

# Adult Infectious Diseases Fellowship Training Program: The Time is Now

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“**M**an’s redemption of man is nowhere so well known as in the abolition and prevention of the group of diseases which we speak of as the fevers, or the acute infections. This is the glory of the science of medicine”—William Osler, 1913.<sup>1</sup>

For millennia, infectious diseases have caused havoc among societies<sup>2</sup> and Oman was no exception. Curiously, infectious diseases are still with us, and they are likely to remain eternal to our existence with their challenge and fascination. Nearly a hundred years ago, infectious diseases like cholera, plague, malaria, leprosy, and leishmaniasis have all been recognized and reported in Oman.<sup>3</sup> Interestingly, in 1909, Dr. Sharon Thoms—a medical missionary—arrived in Muttrah (Oman) to set up the first medical mission in Oman focusing on a myriad of rampant contagions such as tuberculosis, malaria, pneumonia, and trachoma.<sup>4</sup> In recognition of his efforts on battling infectious diseases, a hospital dedicated for contagious diseases was named after him and was later known as ‘Al Rahma’ (Mercy) Hospital in Muttrah.

More than a century later, infectious diseases continue to pose substantial, albeit of different disease spectra and complexities, a challenge in Oman with irrefutable significant health burden and societal impact.<sup>5–8</sup> Contrary to the non-communicable diseases (heart disease, stroke, cancer, diabetes, etc.), the true burden of infectious diseases in Oman is largely underestimated, mostly overlooked, and not entirely perceived. With the recent COVID-19 pandemic and its associated health, economic, and societal impact, there is a pervasive understanding of the damaging ways in which infectious diseases affect our world still today. Among the many lessons

learned from the COVID-19 pandemic are how dangerously unprepared the world has been to deal with such pandemics<sup>9</sup> and that infectious diseases physicians are pivotal to real-time response to public health emergencies.

Infectious diseases is a cognitively comprehensive discipline that is almost unique in modern medicine with its capability to cure and prevent disease, to identify specific disease causes (microorganisms), and to deal with diverse outbreaks and pandemics. Unlike all other medical specialties, infectious diseases are consistently changing, habitually unpredictable, frequently stimulating, and incredibly rewarding. They are also often challenging and seemingly underappreciated, at least until needed. These attributes appear to be relatively distinctive to this field with an ever-expanding catalog of challenging pathogens and a never-deprived kinetic armamentarium.

Infectious diseases physicians are the stewards of this arguably most impactful specialty of all medicine. Infectious diseases physicians possess several versatile attributes defining their value to patients, hospitals, community, and other integral groups in the health care continuum.<sup>10</sup> Furthermore, one of the most valuable and often underappreciated qualities of infectious diseases physicians is their ability to direct the care of mystifying and perplexing cases.<sup>10</sup>

Despite being one of the most frequently consulted services in hospitals where such service exists and notwithstanding the growing supply of adult infectious diseases physicians, albeit insufficient; over the past 10 years, the number of adult infectious diseases physicians in Oman is not keeping pace with the need and mostly remained severely restricted to Muscat region (unpublished personal data). According to a situation analysis of the current and projected status of adult

infectious diseases physicians in Oman—based on the Ministry of Health 2020 annual health report,<sup>11</sup> personal communication with practicing infectious diseases physicians, scientific research and international standards<sup>12</sup>—the current density (physicians/100 000 population) of adult infectious diseases physicians in Oman is imperfect (0.22 vs. 0.4; most conservative standard), maldistributed (of all 11 governorates, only three (27%) have infectious diseases physicians), and inadequate (current deficit of 44%). Allowing for projected population growth for 2030 and using the same conservative estimate of 0.4/100 000 population, an extra 13 trained adult infectious diseases physicians are needed to meet the 2030 national healthcare needs.<sup>13</sup> Moreover, several key factors are likely to increase demand in the near future, further augmenting the current mismatch between supply and demand for infectious diseases physicians in Oman. These include the potential impact of emerging infectious diseases, growing global travel, antibiotic resistance, the expansion of stewardship responsibilities, and overall population growth especially the growing number of elderly, immunocompromised, and those requiring advanced and complex medical and surgical interventions.

Given the current and projected scarcities joined with the ever-increasing complexities of infections necessitating specialist-level care, founding a sustainable, locally administered fellowship training program to ensure a thorough pipeline of future infectious diseases physicians in Oman and to attempt to offset the imbalance between supply and demand is a strategic national health necessity and a realization of Oman's 2040 vision through the fulfillment of four of the 12 national priorities namely: (1) education, learning, scientific research, and national capabilities; (2) health; (3) wellbeing and social protection; and (4) labor market and employment.<sup>14</sup> Vital determinant of the future supply of adult infectious diseases physicians is the inflow presented by the number of adult infectious diseases fellows entering the training program. Ensuring a constant influx of trainees requires a system-based strategy to heighten interest in pursuing a career in adult infectious diseases among medical students by enriching the medical school curriculum with infectious diseases topics and among internal medicine trainees by improving their infectious diseases experience.

I believe that we have all the prerequisites for the founding of a locally managed and internationally

accredited adult infectious diseases fellowship training program specifically talented and vastly experienced faculty, state-of-the-art facilities and infrastructure, high volume and broad range patient population, a renowned academic environment facilitating teaching, learning, and research, and support services for trainees. I, with the infectious diseases and microbiology community in Oman, passionately envisage the imminent birth of a destined-to-stay fellowship training program in the most kinetic and gratifying subspecialty of all of medicine.

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