensive Health Care Model (MAIS), the allocation of financial resources earmarked for preventive medicine programs is to be determined by the insurance provider within the context of the annual budgetary framework. This determination is contingent upon the economic viability of these resources. These programs will be incorporated into the POA." (ISSFA, 2014)

The Organic Statute for ISSFA processes, as delineated within the Health Insurance Directorate's attributes and responsibilities, encompasses the following considerations:

The following list enumerates the powers and responsibilities pertinent to this matter

f. In order to facilitate the planning, organization, execution, control, and evaluation of health programs, campaigns, and projects, it is essential to establish a collaborative relationship with the health areas of the armed forces. (...)

The Institutional Strategic Objective, which is aligned with the Department of Health Promotion and Prevention, takes the following into consideration:

"(...) 8. According to the International Society for the Prevention of Child Abuse and Neglect (ISSFA, 2013), there is a necessity to augment the implementation of prevention and health promotion

programs.

It is evident that the institutional legal framework encompasses the implementation of prevention activities for ISSFA insured persons, underscoring the Department of Health Promotion and Prevention's mandate to formulate internal proposals concerning preventive health measures for institutional members. However, the promotion and prevention of NCDs is not being adequately addressed, despite the high number of patients in the Armed Forces. This predicament is further complicated by its direct impact on the augmentation of the allocated budget. The institutional framework does not promote the employment of specialists in preventive health or family health. This is particularly evident in first-level hospitals or subcenters, where the implementation of such specialists would be most opportune for the detection and management of NCDs.

5.1.3. Analysis of the Regulatory Framework for NCDs in Ecuador

The following articles were considered while conducting the present analysis:

The Constitution underscores the following principles concerning individuals afflicted with catastrophic diseases:

Article 50 stipulates that the State shall guarantee the right to specialized and free care for individuals afflicted with catastrophic or highly complex diseases at all levels, in a timely and preferential manner. (Constitution of the Republic of Ecuador, 2008)

According to Article 66 of the Constitution:

Article 66 stipulates that individuals are recognized and guaranteed certain rights and liberties.

2. The right to a dignified life, which is defined by the assurance of health, security, and the provision of other essential social services, is a fundamental human right that should be upheld under all circumstances. (...)

10. According to the Constitution of the Republic of Ecuador (2008), individuals possess the right to make autonomous, judicious, and enlightened decisions regarding their health and reproductive life. The Organic Law on Health stipulates that the Ministry of Public Health is entrusted with the responsibility of implementing regulations pertaining to catastrophic diseases, as outlined in Article 5.

The objective of section 5-A is to establish guidelines for the management of pathologies classified as catastrophic diseases. These guidelines encompass the proper implementation of regulatory frameworks and the supervision of programs designed for their treatment. (Organic Law of Public Health)"

This assertion is further substantiated by Chapter III

A of the Organic Law of Public Health, specifically Article 1, which pertains to the management of chronic, catastrophic, rare, and orphan diseases.

The Ecuadorian State has demonstrated its commitment to addressing the challenges posed by catastrophic, rare, and orphan diseases of national interest. Through the national health authority, the government has outlined a comprehensive strategy aimed at enhancing the quality of life and life expectancy of patients afflicted with these conditions. This strategy is founded on the principles of availability, accessibility, quality, and compassion, with the objective of ensuring that individuals receive the necessary healthcare services and support to promote their well-being and quality of life. The government has also established specific quality standards for various healthcare services, including promotion, prevention, diagnosis, treatment, rehabilitation, habilitation, and cure.

Individuals afflicted with these ailments are to be regarded as being in a state of dual vulnerability." According to the Organic Law of Public Health.

The regulatory framework stipulates that individuals afflicted with noncommunicable diseases (NCDs) in Ecuador are entitled to receive comprehensive care. However, the precise responsibilities and consequences that institutions within the health system should assume for their failure to adequately implement the plans, programs, and activities that are designed to mitigate the adverse impacts of NCDs remain uncertain. Moreover, the state budget allocated to combat NCDs is limited and has been primarily allocated to healthcare services, treatment, and medications.

Consequently, the absence of a definitive public policy for NCD care in Ecuador has precipitated a persistent escalation in chronic, catastrophic, rare, and orphan diseases. This situation is further exacerbated by the limitations in the allocation of economic resources, and by the cost of care that curative medicine has. The strategic implementation of health policies that prioritize a preventive medicine approach holds considerable potential in facilitating comprehensive biopsychosocial care, a multifaceted approach aimed at thwarting the emergence or progression of such ailments.

5.1.4. Analysis of the Regulatory Framework for NCDs in the Armed Forces

For the purposes of this analysis, the Armed Forces Social Security Law will be examined in accordance with the following articles:

The Armed Forces Social Security Law contains the following provisions:

Article 2 stipulates that the executing body of this law is responsible for providing social security to the military professional, their dependents, and beneficiaries, as well as to aspiring officers, aspiring troops, and conscripts. This is achieved through a system of benefits.

Art. Thirdly, the International Space Station Flight Awareness (ISSFA) shall carry out the following responsibilities: (...)

The objective of this fund is to provide financial support for medical care programs and the procurement of medications. According to the provisions stipulated in the Armed Forces Social Security Law of 2011, [...]

According to Chapter III of Preventive Medicine, entitled "Regulations on Sickness and Maternity Insurance," the following provisions are stipulated:

Article 39 stipulates that the ISSFA is responsible for collaborating with the Directorate of Health of the Armed Forces (DISAFA) in the formulation of strategies aimed at promoting health and preventing diseases and health problems that have a high frequency and significant impact on the military population and its dependents. In doing so, the ISSFA is required to consider the epidemiological profile of the insured population or the statistics and studies prepared by the DSEM. (ISSFA, 2014).

A legal compendium is imperative for the Armed Forces to ensure the institution's health system is fortified in the administrative area and that care times for external referrals are enhanced. The present system is characterized by a high degree of bureaucracy and a plethora of procedural requirements, which result in delays in the provision of essential treatments for insured patients. A considerable number of patients are afflicted with various medical conditions, including diabetes, hyperlipidemia, hypertension, obesity, and COPD. This underscores the necessity for a swift and efficient healthcare system that can promptly address the needs of these patients. Moreover, there is a pressing need to disseminate and promote comprehensive health campaigns, strategic plans, programs, and projects that are designed to prevent the onset of these conditions among the institution's members.

5.2. Diagnosis of NCDs in the Health of Members of the Armed Forces and How it Affects the Budget

5.2.1. Brief General Diagnosis of NCDs Worldwide and in Ecuador

NCDs globally: According to the World Health

Organization (WHO), non-communicable diseases (NCDs) are typically protracted and are the result of a combination of genetic, physiological, environmental, and behavioral factors. In 2019, non-communicable diseases were among the seven most prevalent diseases on a global scale.

The following ten factors have been identified as the primary contributors to mortality. However, noncommunicable diseases accounted for 74% of deaths worldwide in 2019. (WHO, 2020)

According to data and figures from the World Health Organization (WHO), the following statement is made: "non-communicable diseases are responsible for 41 million deaths per year, which constitutes 71% of the global mortality rate." However, it is estimated that 15 million people between the ages of 30 and 69 die from NCDs each year. Notably, more than 85% of these "premature" deaths occur in low- and middle-income countries. Furthermore, cardiovascular disease accounts for the majority of NCD deaths (17.9 million each year), followed by cancer (9.0 million), respiratory diseases (3.9 million), and diabetes (1.6 million). These disease groups are responsible for more than 80% of all premature deaths from NCDs. Tobacco use, physical inactivity, problematic alcohol use, and unhealthy diets have been identified as significant risk factors for the development of NCDs, underscoring the need for comprehensive public health strategies to address these modifiable risk factors (WHO, 2021).

NCDs at the equator level: The World Health Organization (WHO) has indicated that, in 2019, the primary causes of mortality due to noncommunicable diseases (NCDs) in Ecuador were as follows: ischemic heart disease, kidney disease, stroke, diabetes mellitus, cirrhosis of the liver, chronic obstructive pulmonary disease, Alzheimer's and other dementias, hypertensive heart disease, stomach cancer, and prostate cancer.

In Ecuador, cardiovascular diseases are the leading cause of mortality, accounting for 26.49% of all deaths in 2019. The most significant risk factors for this type of disease include hypertension, hyperglycemia, altered glucose levels, and elevated cholesterol levels. According to the MSP STEPS Survey Report (2018),

In the context of arterial hypertension as a risk factor for cardiovascular diseases, its prevalence in the population aged 10 to 17 years is 14.2%, and in the population aged 18 to 59 years, 37.2%. Conversely, the prevalence in the population between 18 and 59 years of age is 9.3%, exhibiting a higher frequency in men than in women (11.2% vs. 7.5%). According to the 2019 Arterial Hypertension

Report by the MSP,

According to the Independent National Electoral Commission (INEC), diabetes mellitus is the second leading cause of death in the country. According to data from this institution, 50,000 individuals have succumbed to this issue over the past decade. According to the latest data from the Ministry of Public Health (MOH), the annual incidence of diabetes has been estimated to be approximately 37,000 cases. Of these cases, it is reported that 98% are classified as type 2 diabetes. The primary contributing factors to this condition have been identified as a sedentary lifestyle, poor nutritional habits, and a genetic predisposition. The high cost of medicines imposes a significant financial burden on patients, thereby limiting their ability to combat the disease. (Machado, 2019)

The third most prevalent cause of mortality in the country is cerebrovascular disease. In the year 2020, the number of fatalities in our nation due to cerebrovascular accidents (CVA) was 5,102, representing an increase of 11% compared to the year 2019, according to statistics reported by the National Institute of Statistics and Census (INEC). Similarly, the prevalence of stroke has been shown to decrease in correlation with the presence of Sars-Cov2. This context is alarming since it is presumed that approximately two million neurons per minute die in a stroke patient. (Dávalo, 2021)

Despite the country's adherence to the risk factor guidelines established by international health organizations as part of the broader strategy to mitigate these diseases, these guidelines have yet to be effectively translated into policy. The risk factors that are the focus of this study include tobacco and alcohol consumption, lack of physical activity, and change in eating habits. According to the MSP STEPS Survey Report (2018).

5.2.2. Diagnosis of NCDs in the Armed Forces and their Impact on the Institution's Budget

NCDs at the level of the Armed Forces: The report INF-DSS-DPPS-2021-01, prepared by the Department of Health Promotion and Prevention (DPPS) of the ISSFA and published in 2021, indicates, based on the institution's health care statistics, that during the period 2013-2020, metabolic syndrome diseases such as high blood pressure, diabetes, obesity, and dyslipidemia constituted 7.5% of total care. From an economic perspective, the total disbursement to the institution for these medical services was \$9,620,617.17 during the same period. Furthermore, among the insured population of the Armed Forces, which numbers 238,452 individuals,

26.97% of this population (64,281 individuals) are affected by one or more of the conditions. This figure is indicative of the institution's suboptimal health system.

According to data provided by the Department of Health Economics of the United States,

FF. In 2019, the number of visits for medical care related to noncommunicable diseases (NCDs) amounted to 517,755. The medical interventions in question pertained to a range of health concerns, including but not limited to diabetes, arterial hypertension, obesity, dyslipidemia, and chronic obstructive pulmonary disease (COPD).

From 2013 to 2020, the most prevalent diseases requiring attention included hypertension, diabetes, hyperlipidemia, obesity, and COPD. The four diseases that comprise the metabolic syndrome are diabetes, hyperlipidemia, hypertension, and obesity. These diseases accounted for 7.5% of total care during the years under study, representing a total of \$9,620,617.17 in medical care expenditures during the same period. Within our current universe of 238,452 insured persons, 64,281 (26.97%) are living with one or more of the four conditions of metabolic syndrome.

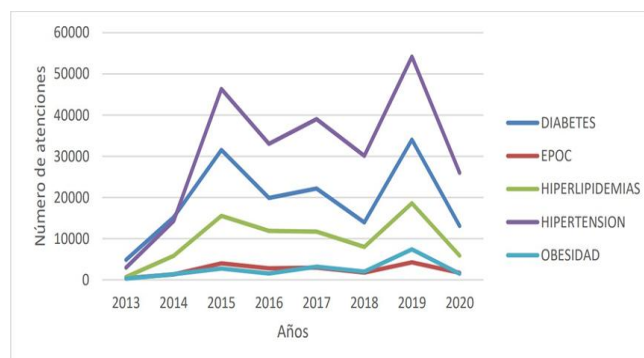


Figure 1: Number of Care Cases by Type of NCD During the Period 2013-2020.

Source: Discoverer/Department of Health Economics - Health Insurance Directorate.
Prepared by: DPPS - Health Insurance Directorate.

In 2019, a substantial increase in NCD care for ISSFA insured persons suffering from NCDs was observed in comparison to the previous year. It is imperative to acknowledge that, in 2020, there was a notable decline in the number of visits, which may be attributed to the global pandemic caused by the novel strain of Coronavirus (SARS-CoV-2). This event has introduced variability in the calculation of the trend of care, necessitating a re-evaluation of the data.

In regard to the distribution of cases according to metabolic syndrome and COPD group, the data from

2013 to 2020 reveals a notable distribution. Specifically, approximately 42% of the cases were concentrated in the diabetes category, 30% in the hyperlipidemia category, 17% in the hypertension category, 7% in the obesity category, and 4% in the COPD category. The preponderance of cases of diabetes and obesity is observed to be higher among women than men. However, in the case of other diseases, men demonstrate a higher susceptibility compared to women.

Furthermore, the scope of care is expanded to encompass NCDs, along with cancers and benign tumor pathology related to these cancers, with the emphasis on timely detection. According to the databases made available by the Department of Health Economics—Health Insurance Directorate of the Armed Forces, the following data was documented from 2013 to 2020:

A total of 155,073 cases related to cancer were documented, including carcinomas, malignant tumors, and dysplasias in general. A separate category comprises benign tumor pathology, which encompasses fibroids, adenomas, cysts, and other

benign tumors.

During the same study period, the ISSFA recorded the highest number of visits related to breast cancer, followed by prostate cancer. The lesions that are most likely to be malignant and thus receive the greatest number of diagnostic efforts are benign prostatic hyperplasia in men and cystic lesions (adenomas, breast fibroadenomas, and other related lesions) in women. A decline in the number of visits for all types of cancers was observed in 2020. This decrease may be associated with the impact of the Coronavirus Disease 2019 (Covid-19) pandemic, which has the potential to modify the calculation of the trend in care.

Impact on the Institution's Budget: It is imperative to analyze the impact of NCD costs on both medicine and medical care. According to the figures presented in Table 2, during the period 2015 to 2020, NCDs represented a disbursement of 25.5 million dollars to the institution. These costs are distributed in care for metabolic diseases, COPD, cancers and benign tumor pathologies.

Table 1: Cost of NCDs for ISSFA by Billing Years 2015 to 2020.

Year	Metabolic and COPD	Cancers	Benign Tumor Pathology	Total
2015	MX\$3,492,112.90	MX\$2,239,332.87	MX\$873,821.29	MX\$6,605,267.06
2016	MX\$2,347,042.34	MX\$1,920,235.09	\$455,486.30	MX\$4,722,763.73
2017	MX\$1,837,903.30	MX\$1,076,222.18	MX\$328,058.66	MX\$3,242,184.14
2018	\$1,175,408.73	MX\$1,135,619.05	\$189,581.58	\$2,500,609.36
2019	MX\$1,495,070.06	MX\$1,044,224.00	MX\$173,237.61	MX\$2,712,531.67
2020	MX\$2,393,356.29	\$2,561,422.84	\$785,099.71	\$5,739,878.84
Total	MX\$12,740,893.62	MX\$9,977,056.03	MX\$2,805,285.15	MX\$25,523,234.80

Source: Discoverer/ Department of Health Economics – Health Insurance Directorate

Prepared by: Authors

Metabolic diseases and COPD represented a cost of \$12,740,893.61 dollars, with the average annual billing cost for these diseases being \$2,123,482.27 dollars. Oncological diseases totaled \$9,977,056.03 dollars, with an average annual billing cost of \$1,662,842.67 US dollars. Likewise, the average annual turnover for the benign tumor pathology

category was \$467,547.53.

In addition to the cost of care, the economic impact that medicines have on the institution's budget must be taken into consideration. During the period 2013 to 2020, the cost of medicines for NCDs for the ISSFA reached \$28,169,078.84

Table 2: Cost of NCDs for the ISSFA Period 2013 to 2020 in USD.

DETAIL	COST
Purchase of Cancer Medicines	MX\$301,917.00
Shop Metabolic Medications and COPD	MX\$2,343,927.05
Metabolic Billing Cost and COPD	MX\$12,740,893.61
Cost of Billing Cancer	MX\$9,977,056.03
Cost of Benign Tumor Pathology	MX\$2,805,285.15
Total Cost 2013–2020	\$28,169,078.84

However, the true impact of metabolic syndrome diseases is expressed in the clinical complications produced by the inadequate or delayed management

of these diseases, which mainly include: eye diseases such as diabetic retinopathy that causes blindness, cardiovascular complications such as myocardial

infarction, and kidney diseases such as chronic kidney failure, the main reason for kidney dialysis.

Table 3 shows the expenditure on care for these chronic patients, where it can be highlighted that the average expenditure during the period 2020-2021 was around 60 million dollars. In addition, an

interesting phenomenon to analyze is the fact that in 2020 the number of patients was 14,987, with a total of 1,111,656 medical care, while in 2021 the number of patients rose drastically to 76,041, but the total number of cares remained in the order of one million dollars.

Table 3: Expenditure on Chronic Patient Care (Period 2020 - 2021).

Periods	Number of Patients in the Chronic	Total of Medical Care	Total Amounts
2020	14,987	1,111,656	\$ 60,126,176.71
2021	76,041	1,048,547	\$ 59,971,551.67

5.3. Analysis of Interviews with the Main Actors of the Health System of the Armed Forces

5.3.1. Interview - Focus Group with Members of the Armed Forces of the Three Branches

A group forum-type interview was conducted, with the participation of active military personnel from the three branches of the institution, who, due to their extensive experience, **were fundamental in establishing the following conclusions**

- Active military personnel have empirical knowledge about preventive health within the Armed Forces.
- Members of the Armed Forces, due to the type of activities they carry out, are more likely to acquire NCDs due to the level of effort to which they are exposed mentally and physically.
- The lack of communication in relation to prevention and promotion by the authorities towards the entire military family results in personnel not being aware of the risk factors for NCDs, such as diet, alcohol and tobacco consumption, among others.
- The institution carries out seasonal medical check-ups, that is, the biannual medical record for active military personnel up to 40 years of age, which evaluates the health of the personnel, but the state of health is not constantly monitored.
- Within medical check-ups, the type of exams should be expanded, covering more areas of the body where health abnormalities commonly develop, both in men and women.
- Within the institution there is no specific plan aimed at monitoring and controlling NCDs that assesses the evolution of military personnel once this anomaly has been detected.
- Currently, the ISSFA delivers medicines to patients suffering from these diseases,

however, the institution's medical centers must be stocked to be able to combat the disease that is diagnosed.

- The focus group suggests that a program be carried out for follow-up by age, contemplating a more rigorous control of those personnel of considerable age. In addition to including the topic of nutrition for the prevention of diseases derived from obesity.
- They have agreed that the State must work on education at all levels, in the field of preventive health. Planning must be established to give greater dissemination of the programs promoted by the Ministry of Health, through inter-institutional agreements or agreements that allow these programs to be applied to the most vulnerable people.

5.3.2. Interview with the General Manager of the Teodoro Maldonado Hospital of the IESS.

To obtain a criterion from the point of view of preventive health focused on social security, Dr. Francisco Andino, current General Manager of the Teodoro Maldonado Carbo Specialty Hospital (HTMC) of the IESS, was interviewed. As a result of the interview, **the following points can be highlighted**

- It is necessary to carry out reforms to the Organic Health Code at the level of first, second and third level of care since there are limitations in the formal diagnosis of these diseases.
- In Ecuador, it is necessary to create a Genomic Institute for mapping studies or epidemiological profiling of NCDs. This would allow incursion into precision medicine to foresee or predict the potential presence of these diseases in people. In addition, it would serve for the organization and classification of the inclusion of medicines in the basic table.
- NCDs demand huge sums of money, in the

case of HTMC there are four patients with hematological disorders, who earn 2 million dollars per year and not attending to them would cause legal problems of lawsuits.

- On the subject of good practices, Cuba is the pioneer country that best applies preventive health through PHC (Primary Health Care).
- GADs should include within their competencies the promotion and prevention of the health of the communities they serve. The concentration of these competencies in a single institution (MSP) affects attention times.
- The Armed Forces have a segmented health system since it has a governing body, but also a multiplicity of health providers that in the end are not articulated, which has an impact on the cost of care.

5.3.3. Interview with patients with NCDs.

As part of this interview, it was possible to establish some deficiencies in the care system for NCD patients, **such as**

- The administrative procedure to be transferred to SOLCA for the start of treatment (chemo and radiotherapy) and subsequent operation is complicated, due to the level of debt that ISSFA maintains with this institution.
- There is a lack of more in-depth medical tests that allow a better diagnosis of NCDs, such as tumor markers and magnetic resonance imaging, which allow abnormalities to be detected more quickly.
- In the specific case of AEDs, preventive or early detection medical examinations are given every two years to those under 40 years of age and annually to those over 40 years of age.

5.3.4. Interview with a Doctor Specializing in Family and Community Health

The analysis of this interview allowed us to identify shortcomings at the level of preventive health

- NCDs seriously affect the quality of life of patients, placing them in a position of high risk of losing their lives, leading to a high economic cost to be able to cope with them.
- The government must implement public policies related to preventive health, consider a fund that supports the high costs to face this type of disease, all these actions to guarantee the lives of patients.
- There are health prevention plans, however, their results are not evaluated. This shows a

deficiency in the management by the authorities.

- There must be a change in the conception of preventive health, which allows raising awareness at the level of the members of the Armed Forces.

5.4. Comparative Analysis of International Good Practices With Regard to Preventive Health

With regard to good international practices in preventive health, a group of countries that have been successful in implementing preventive health programs to treat different types of NCDs have been chosen.

The table below presents the programs implemented by country and by type of NCD, and specifically highlights the measures implemented and their impact on the population. From this table, experiences can be obtained that can be applied at the country level and to the specific case of the preventive health system of the Armed Forces.

It is important to note that several of the European and North American countries have implemented/adopted/adapted the Chronic Citizens Model recommended by the WHO, where the political part, the community, and the health system are involved, through the interaction of the patient who must be well informed and the health team who must be well prepared to achieve better results.

All elements of the system described in the MCC as shown in figure 2, have been designed to support the development of an informed and activated patient population, as well as prepared and proactive health teams. On the one hand, patients must have the information, education, motivation and confidence to act as participatory elements of their care and attention" (PAHO, 2013).

On the other side of the interaction, the health provider must be prepared, which implies having the skills, information and resources necessary to ensure effective clinical management. It also means having timely access to the equipment, supplies, and medications needed to provide evidence-based care.

It should be noted that a key element in preventive health is "proactivity", which implies the ability to anticipate the needs of patients, prevent diseases and complications through the reduction of risk factors and plan care in a way that does not depend on acute exacerbation or symptoms as the only trigger for clinical encounters (PAHO, 2013).

Table 4: International NCD Preventive Health Good Practices.

International Best Practices in Preventive Health					
Countries Abuy	Types of Sick ADES (ENT)	Name of Program, Project, or Law	Measurement Implemented	Impact or Achievements Reached	Actions Implemented in Ecuador With Respect to the Disease Analyzed
CANADA	Diabetes Mellitus	Attention Collective	Patient-focused care through continuous care, from promotion and prevention to early detection, considering primary and secondary care.	Decrease of 41% and 34% of hospitalizations and emergency visits respectively to patients with Diabetes. Primary and secondary care was key to detecting and correctly monitoring this disease.	Strategic lines, lines of action and activities to promote development of protective factors such as self-care, Lifestyles and spaces healthy.). (MSP-0059-2017).
MEXICO	Diabetes Mellitus	Pilot Project of Attention Habitual Applied to five Centers bless you.	Strategic primary health care focused on people living with diabetes.	A significant improvement was achieved in all intervention centers thanks to primary care. The percentage of patients with blood glucose increased from 28% pre-intervention to 39% post-intervention.	Strategic lines, lines of action and activities to promote development of protective factors such as self-care, Lifestyles and spaces healthy.). (MSP-0059-2017)
DOMINICAN REPUBLICA	General prevention of NCDs	Program for the Prevention and Control of Chronic Diseases (PRONCEC).	Multidisciplinary teams were developed in the integrated clinical management of NCDs and second-level augmentation to obtain high-quality, integrated, specialized services.	The results of the evaluation of the services provided by the National Primary Care Units (UNAP) were positive and encouraging. The evaluation included visits by the intervention team, and the review of medical records at the NCD level.	Implementation of the Comprehensive Health Care Model (MAIS-FCI), including the framework of the Regional Strategy of the Americas for the Prevention and Control of NCDs. (MSP-0059-2017).
BULGARIA	General prevention of NCDs	National Program Prevention of Chronic Diseases Non-Transmittable	Improvements in care times for the most vulnerable segments of the population suffering from NCDs.	Significant reduction in patients prone to NCDs, thanks to NCD promotion and prevention strategies.	Implementation of the Comprehensive Health Care Model (MAIS-FCI), including the framework of the Regional Strategy of the Americas for the Prevention and Control of NCDs. (MSP-0059-2017).
CROATIA	Diabetes mellitus	Strategic Action Plan for The Development of	Implementation of the strategic action plan for the reduction of the	The decrease in the 12% in patients Diabetic Likely to	Strategic lines, lines of action and activities to promote development

Source: CHRODIS+ Health Promotion and Primary Prevention in 21 European Countries, (MSP-0059-2017). "National Strategy for Comprehensive Cancer Care in Ecuador". Prepared by the authors



Figure 2: MCC Chronic Citizen Model. Prepared by: WHO and PAHO.

5.5. *Proposal of Guidelines for Preventive Health Public Policy in the Armed Forces*

Preventive medicine is defined as "the medical specialty that is mainly responsible for the prevention of diseases (PRIMARY PREVENTION) and the promotion and preservation of health in the individual" (Alvarez & Kuri-Morales, *Public Health and Preventive Medicine*, 2017, p. 104). The elevated mortality rates associated with NCDs relative to other diseases can be attributed, in part, to a lack of prior care or delayed intervention. This phenomenon is often attributed to constrained access to public health services. This limitation in coverage primarily impacts the vulnerable population that suffers from this type of disease.

In the specific case of the Armed Forces of Ecuador, there are evident deficiencies in preventive public health policies that meet the needs of this population and that prevent the probability of generating chronic, catastrophic, rare, and orphan diseases from being high. Given the deficiencies, the military population is often compelled to seek private healthcare alternatives. However, not all individuals possess the requisite resources to address the high costs associated with NCDs.

In this context, we will propose a set of public policy guidelines that we consider to be essential for complementing the currently existing policies. The proposed guidelines were developed using the logical framework methodology, a systematic approach to problem-solving that involves the identification of key factors and the establishment of a logical sequence of steps to address these factors.

5.6. *Logical Framework Methodology for Defining Public Policy Guidelines*

In this study, an adapted version of the logical framework methodology was employed. It is important to note that this instrument does not entail the formulation of a Logical Framework Matrix. Consequently, it does not aspire to establish indicators or verification methods that are more oriented towards facilitating the project management process.

As previously mentioned in Chapter 3, this methodological adaptation is delineated in the "Guide for the Design of Public Policies on Education" (Ministry of National Education of Colombia, 2018). The logical framework methodology delineated in this document facilitates the formulation of a coherent public policy proposal. This methodology is predicated on a comprehensive analysis of the regulatory framework, a meticulous

situational diagnosis, and exemplary practices in the realm of preventive health for NCDs. The methodology places particular emphasis on the population of the Armed Forces.

In order to identify public policy alternatives, **it is previously required**

- i. An analysis of the actors involved in the policy;
- ii. The definition of a problem tree; and
- iii. The definition of a tree of objectives.

Finally, we have considered it pertinent to choose one of the alternatives, to outline in general terms a program that allows the implementation of one of the guidelines.

Analysis of the actors involved: A conspicuous absence of policies in the domain of preventive health, a domain for which the government is responsible through the MSP authorities, is evident. The second actor involved is the authorities responsible for outlining institutional policies to serve the population of the armed forces. The third actor is the ISSFA, which is responsible for planning, execution, and financing at the level of preventive health to prevent the appearance of an NCD. A fourth actor merits highlights: the doctors and staff who are responsible for providing direct care to the insured. These individuals facilitate the preventive health system.

Defining the problem tree: The problem tree delineated herein is predicated on the conceptualization of the "central problem," and from this definition, the "effect" that it currently has on the population of the Armed Forces is ascertained, as well as the "causes" that have engendered the problem raised. Despite the identification of several potential causes, the scope and timing of this research necessitated a focus on the identification of the three most significant causes.

From Objectives to Public Policy Guidelines

A. Guidelines for Prevention and Health Promotion in the Armed Forces.

- Allocation of resources necessary for promotion and preventive health.
- Development of intersectoral alliances to strengthen a culture of prevention and health promotion that influences the decisions made by members of the Armed Forces at the level of risk factors for NCDs.
- Development of plans and programs that include awareness campaigns on the consumption of alcohol, tobacco, physical activity, nutrition.
- Intersectoral coordination to formulate articulated public policies that allow for the care, prevention, and control of NCDs in a

comprehensive manner, reducing risk factors.

- Coordination with the mass media to formulate advertising campaigns for the prevention of NCDs.
- Coordination with the Directorate of Promotion and Prevention of the ISSFA, as well as with the Directorate of Health of the Armed Forces, to incorporate in the virtual platform, training aimed at all affiliates and military personnel respectively, in aspects related to prevention, care and control of chronic diseases as a priority.
- Strengthen the primary care system with emphasis on the promotion of healthy lifestyles, generating incentive schemes that influence the health decisions of the insured.

B. Guidelines for Early Detection at the Primary Care Level.

- Creation of primary care units in first-level health centers.
- Training in the standards and protocols for the prevention and control of chronic diseases for the technical managers of the military medical units of the third level of health, and care teams in the corresponding operational units.
- Generation of incentives through medical systems so that members of the Armed Forces prone to NCDs frequently attend primary care units and achieve early detection of this type of disease.
- Strengthening of the technological infrastructure for primary care units, for the performance of different medical examinations and diagnoses for the early detection of pathologies that may affect the patient.

C. Guidelines for the Follow-up and Monitoring of NCD Patients.

- Create an automated database system of patients with NCDs in the Armed Forces, which allows the doctor of the health system of the third level; monitor and control these and make it easier for the patient to go to them frequently for more controlled treatments.
- Human resources must be trained to care for NCDs, and they will provide an immediate solution to the main emergencies that arise.
- To create an automated system that facilitates the obtaining of medicines for different NCD treatments and thus reduces the suffering of patients with these diseases.
- Allocation of resources for the payment of medication benefits for the affiliated patient.
- Implementation of the Public Policy Guideline (B)

In this study, the development of an "Early Detection Program for NCDs for members of the Armed Forces" is proposed as an implementation instrument. Which is described below:

End of the Program: Design a preventive health program focused on primary and secondary care intervention for the early detection of NCDs. This program seeks to structure the bases under which comprehensive care will be provided to the insured of the Armed Forces, guaranteeing coverage, quality, and relevance in preventive health. At the same time, the rates of chronic diseases will decrease, promotion will be promoted to all members of the institution through information campaigns that attend check-ups, check-ups and others.

Purposes of the Program

- Design projects to incorporate national primary care units UNAP in the first level health centers of the Armed Forces, so that they carry out a correct control of patients prone to NCDs.
- Have more staff of doctors trained and trained in preventive medicine, regardless of whether they are from other specialties, to strengthen primary and secondary care.
- Generate incentives for patients prone to NCDs, through an automated monitoring system in military health, so that they can go to the controls and their health can be monitored.

Results (Program Outputs):

- Creation of National Primary Care Units UNAP.
- Creation of an automated monitoring system for preventive health.
- Specialized technical assistance in preventive health or family medicine necessary for general practitioners, from other specialties who participate in the UNAP.

Activities to be executed:

- Promotion of social capital linked to the preventive health of the Armed Forces, through the participation of international organizations, NGOs, institutions linked to health and other social actors in the direction of health promotion and prevention.
- Strengthening of doctors in the occupational, family, and preventive fields for the UNAPs, so that services are more efficient and results are obtained.
- Preventive health promotion and prevention campaigns focused on vulnerable groups prone to NCDs.
- Necessary Supplies:
- Conventions and treaties, laws, regulations,

legal framework.

- Infrastructure, headquarters, health centers in preventive medicine
- Human resources: specialists, general, family, preventive, occupational doctors, teachers in preventive medicine, computer personnel who design monitoring systems for preventive health for vulnerable groups.
- Budget allocation
- Automated system technicians and developers

6. CONCLUSION

This analysis enabled the examination of public policy on preventive health focused on chronic, serious, rare, and orphan diseases within the context of the Armed Forces of Ecuador. The analysis identified the strengths, weaknesses, and areas that require improvement in the design and execution of the policy.

Noncommunicable diseases (NCDs) have been identified as a primary contributor to morbidity and mortality among military personnel. These diseases impact not only the quality of life for individuals and their families but also the operational capacity of the institution as a whole. The Social Security Institute of the Armed Forces (ISSFA) has reported a consistent rise in diseases associated with metabolic syndrome, which has resulted in a substantial economic strain on the institution's budget. This situation underscores the necessity to adopt a model of care that prioritizes prevention rather than limiting itself to curative responses.

Secondly, an analysis of the pertinent regulations indicated that, despite the existence of laws acknowledging the significance of prevention and comprehensive care, these have yet to be effectively and sustainably translated into policy. The absence of updates to legal frameworks, the inadequate allocation of financial resources, and the absence of mechanisms for inter-institutional coordination have constrained the Armed Forces' capacity to respond to these diseases.

Thirdly, the implementation of the logical framework methodology enabled the identification of the primary problems, causes, and consequences associated with the absence of preventive care. The diagnosis that was carried out resulted in the formulation of objectives that were aimed at closing gaps in coverage, improving care times, and developing sustainable programs that ensure measurable results in the short, medium, and long term.

Furthermore, the findings underscore the importance of enhancing the education and training

of military health professionals, with a particular emphasis on integrating content addressing the early detection and comprehensive management of chronic, serious, rare, and orphan diseases. The technical preparation of health teams is crucial to ensure the effectiveness of any preventive policy.

A concomitant imperative pertains to the implementation of precise and contemporary information systems, which facilitate the acquisition of timely statistics for the purpose of informed strategic decision-making. The absence of organized data has compounded the evaluation of the impact of current policies, thereby constraining the capacity to predict health risk scenarios.

In summary, the study emphasizes that public policy on preventive health for the Ecuadorian Armed Forces must be established as an essential component of national security. The implementation of a comprehensive prevention policy would contribute to a reduction in the burden of diseases and their associated costs. Additionally, such a policy would serve to enhance institutional effectiveness and resilience. It is recommended that subsequent initiatives prioritize equity, financial sustainability, and the comprehensive integration of the military health system with the national health system. This approach will ensure comprehensive and effective coverage for military personnel and their families.

Consequently, this research initiative has yielded novel areas of study that seek to examine how the implementation of preventive policies affects military environments. The objective of this initiative is twofold: first, to assess the viability of inter-institutional and international collaboration models that have the potential to enhance local practices by leveraging best global practices in the management of NCDs; and second, to determine the feasibility of implementing these models on a global scale.

7. RECOMMENDATIONS

- 1) Strengthening the preventive approach in institutional policies: Reorient the health care model of the Armed Forces towards prevention, prioritizing health promotion programs and early detection of risk factors. This will reduce the incidence of chronic, catastrophic, rare and orphan diseases, and reduce the costs of curative care.
- 2) Update of the normative and regulatory framework: Promote reforms in the Social Security Law of the Armed Forces and in the regulations of the ISSFA to ensure the inclusion of specific prevention strategies, with clear mechanisms for monitoring and impact

- evaluation.
- 3) Allocation and optimization of financial resources: Guarantee a stable and sufficient budget for preventive programs, allocating specific funds to the training of personnel, acquisition of early diagnostic equipment and awareness campaigns aimed at the military community.
 - 4) Training of military health personnel: Develop continuous training programs in the diagnosis and comprehensive management of chronic, catastrophic, rare and orphan diseases. This includes the incorporation of updated protocols and the dissemination of international best practices in preventive military health.
 - 5) Epidemiological information and surveillance systems: Implement integrated digital platforms for the collection and analysis of data on NCDs in the military. A modern information system will facilitate strategic decision-making, the identification of epidemiological trends and the evaluation of the implemented programs.
 - 6) Inter-institutional and international coordination: Promote agreements between ISSFA, the Ministry of Public Health, and international organizations (PAHO/WHO) to design and implement joint prevention programs. Likewise, to promote cooperation with the armed forces of other countries to exchange successful experiences in preventive health.
 - 7) Raising awareness among the military population and their families: Develop educational campaigns that promote healthy lifestyles, encourage self-care and reduce risky behaviour, involving both active-duty staff and their dependents.
 - 8) Continuous evaluation and policy improvement: Establish mechanisms for periodic monitoring and evaluation of preventive programs, ensuring constant feedback and adaptation of policies to the emerging needs of military personnel.

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