

Workforce Needs for Internists in the Islamic Republic of Iran until 2021

Azizi F, MD

Professor, Endocrine Research Center, Research Institute for Endocrine Sciences,
Shahid Beheshti University (M.C)

Abstract

Internists contribute to the care of sizable populations for a vast variety of conditions. However, despite the importance of the need assessment for these specialists in Iran remains uncharted. The purpose of this paper is to address this issue and to recommend further actions related to training of internists. Internal Medicine is a 4-year specialty program, for which candidates can take a specialty entrance examination only after finishing their medical school, including an 18-month Internship, and registration as medical doctor (M.D) by the Iranian Medical Council. The entrance examination is held in two stages, a multiple choice question- and an oral examination. Currently in 2009, approximately 3000 internists are working in the I.R. Iran. Since the year 2000, number of yearly admissions for specialty training of internal medicine has ranged between 180 and 213. Based on the population needs of hospital care, ambulatory care, population growth, there is a need to have 6700 positions available for clinically trained internists in the Islamic Republic of Iran which yields a ratio of 1 internist for every 11,000 population (6700 for 74 million), a ratio that is much lower than the mean ratios of internists in many countries. It is estimated that Iran will reach a population of 90 million by the year 2021, at which time the country will need the services of 8200 internists. If the yearly admission rate of 220 internal medicine residents continues, in the next 13 years, only 2860 internists will enter the practice and total number of internists will reach 5860, by the year 2021. However, since during the next 13 years, approximately 1430 internists will enter subspecialty trainings, making the total number of those practicing pure internal medicine 4430, i.e. 3770 less than the 8200 internists needed. It is vital that these estimates be urgently analysed in greater detail to emphasize the criticality of the dilemma to the public and the government, and to identify solutions to avert the enormous consequences that the shortage of internal medicine and its subspecialties may have for public health

Journal of Medicine Education Winter & Spring 2009; 13(1, 2): 9-12

Introduction:

Internists contribute to the care of sizable popula-

Corresponding author: Dr Fereidoun Azizi is professor of internal medicine & endocrinology, Endocrine Research Centre, Research Institute for Endocrine Sciences, Shahid Beheshti University of Medical Sciences, P.O. Box: 19395-4763, Tehran, I.R. Iran
Telephone: +98 21 22409309
Fax: +98 21 22402463
Email: azizi@endocrine.ac.ir

tions afflicted by cardiac, gastrointestinal, endocrine, renal, hematological, pulmonary, rheumatology, infectious and psycho-neurological disorders. Specialty training in internal medicine began more than 50 years ago. However, despite its importance the need assessment for these specialists in Iran remains uncharted. The purpose of this paper is to address this issue and to recommend further

actions related to training of internists.

Speciality training program

Internal Medicine is a 4-year specialty program, for which candidates can take a specialty entrance examination only after finishing their medical school, including an 18-month Internship, and registration as medical doctor (M.D) by the Iranian Medical Council. The entrance examination is held in two stages, a multiple choice question- and an oral examination.

Residents are in direct contact with and responsible for the management of admitted patients. They have an internal medicine clinic once a week and subspecialty clinics during their rotations. They are assigned regular evening and night shifts, during which they are responsible for patients in the internal medicine and related subspecialty wards, emergency clinic and department, and consultations. Routine bedside procedures are part of their training and include simple laboratory tests, performance and interpretation of electrocardiography and spirometry, arterial blood sampling, central venous catheterization, thoracentesis, peritoneocentesis, liver biopsy, bone marrow aspiration and biopsy, joint fluid aspiration and injection, and lumbar puncture. Advanced subspecialty procedures are performed by subspecialists while residents are present.

Residents are responsible for holding daily morning reports, during which new patients are presented and their overnight management and treatment progress are discussed. They must attend ward/hospital conferences and take part in research methodology workshops to familiarize themselves with epidemiologic and clinical research. During their last two years, residents must present a research proposal, which will be the basis of their speciality thesis, to be approved by the university. At the end of each year, residents who meet all department's criteria are allowed to sit for the an-

nual examination. The decision is made by considering their clinical knowledge, capabilities and skills meeting patient responsibilities, cooperation with colleagues and the group, and participation in educational activities.

The annual examination, held in two stages, includes an oral exam and 150 multiple choice questions on general internal medicine and related subspecialties (rheumatology, endocrinology-metabolism, nephrology, gastroenterology-hepatobiliary, respiratory, cardiology, hematology-oncology, infectious disease, toxicology, clinical pharmacology, and neurology), and is supervised by the Iranian Board of Internal Medicine, Ministry of Health and Medical Education. Residents have to answer a certain specified percentage of questions for promotion to the next grade. By the end of the fourth year, the candidates should have achieved 70% of the total mark to be acknowledged as a Board-Eligible Internist.

Questions for the National Internal Board Examination are designed and approved each year by a special board of experts which consists of professors of medical schools. The exam is conducted by the Iranian Board of Internal Medicine, Ministry of Health and Medical Education, and is held every year. It consists of two parts: 150 multiple choice questions and an objective structured clinical examination (OSCE). Those who pass the board examination are given a certificate by the Ministry of Health and Medical Education and are acknowledged as Board-Certified Internists, eligible to apply for subspecialty entrance examinations.

After their graduation, internists are supposed to participate in continuing medical education programs and achieve specified annual scores to be allowed to continue their practice.

The Supply

Currently in 2009, approximately 3000 internists are working in the I.R. Iran. Since the year 2000,

number of yearly admissions for specialty training of internal medicine has ranged between 180 and 213. Since 1985, training in various subspecialty fields of internal medicine was initiated in Iran, and currently between 100-120 internists enter subspecialty programs each year.

The ratio of internist to population in 2009 is estimated to be approximately 1 for 25000, i.e. 3000 internists for a 74 million population. However this ratio is around 1 to 9000 in Tehran, 1 to 31000 in the larger cities and 1 to 45,000 in other parts of the country.

The Demand

In the Islamic Republic of Iran, there are approximately 850 hospitals, many of which, in particular 410 hospitals with ≥ 100 beds, require at least 5 full-time internists. Of course, some large teaching hospitals may need 8-10 internists; it is therefore estimated that nationwide the responsibilities of such hospital might require approximately 3000 internists. In addition, there are many solo internists and diabetes practices; private practice slots are difficult to quantify and may account for 3700 internists, 1 for every 20,000 population for ambulatory care. Thus, if one adds up the number of hospital-based and private practice positions, there is a need to have 6700 positions available for clinically trained internists in the Islamic Republic of Iran, an estimate which does not take into account the number of internists who decide to migrate or may choose to work only part-time.

The estimations given above yield a ratio of 1 internist for every 11,000 population (6700 for 74 million), a ratio that is much lower than the mean ratios of internists in many countries. For example, the internist-to-population ratios of Rhode Island and Massachusetts are 1 to 2070 and 2310, respectively. The median ratio for all districts of the United States is 1 to every 6951 population in Oklahoma (1). Even with a ratio of 1 internist

for every 11000 population in Iran and due to the non-homogenous distribution, it is estimated that the ratio in one third of the population would be less than 1 for every 30,000 inhabitants.

It is estimated that Iran will reach a population of 90 million by the year 2021, at which time the country will need the services of 8200 internists. If the yearly admission rate of 220 internal medicine residents continues, in the next 13 years, only 2860 internists will enter the practice and total number of internists will reach 5860, by the year 2021. However, since during the next 13 years, approximately 1430 internists will enter subspecialty trainings, making the total number of those practicing pure internal medicine 4430, i.e. 3770 less than the 8200 internists needed.

It has been calculated that a similar shortage exists in many of the subspecialties of internal medicine, a deficit, which with the present rate of admission for subspecialty training programs, will increase during coming years (2, 3).

Discussion

There is an enormous incongruity between the supply and demand for the services of internists in Iran. Although most of figures for demand are estimates, it appears that the supply of internists is less than half that required to fill the current and future positions in Iran. The rising prevalences of non-communicable disease, population growth and patient expectation trends will obviously increase the requirements for internal medicine care in the coming years.

What can be done to bridge the gap between the supply and the demand? Expansion of number of internists requires increasing the number of internists candidates, seeking to enter accredited internal medicine training programs. Hence, it is advisable to increase the number of annual admissions for internal medicine training, from 213 to 550. It is noteworthy that over 12000 physicians compete

each year for approximately 1732 residency positions in all branches of clinical speciality programs (4) and many seek residency programs in internal medicine. It may be estimated that by increasing the number of admission of residents for internal medicine specialty, after 13 years, the number of graduate internists will be enough to make up for the shortage of internists and also to supply potential candidates for the increase in accredited subspecialties fellowship slots.

It is also advisable to divide 550 graduate internists each year into 200 entering subspecialty programs and 350 for the internal medicine programs. In this way, there will be 7030 internists by the year 2021, only 1170 short of 8200 needed internists in that year.

The major limitation of these calculations is that there is no clear definition for responsibilities of internists in the health network in the I.R. Iran. Therefore this estimation may differ much from the actual demand for internists for health care provision.

It is vital that these estimates be urgently analysed in greater detail to emphasize the criticality of the dilemma to the public and the government, and to identify solutions to avert the enormous consequences that the shortage of internal medicine and its subspecialties may have for public health.

Reference

1. ACP internist. American College of Physician. [online]. No date [cited 10 feb 2009]. Available from: URL: <http://www.acpinternist.org>
2. Azizi F. Accredited adult endocrinology subspecialty training programs in Iranian universities. *IJEM* 2009; 1: 1-3.
3. Stewart AF. The United States endocrinology workforce: a supply-demand mismatch. *J Clin Endocrinol Metab* 2008; 93: 1164-6.
4. Azizi F. Medical Education in the Islamic Republic of Iran: Three Decades of Success. *Iranian J Publ Health* 2009; 38: 19-26.