

Existentialism and Internal Medicine 2019: Where Do We Stand?

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Internal Medicine is considered by generations of physicians to be the cornerstone of our profession, where the best of our scholars paved the way for younger generations of physicians. In Israel of 2019, there are 110 Internal Medicine departments treating more than 300,000 patients annually, training approximately 1000 residents, 1500 interns and 1000 medical students.

We physicians remember our tutors of the first clerkships in Internal Medicine, who provided us with the seminal elements of our profession, taking us step by step through the secrets and beauty of our new vocation. Yet, despite the achievements of Internal Medicine throughout the years, something is severely amiss and Internal Medicine seems to be experiencing a significant part of this negative shift.

Our departments have become impoverished. Moreover, modern technology has been bypassing our field of Medicine, aiming rather at the sub-specialties. Governmental planning does not perceive our departments as centers of quality and excellence, depriving us of proper budgeting and, consequently, turning them into overcrowded and undesirable destinations for patients, families and medical staff alike. It is astonishing that the heads of the Israeli health system awaken each December to discover that winter follows fall. Shocking photographs appear in the press each winter, showing elderly patients stranded in emergency departments, and long corridors packed with patients in Internal Medicine departments. The lack of practical solutions has facilitated a continuous deterioration of these conditions, particularly in the years when influenza vaccinations fail to meet their targets. Every winter these difficult conditions generate high occupancy

rates, leading to public rage and critical headlines in the media. These conditions, however, are not exclusive to the winter but prevail throughout the year, appearing particularly onerous during the winter months. Heads of hospitals and policy makers react with ritualistic public appreciations of our excellence and creativity, appointing endless committees designed to change this grave situation but end up not only with no resolution but with further deprivation of resources.

Today, Israel shares the unfortunate position of being among the nations with the lowest number of beds per capita in the OECD (3 per 1000 inhabitants) and one with the lowest percentages of investment in health, about 7% of the gross domestic product, whereas western countries – to which we liken ourselves – invest between 9% and 16% [1].

This winter, 2018–2019, driven by the spontaneous protest by heads of departments throughout the country, the Israel Society of Internal Medicine took a stand. Mounting protests and expressing their rage via the different media, they called for a realistic plan that will be translated into investments and pragmatic steps to adapt Internal Medicine to the changing modern era. Their frustration and reluctance to compromise with the current neglect overwhelmed the media. This wave of unwillingness to no longer accept the humiliating and untenable conditions in our departments also reached the platforms of the different parties running in the coming elections, forcing the Ministry of Health to relate to this scandal and to engage with the Israel Society of Internal Medicine to redress the deficiencies of the past and seek solutions.

Based on data showing the increasing age of the Israeli population, the need to expand the services of Internal Medicine departments will certainly increase. Today, with the female life expectancy at birth reaching 84.2 years and that of males 80.7, it is inevitable that community-based services as well as tertiary care will need to be restructured as our national medical services will no longer be able to accommodate the needs of the future growing Israeli population [2].

One of the mechanisms suggested is to upgrade the cost of the hospitalization day in Internal Medicine departments to realistic figures. By doing so, hospital directors will empower

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our services, and the health maintenance organizations (HMOs) will generate more nursing alternatives instead of abandoning the elderly and disabled in our departments. An appropriate pricing for hospitalization will also be the source for financing more departments and more staff per department, thereby filling the gaps that are so evident today.

The Israel Society of Internal Medicine foresees a growing national demand for physicians. The current low rate of 3.1 physicians per 1000 inhabitants will decline even further given the increasing average age of the population and the large number of physicians who are facing retirement [3]. We believe that proper manpower planning will strengthen our departments and enable us to become engaged more intensively in medical education. As a first step, we embrace the new, sixth, medical school that will open this year in Ariel.

Many medical centers across the country believe in the importance of innovation. This will be dependent on the recruiting of funds, which together with enthusiasm and dedication, will promote research and development. We believe that Internal Medicine departments should be integrated in such enterprises, serving as a proper platform and hub for such activities. These initiatives will help to cover the numerous unmet needs in the various fields of Internal Medicine. Currently, our Society is participating in several collaborative research projects in the fields of chronic obstructive pulmonary disorders, congestive heart failure, to be followed by many others.

The Israel Society of Internal Medicine plays an active role in defining proper quality outcomes that measure our clinical practice. This collaborative activity, shared with the Ministry of Health, HMO directors and professional societies, has undoubtedly improved medical care for various disorders. The Society of Internal Medicine is deeply involved in medical education and recently launched a newly designed course with Tel Aviv University's Sackler Faculty of Medicine, preparing residents for the specialization exams by providing

state-of-the-art medical knowledge in the diverse fields of Internal Medicine by leading lecturers in each field. This program is provided to hundreds of physicians, not only those in the halls of the Faculty but also those in the periphery who view the lectures broadcasted simultaneously in real time making the data accessible to all. This program continues into a second phase of a multiple-choice course which resembles the residency tests held each year. We hope that these efforts will improve the success rates of examinees, especially in the periphery of the country where the challenges of providing medical services are even more severe.

Our Society emphasizes the importance of promoting medical research and the subsequent publishing of the findings. Each year grants are given to young scientists who present their investigational work at the Society's annual congress. In addition, prizes are given annually for medical writing.

This ongoing journey to improve professionalism is a long one, but as presented here consists of many steps. We hope that all these elements will converge to improve medical care and education.

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Capsule

Mosaic nanoparticle display of diverse influenza virus hemagglutinins elicits broad B cell responses

The present vaccine against influenza virus has the inevitable risk of antigenic discordance between the vaccine and the circulating strains, which diminishes vaccine efficacy. This necessitates new approaches that provide broader protection against influenza. **Kanekiyo** et al. designed a vaccine using the hypervariable receptor-binding domain (RBD) of viral hemagglutinin displayed on a nanoparticle (np) able to elicit antibody responses that neutralize H1N1 influenza viruses spanning over 90 years. Co-display of RBDs from multiple strains across time, so that the adjacent RBDs are heterotypic, provides an avidity advantage to cross-reactive B cells.

Immunization with the mosaic RBD-np elicited broader antibody responses than those induced by an admixture of nanoparticles encompassing the same set of RBDs as separate homotypic arrays. Furthermore, the authors identified a broadly neutralizing monoclonal antibody in a mouse immunized with mosaic RBD-np. The mosaic antigen array signifies a unique approach that subverts monotypic immunodominance and allows otherwise subdominant cross-reactive B cell responses to emerge.

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