

Analysis of internal medicine training in Colombia

An essay containing health economics elements

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Abstract

In Colombia, there is a significant gap between the educational supply of medical specialties and their demand in health care institutions of varying complexity. This is a serious problem in the case of internal medicine, given its importance in the clinical management of complex patients and diseases, its interdependence with a large number of specialties and its impact on morbidity, mortality, quality of life and patient and family satisfaction with care. Thus, this study, using some elements of health economics, develops four topics: *i*) the introduction, which highlights the importance of internal medicine within the framework of Colombia's healthcare laws and provides a definition which gives specificity and identity to this specialty; *ii*) an analysis of this specialty's supply and demand; *iii*) health impacts or outcomes which may be attributed to the presence of internists; and *iv*) in conclusion, a discussion of elements which vindicate the need to improve the educational supply in this field. (*Acta Med Colomb* 2020; 45. DOI: <https://doi.org/10.36104/amc.2020.1309>).

Key words: *medical specialties, internal medicine, supply and demand.*

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Introduction

The World Health Organization (WHO), within the framework of its analysis of the evaluation of human resources for the healthcare sector, has highlighted the relevance of having an adequate supply of health professionals able to intervene in the particular needs of the communities where they work. Thus, the education sector acquires great importance, as the satisfaction of healthcare needs depends directly on the “*training and distribution of qualified healthcare workers*” (1).

This same organization highlights the following key points for drafting and managing public health and education policies: the need to guarantee an adequate and sustained supply of healthcare professionals, a highly relevant distribution of this human resource to the communities requiring care, and wide availability of incentives to convince them to stay in the country. These and other aspects require robust studies of the supply and demand of healthcare services, which have only included rigorous data in countries such as Germany, Austria, Denmark, Slovakia, Spain, Finland, Italy, Malta, Norway and Sweden (1), indicating a significant challenge for the management of healthcare human resources in countries such as Colombia.

In Colombia, the implementation of the Health Care Social Security System mandated by Law 100 of 1993 has increased insurance coverage, and a key factor in achieving the reform's objectives is human resources training, given the increased demand for healthcare services. In this regard, it should be noted that, to date, there are no precise data on the effects of the Colombian healthcare reforms on the

demand for healthcare personnel, especially at the specialist level. However, the supply of higher health sciences education increased considerably between 1992 and 2008, especially at the undergraduate level, and insufficiently in almost all the medical specialties (2-5).

In this context, it should be pointed out that the exact number of medical specialists is unknown (4). The most recent study on supply and demand of specialists in the country, based on the *estimated number of healthcare personnel*, manpower, inventory or stock (not number of employed persons), and the Individual Registry of Healthcare Service Provision (RIPS in Spanish), among others, concluded that the supply for 2016 was 23,315 specialized physicians in clinical, surgical and diagnostic fields, which was insufficient to cover the demand. This same study indicated that for internal medicine, specifically, the supply amounted to an estimated 3,280 professionals (6).

The problem of a low supply of specialists is even more important in internal medicine, which is one of the most dynamic clinical specialties, given its constant changes due to technical and scientific advances, its integration and reciprocal relationships with almost all the medical-surgical specialties, and the changes in morbidity of various populations, among other reasons (7).

At this point, and before analyzing the internal medicine supply and demand in Colombia, it is important to point out that this is an independent specialty with its own defined content. However, its conceptual foundations or definition are quite heterogenous, according to the changes in the needs of the population and the development of medicine

in general, which supports the need for continuous updating of its theoretical basis (8).

In this vein, internal medicine has advanced from seminal definitions at the beginning of the twentieth century which understood it as a discipline in charge of *“dealing with internal organ problems which surgeons cannot address”* to more integrating concepts of the twenty-first century which define it as *“the clinical specialty dedicated to the comprehensive care of the adult, from adolescence to old age, with an emphasis on the diagnosis and non-surgical treatment of his/her diseases and their primary and secondary prevention, in both inpatient and outpatient settings.”* Within this framework, the internist is someone skilled in the prevention, diagnosis and non-surgical treatment of the many acute and chronic diseases which affect adults, in outpatient or intensive care settings (8).

Despite the multiple definitions of internal medicine, a review of its theoretical basis includes a few specific or proprietary domains of this specialty, such as the following: *i) a focus on adult care and, in some circumstances, shared care of the adolescent population with the pediatrician; ii) a greater emphasis on the diagnosis and treatment of ill adults, as well as secondary and tertiary prevention (this does not exclude primary prevention, but in many healthcare services or systems, this component is delegated to the general practitioner or family medicine specialist); iii) a focus on non-surgical pathologies (although this term may be obsolete in situations where clinical and surgical care are required), iv) comprehensive care, covering the biological and psychosocial dimensions of frequent and rare diseases; diseases which affect several organs simultaneously; and neurological, psychiatric and gynecological diseases (or diseases from other specialties), when their management or treatment is less complex; v) timely and pertinent referrals to other specialties or subspecialties; and vi) the potential to act at all levels of care (8).*

Analysis of internal medicine supply and demand

According to WHO, in its 2006 global report on healthcare human resources, the region of the Americas had an available healthcare workforce of 23,740,000 people, representing a density of 24.8/1,000 inhabitants. Of these, 14,460,000 (57%) were healthcare providers and 9,280,000 had administrative positions (43%) (4, 9). These data are a low indicator for good coverage of the healthcare demand. For Colombia, which does not differ from the regional scenario, this would indicate a significant problem based on a low educational supply in the healthcare field, which is particularly severe in specialized training.

Consistent with this, the World Bank figures reiterate an insufficient supply of specialists, which is incongruent with the data on the number of hospital beds. It should be clarified that this entity reports on surgical specialties rather than internal medicine, although these data are a

good proxy for the general supply of medical specialties (11-12). These analyses indicate that the Colombian surgical specialties' workforce (surgery, anesthesiology and obstetrics) was 16.21 per 100,000 inhabitants in 2014 and 22.38/100,000 in 2015 (11).

Taking the 2015 figures per 100,000 inhabitants, Colombia would only be above Haiti (5.88) and Sri Lanka (2.96) and would have a lower supply than countries in the Americas such as the United States, which reported 54.71, and Canada with 35.29 (11). Considering the low reporting by country in 2015, it would be appropriate to broaden the previous comparison with data from 2014, in which the following data for surgical specialists per 100,000 inhabitants can be highlighted (11):

The five countries with the greatest supply were Monaco with 196.69; Cayman Islands with 172.41; Greece with 166.81; Austria with 141.15 and Estonia with 126.56.

The five with the worst supply were Malawi (0.47), Niger (0.46), Central African Republic (0.36), Somalia (0.20) and Afghanistan (0.03).

Some countries in the Americas with better supply than Colombia were Ecuador with 61.12; North America as a whole with 52.76; Peru with 42.88; Uruguay with 38.9; Latin America and the Caribbean (excluding high-income countries) with 32.28; Panama with 26.45 and Costa Rica with 22.3.

Some countries in the Americas with a worse supply than Colombia were Guatemala (3.40), Argentina (10.47) and Honduras (13.68).

In addition, the available inpatient beds in public, private, general and specialized hospitals and rehabilitation centers for acute and chronic care in Colombia were 1.2/1,000 inhabitants in 2004 (12). Some national CENDEX studies have indicated that the stock of internal medicine specialists, estimated by the difference between graduates and validated specialists minus deaths and migrations in the period from 1980-2011 was 2,178 individuals, with fewer than 150 specialists in this area per year. In fact, in this window of time, most years recorded fewer than 100 internal medicine specialists trained per base year (4). Coinciding with this study, the 2013 reports explicitly stated the main objectives of Colombian public policy to be the improvement of specialist supply, highlighting, among others, the following objectives: *i) guaranteeing an adequate (total) coverage of medical specialists in all regions, ii) eliminating barriers to medical residents practicing in the regions where they were trained as specialists, and iii) positioning the medical associations, among others (4).*

The most recent study on the supply and demand of specialists in Colombia concluded that the supply in 2016 was 23,315 specialists in clinical, surgical and diagnostic fields, with only 14% trained in internal medicine. The latter had an estimated supply of 3,280 physicians, which is 34% less than its estimated demand of 4,979 specialists (6).

Furthermore, it has been documented that 56% of the country's secondary and tertiary healthcare institutions have an insufficient stock of medical specialists, which affects the safety, quality and timeliness of healthcare demand. This elicits the need to increase the available slots for physicians to specialize, as indicated in Law 1797 emitted in 2016 which urges universities to improve their supply of clinical specialties, especially internal medicine (4, 10).

The limited supply of internal medicine specialists is corroborated by figures presented in a study of Colombian institutions which reported an average of 165 contracted hours per month for internists, with the highest proportions as independent contractors or payment by occurrence. This same study reported that, in Medellín, only 15.4% of the healthcare institutions considered their number of specialists to be sufficient for the healthcare demand, and 46.2% reported that in the last five years they had closed or discontinued these types of services (4).

Studies of demand are meager. A search on Google, Google Scholar, Lilacs and Scielo using the terms "internal medicine" & "demand OR use OR utilization OR care", restricted to the title or abstract, yielded no robust studies on the demand for internal medicine care. The studies found in this review dealt with specific topics such as tuberculosis, high blood pressure, diabetes, gastrointestinal bleeding, anemia, instrument validation and the use of medications, among others.

Despite this, the Health and Social Protection Ministry, in its "*National Quality of Healthcare Report, 2015*" presented data related to internal medicine; in particular, "*indicators of care experience based on objective measures*" which evaluated, among other outcomes, the timeliness of internal medicine appointments, based on the records of healthcare institutions and insurance agencies (EPS) at national and departmental levels during 2009 and 2014 (13).

According to the Ministry's data, nationally, the waiting period for an internal medicine appointment increased in the window of time analyzed, going from 7.75 days in 2009 to 12.11 days in 2014. Likewise, the EPSs reported that the waiting time for an appointment with this specialty went from 9.5 days to 12.4 days in those same years. The waiting period for internal medicine appointments behaved as follows in Colombia and Antioquia, respectively: 7.75 and 14.0 days during 2009; 8.8 and 13.6 days in 2010; 10.72 and 13.2 days in 2011; 11.95 and 14.3 days in 2012; 12.92 and 14.6 days in 2013; and 12.11 vs. 13.4 in 2014 (13).

These trends show a significant part of the unmet demand or untimely coverage, as well as evidencing that the department of Antioquia has a somewhat more concerning situation than the national average. It should also be clarified that the Ministry's report is based on average figures from the contributive and subsidized EPSs, which could mask greater problems related to low supply and high demand of internists in some population subgroups.

Health impact

Internal medicine is one of the most dynamic specialties in the healthcare field. As a specialty, it has the greatest contact with general and family medicine, is key in primary healthcare, has a wide variety of supraspecialties, and has the greatest reciprocal or interdependent relationships with almost all clinical, surgical and diagnostic specialties (7, 8). In addition, it is one of the most clinically and epidemiologically relevant specialties, due to its effectiveness in managing chronic and infectious diseases.

The foregoing, coupled with evidence from some studies showing its favorable impact on clinical and epidemiological outcomes (as indicated in a few cases which are discussed below), illustrates the importance of increasing the educational supply in this area.

Experimental studies are not common in this field. A search on *Pubmed* only found one randomized study with prior results for internal medicine programs in the United States. This study proposes that models which optimize patient safety and the education of residents in this specialty have a favorable impact on mortality rates at 30 days, readmission rates, prolonged hospital stays and institutional costs (14).

A case-control study of 2,167 patients seen by a family physician and internists (case) and 14,687 primary care consults (control) showed favorable results attributable to the presence of the internist in the reduction of the following processes: referrals to specialists, delays in provision of specialized care, average diagnostic aids ordered, interpretation of tests ordered by internal medicine, case resolution time and rate of cross-referrals between specialists. Furthermore, the hospital discharge rate, quality of clinical care and patient satisfaction improved (15).

Based on qualitative estimates, the presence of internists has been reported to improve patient care, teamwork and patient relations (16). It has also been reported that, in the case of specific events such as pain management, these should be addressed by internal medicine since pain is the main symptom of many diseases requiring this specialty's care, and pharmacological management errors are significantly decreased with a systematic approach by internal medicine (17).

Discussion

Internal medicine in the twenty-first century poses various challenges related to technical and scientific progress, social progress resulting in increased longevity and its related diseases, the challenges of the epidemiological transition and the need to improve *praxis* at all levels of primary, secondary and tertiary prevention. This is added to the need to improve various specialties' rotations to optimize internal medicine skills training, as well as the economic pressures of many healthcare systems which obligate the inclusion of healthcare economics topics to maximize benefits through the rational use of available

resources, evidence-based clinical practice and better models of healthcare management (18).

For Colombia, the Asociación Colombiana de Medicina Interna [Colombian Association of Internal Medicine] has identified a broad range of supraspecialties such as allergology, immunology, cardiology, diabetology, endocrinology, gastroenterology, hematology, oncology, hepatology, etc., which help meet the challenges expressed in the previous paragraph and guarantee high quality care for all relevant diseases in the country's epidemiological and clinical context.

Despite the foregoing, information must be gathered on the enormous gaps between the educational supply and the demand for internal medicine care in Colombia, as in most countries in the region. To that effect, a study by Perú's Ministry of Health reported a supply of 6,074 medical specialists, with 61.5% in clinical areas, 33.2% in surgical areas, 4.9% in diagnostic and treatment support and 0.4% in public health, representing only 45% of the estimated demand of 11,738. This gap was much greater in obstetrics-gynecology, pediatrics and internal medicine (20).

In this regard, a study on the "globalization" of internal medicine indicates that, despite the advances of the last few decades, its coverage continues to be low, even in middle and high income countries like Canada, Switzerland, Australia, New Zealand, Argentina, Japan and the United States. The same study points out challenges related to the roles of internists in these countries and the overlap with other areas in the clinical and academic domains (21).

These data evidence the need for ongoing, internationally collaborative work to consolidate this medical field of knowledge. For Colombia, Pinilla's text provides important contributions in that direction, showing the emergence and evolution of internal medicine from the end of the nineteenth century to the beginning of the twenty-first century in Europe, Latin America and Colombia, and consolidating a theoretical construct for this specialty, with its inherent skills (22).

Finally, the immediate future of internal medicine is linked to an increased workload at all patient care and administrative levels both within and outside of the hospital, given its relevance in the diagnosis, treatment and management of complex patients (23).

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