Digestive Diseases and Sciences (2021) 66:1394–1399
https://doi.org/10.1007/s10620-021-06854-1

FELLOWS AND YOUNG GIS SECTION

Establishment of a North American Model Academic Gastroenterology Division in the Middle East: The Cleveland Clinic Abu Dhabi Experience

Shiva Kumar[1]

Received: 2 November 2020 / Accepted: 14 January 2021 / Published online: 20 March 2021

Abbreviations

ASGE	American Society for Gastrointestinal Endoscopy
CCAD	Cleveland Clinic Abu Dhabi
CCF	Cleveland Clinic Foundation
DDI	Digestive Disease Institute
IBD	Inflammatory bowel disease
NAFLD	Non-alcoholic fatty liver disease
UAE	United Arab Emirates
US	United States of America

Introduction

Located at the southeast end of the Arabian Peninsula, the United Arab Emirates (UAE) has made great strides over the past few decades toward meeting the healthcare needs of its population [1]. The increase in burden of chronic disease accompanying population growth has increased healthcare spending and necessitated the establishment of centers of excellence in order to accommodate the need for advanced care [2, 3]. It is against this background that Cleveland Clinic Abu Dhabi (CCAD) was established with the goal of providing tertiary care services of the highest quality to citizens and residents of the UAE, thereby minimizing the need for them to travel overseas in order to obtain high-quality subspecialty care [4].

Our primary task at CCAD was to establish a care delivery model similar to that of Cleveland Clinic foundation (CCF), while considering regional variations related to disease burden, socio-cultural, patient-related, as well as physician and caregiver-related factors. The institutional structure at CCAD is similar to that of CCF main campus in Cleveland, Ohio with both medical and surgical specialties housed within an institute-based structure and aligned along subspecialty-based clinical units [5]. The Department of Gastroenterology and Hepatology, within the Digestive Disease Institute (DDI), was modeled along the lines of academic Gastroenterology divisions in the United States (US), centered around sub-specialty-based clinical practice, supported by research and education domains.

We describe our experience with the establishment and growth of the Department of Gastroenterology and Hepatology at CCAD and outline opportunities and challenges for graduating fellows and junior faculty interested in international practice opportunities.

Challenges Unique to the Local Landscape

One of our early strategic initiatives was to identify potential challenges—some unique to the international nature of our practice and others that would be common to such endeavors even in the US. However, we were limited by the lack of any established precedents to help guide our path, necessitating a well-thought-out meticulous approach and the need to be flexible, guided by lessons learnt along the way. Looking back at our experience over the past five years, the challenges could be grouped into the four categories as detailed below.

Physician Considerations

Recruitment and retention of highly qualified physician staff was and remains one of our primary strategic objectives. From a physician perspective, geographic variations in regulations related to licensure of healthcare practitioners is an important consideration. As with most international practice locations, physician licensure requirements in the UAE vary based on the physicians' country of board certification or licensure. Given its direct impact on the time to onboard

The author serves as Chair of Gastroenterology and Hepatology and has been at Cleveland Clinic Abu Dhabi since its inception.

✉ Shiva Kumar
kumars5@clevelandclinicabudhabi.ae

[1] Department of Gastroenterology and Hepatology, Digestive Disease Institute, Cleveland Clinic Abu Dhabi, Al Maryah Island, Abu Dhabi, United Arab Emirates

new physicians, an understanding of this process is essential to help guide the recruitment process. Moreover, the predominantly expatriate nature of the subspecialty workforce translates into higher physician turnover than comparable settings in the US, whereas the paucity of graduate medical education programs in the country limited our access to a pipeline of graduating fellows.

The above considerations mandated the need for us to anticipate our workforce needs well in advance, in order to avoid staffing shortages and ensure that recruitment kept pace with clinical demand. Our location presented unique opportunities and challenges to recruit, integrate, and retain physicians from diverse training backgrounds while incorporating best practices drawn from around the world (Table 1).

Socio-Cultural Considerations

It is important to recognize cultural and regional variations related to patients' perceptions regarding health, disease and healthcare providers—which may vary significantly from those in the West. Awareness and dissemination of this amongst our physician workforce is important—both from a clinical and patient experience perspective. A specific example of this would be acceptance of recommendations related to screening for colorectal neoplasia. Even though patient education efforts have improved screening rates over the years, they remain much lower than in the West [6].

The predominantly expatriate physician workforce has also required the widespread acceptance and use of interpreters needed to facilitate clinical encounters. Even though this concept is not alien to physicians graduating from fellowship training in the US, the need for interpreters in a significant proportion of patient encounters is different from the practice pattern to which most junior physicians are accustomed, but which patients and their families in the region are generally very accepting of, having historically traveled overseas for complex care.

Medical Practice Variations

The UAE has historically been known for a high standard of medical care, guided by recommendations of reputed scientific societies worldwide. The widespread recognition and use of this guideline-based approach enabled a smooth transition for most western-trained physicians and also ensured standardization of care. For instance, our quality metrics in endoscopy were diligently benchmarked and tracked against standards established by the American Society for Gastrointestinal Endoscopy (ASGE) [7]. One of the caveats, however, is the direct extrapolation of western guidelines globally to regions where additional considerations or nuances related to patients' perceptions and acceptance, as well as regional variations in disease phenotype, have to be considered [8]. One such example is the lowering of the age limit to 40 for average-risk colorectal neoplasia screening in 2014 by the Department of Health in Abu Dhabi, based on regional data regarding prevalence of advanced adenomas in the 40–50-year age group [8, 9]. Our success stemmed from a data-driven, protocol-based approach, guided by recommendations from reputed scientific societies in digestive and liver disease, while taking into account regional variations.

Variations in Disease Burden and Care Delivery

One of the primary challenges related to the establishment of a gastroenterology practice overseas is the estimation of subspecialty-specific workforce needs. Even though limited data were available in this regard, digestive and liver disorders have consistently ranked among the primary causes of disease-specific morbidity and mortality in the UAE specifically and the Middle East in general [10]. For gastroenterologists interested in practicing overseas, it would be useful to know the regional prevalence of diseases that fall within their subspecialty practice domains, recognizing that the burden of disease in international practice locations may vary from those encountered in the Western world. We have observed functional and gastrointestinal motility disorders, liver disease, and inflammatory bowel disease (IBD) as dominant diagnoses among ambulatory patients, considering referral bias related to the tertiary care model of our practice.

In addition to recognizing variations related to disease burden, it is also important to understand variations in other aspects of the healthcare model and delivery process [11].

Table 1 Physician-specific considerations in overseas academic medical practice

Recognize need to integrate providers from diverse training backgrounds
Recognize regional variations in prevalence of digestive and liver disease
Emphasis on subspecialty training and expertise
Recognize role of recruitment and retention in the context of a predominantly expatriate physician workforce
Recognize global variations in healthcare delivery models
Recognize socio-cultural variations in patients' perception of health and disease

Table 2 Strategic initiatives and key guiding principles in our journey thus far

Identify all subspecialty areas within Gastroenterology & Hepatology in order to ensure the availability of all needed expertise
Identify regional variations in disease burden and health care delivery
Emphasis on recruitment and retention
Develop and advance academic mission in graduate medical education and research
Diligent tracking of quality metrics, benchmarked against scientific society guidelines
Leverage relationship and available expertise within the parent organization (CCF)
Close collaboration with institutional leadership – to ensure alignment of departmental goals, recruitment and growth strategy

Even though the public health system in the Emirate has a network of primary care clinics, the existing primary care infrastructure remains limited, resulting in many patients in our subspecialty clinics being self-referred [12]. Though the UAE's healthcare billing, coding and payment system is modeled along the lines of that in the US, enabling a smooth transition for US trained physicians, this may not be necessarily true for physicians from other training and practice backgrounds. With respect to healthcare coverage, while the government provides comprehensive health coverage for all UAE nationals, employers provide health insurance coverage for most expatriates and their dependents in the country, with the extent of coverage varying based on policy terms [2].

Key Guiding Principles in Establishing a Successful Academic Gastroenterology Division Overseas

The principal strategic considerations involved in establishing a successful international Gastroenterology department are similar to those in the US and warrant an approach identifying key strategic objectives, as well as leveraging our strengths (Table 2). Our primary strategic initiative was to ensure alignment of our physicians and caregivers with our efforts to strive to meet and exceed expectations in five key domains—quality, access, patient experience, volume growth, and subspecialty program development—while maintaining team engagement and following our guiding principle of putting patients first (Fig. 1).

Establishment of Subspecialty-Based Clinical Units in Digestive and Liver Disease

One of our early goals was to ensure that we had representation in all subspecialty areas within Gastroenterology & Hepatology (Table 3). Even though the demand for comprehensive, general gastroenterology services remains very strong in the region, the need for subspecialty focus in a setting like ours cannot be overemphasized. This is particularly true for subspecialties without an established historical presence in the region—primarily advanced gastrointestinal motility, IBD, complex nutrition and transplant hepatology.

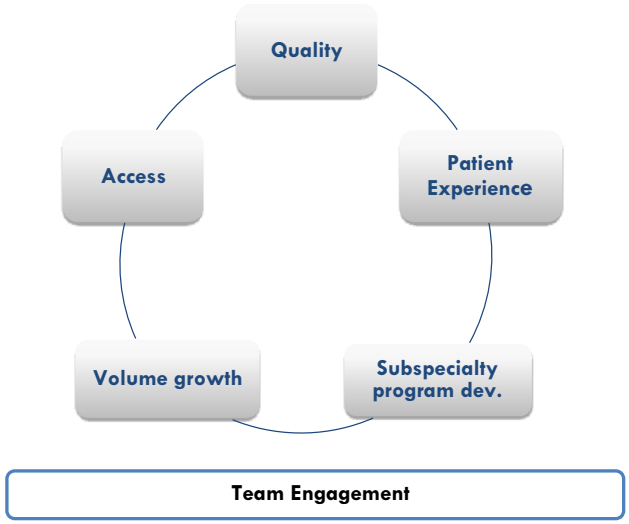

Fig. 1 Primary domains to consider for physician leaders

Table 3 Primary subspecialty clinical areas in Gastroenterology and Hepatology

Gastroenterology and Hepatology
Subspecialty Units
Comprehensive Gastroenterology
Gastrointestinal Motility & Physiology
Foregut Motility & Swallowing Center
Pelvic Floor Program
Inflammatory Bowel Disease
Clinical Pancreatology & Hepato-Biliary-Pancreatic Endoscopy
Advanced Luminal Endoscopy
Gastrointestinal Neoplasia
Bariatric Endoscopy
Liver Disease & Transplantation
Clinical Nutrition
Comprehensive Nutrition support team
Home Enteral and Parenteral Nutrition

The primary consideration for graduating fellows and young physicians is the determination of their subspecialty area of focus within gastroenterology, a consideration that

takes on added significance when considering an international practice location. The tertiary nature of our practice mandated an intense focus on subspecialty unit-based practice, premised on representation from gastroenterology, digestive disease surgery and nursing, with administrative support (Fig. 2). Our unique institute model facilitated seamless collaboration with our surgical colleagues in the establishment of subspecialty centers of excellence encompassing the entire spectrum of digestive and liver disease. We empowered these units to advance our mission in the clinical and academic domains, while meeting and exceeding all key operational and quality metrics and maintaining a keen awareness of recruitment needs and retention.

Recognize Regional Variations Related to Clinical Practice and Disease Burden

Early on in our journey, we recognized the need to estimate disease burden to the extent possible based on the available information, to enable us to identify strategic areas of focus and anticipate our staffing needs. The lack of established subspecialty-based digestive disease units in the region offered unique opportunities and challenges, necessitating a flexible approach with respect to recruitment and staffing, in order to meet clinical demand. Likewise, for trainees and young gastroenterologists interested in practicing overseas, an understanding of regional disease burden will enable them to anticipate demand for their respective subspecialties. We leveraged this information as well as regional clinical practice variations in order to enable our growth.

Specific examples in this regard may provide the reader with greater perspective:

- Updated recommendations in 2014 from the Department of Health in Abu Dhabi lowered the age for average risk screening of colorectal neoplasia to 40 [8, 9]. This coincided with the initiation of our clinical operations and presented a unique opportunity to increase awareness and improve screening rates. Several strategic initiatives, including establishment of an 'open-access' primary care referral system for screening, creation of a 'best practice alert' in our electronic medical record and focused efforts at patient education and outreach significantly increased the screening rate for colorectal neoplasia.
- Early on, we recognized the high prevailing burden of liver disease in the region, its anticipated future increase driven primarily by the high prevalence of Non-alcoholic fatty liver disease (NAFLD) with consequent need for liver transplant services [13]. Our collaborative efforts with the UAE's national transplant committee, CCF, and other key stakeholders helped establish the country's first and currently only operational liver transplant center [14, 15].
- Disease burden related to IBD was noted to be significant, especially in young adults, often with an aggressive disease phenotype. Collaborative efforts resulted in the establishment of one of the region's first multi-disciplinary IBD programs, which is among only a few sites in the Middle East participating in clinical trials of novel therapies in IBD.

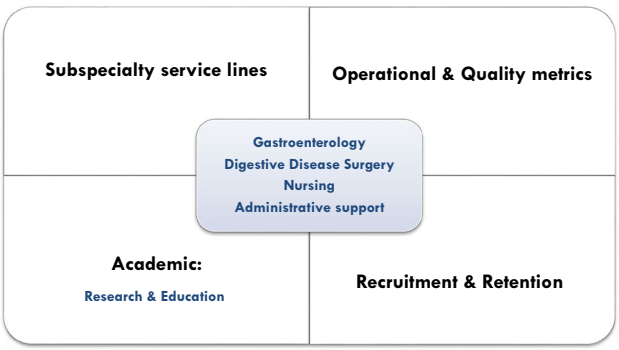

Fig. 2 Proposed model of subspecialty-based clinical units

Development of an Academic Dimension to Our Practice

Our approach could be best characterized as a relentless pursuit of excellence by benchmarking our performance with established quality metrics developed by international scientific societies. In this context, the development of a robust academic component was deemed to be essential to ensure our long-term success as well as engagement and retention of physicians.

Although the available clinical research infrastructure at the outset was relatively undeveloped, formal establishment of an education and research infrastructure under the office of academic affairs significantly enhanced our efforts in this regard. The possibility of academic collaboration with colleagues in established academic centers in the US and faculty appointments are also important considerations for physicians with academic career aspirations. In our case, all our physicians have the option of faculty appointments at the Cleveland Clinic Lerner College of Medicine. Collaborative research efforts with colleagues at CCF enabled us to remain productive from a research standpoint from the very outset, until we were able to generate our own data for clinical research [16].

Establishment of Satellite Locations to Expand the Reach of Our Subspecialty Clinical Units

Finally, as is the case in the US, it was important for us to extend our footprint beyond our primary practice location. Even though this remains an ongoing work in progress, we were able to successfully establish a satellite presence

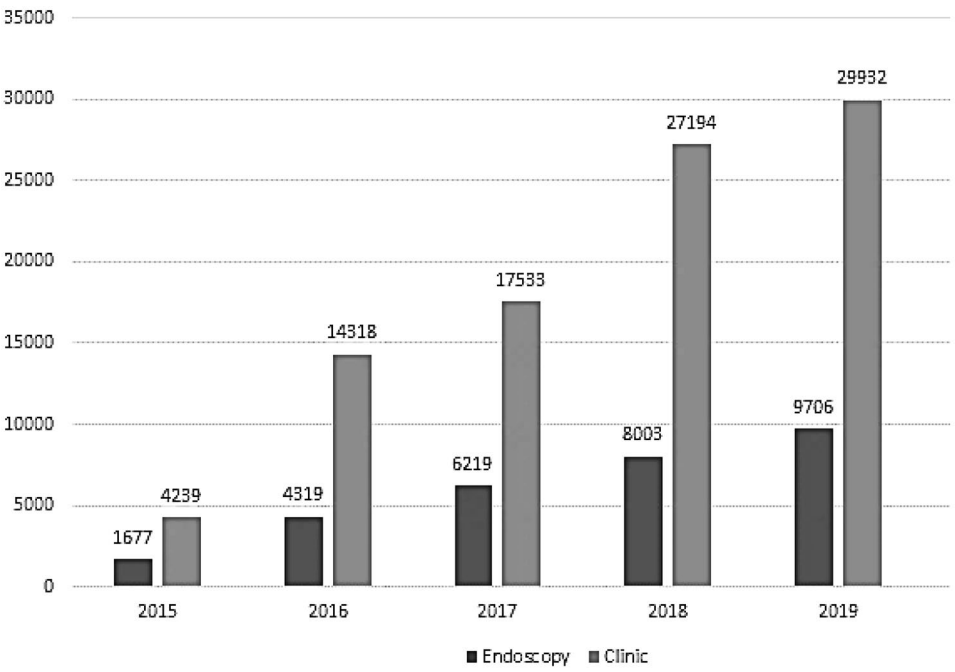

Fig. 3 Growth in ambulatory clinic and endoscopy volumes in Gastroenterology and Hepatology at CCAD since inception

in two locations within the Emirate, focused on providing comprehensive gastroenterology services and streamlining referrals to our primary location in Abu Dhabi. We continue to expand our footprint regionally attracting patients from numerous other countries in the region and have also been able to provide continuity of care for patients from the region returning after seeking care at CCF or other centers overseas.

Our Results and Experience

Five years after we began operations, our division has grown to become the largest academic Gastroenterology and Hepatology department in the country with 24 providers, encompassing training backgrounds from 11 different countries. Two-thirds of our consultant physicians have formal subspecialty training beyond gastroenterology fellowship, highlighting our commitment to subspecialty unit-based care and differentiating us from other leading medical centers in the country. With subspecialty representation in all areas of Gastroenterology & Hepatology, we have experienced significant growth, while maintaining timely access and meeting and exceeding all established quality metrics (Fig. 3).

Our endoscopy unit is now the busiest in the country, providing the entire spectrum of endoscopic services from screening to advanced biliary endoscopy, luminal, third-space and bariatric endoscopy, while meeting and exceeding all established ASGE quality metrics and benchmarks. Other noteworthy accomplishments include establishment of one of the largest multidisciplinary IBD programs in the region, supporting the only operational liver transplant program in the country and establishing a unique nutrition support team encompassing long-term home enteral and parenteral nutrition.

Future Considerations

Our future initiatives include continued growth of subspecialty programs and disease-specific centers of excellence, research efforts focused on disease areas that are locally prevalent such as NAFLD and IBD, in addition to establishing a graduate medical education program in Gastroenterology and Hepatology. Training of local physicians and the next generation of physician leaders will ensure the sustainability of our initial success.

The development of a North American model academic Gastroenterology division in the Middle East entails overcoming challenges that are infrequent in the stable, established academic environment that exists in most such centers in the West, but also presents unique opportunities. Perhaps the most gratifying aspect of this entire journey is the measurable and noticeable impact that the establishment of a world-class academic Gastroenterology division has on the health and quality-of-life of the local population.

Overseas practice opportunities may present uniquely challenging and professionally satisfying career options for young gastroenterologists seeking to pursue careers as academic clinicians. Our experience highlights key considerations for academic gastroenterologists intending to pursue their careers outside the US and may also hold important

lessons for other academic medical centers considering expansion overseas.

Acknowledgments The author would like to express his gratitude to his colleagues in the Department of Gastroenterology & Hepatology and DDI, leadership of DDI, CCAD and CCF, as well as all fellow caregivers at CCAD.

Compliance with Ethical Standards

Conflict of interest The author reports no conflict of interest and has no financial disclosures with respect to this manuscript.

References

1. World Health Organization. World Health Statistics 2020. https://www.who.int/gho/countries/are/country_profiles/en/
2. https://u.ae/en/information-and-services/health-and-fitness/healthcare-budget
3. Taha NF, Sharif AA, Blair I. Financing health care in the United Arab Emirates. *World Hosp Health Serv.* 2013;49:33–39
4. Alnakhi WK, Segal JB, Frick KD, Ahmed S, Morlock L. Motivational factors for choosing treatment destinations among the patients treated overseas from the United Arab Emirates: results from the knowledge, attitudes and perceptions survey 2012. *Trop Dis Travel Med Vaccines.* 2019;18:18
5. Stoller JK. The Cleveland Clinic: a distinctive model of American medicine. *Ann Transl Med.* 2014;2:33
6. Al Abdouli L, Dalmook H, Akram Abdo M, Carrick FR, Abdul Rahman M. Colorectal cancer risk awareness and screening uptake among adults in the United Arab Emirates. *Asian Pac J Cancer Prev.* 2018;19:2343–2349
7. Rex DK, Schoenfeld PS, Cohen J et al. Quality indicators for colonoscopy. *Gastrointest Endosc.* 2015;81:31–53
8. Schreuders EH, Ruco A, Rabeneck L et al. Colorectal cancer screening: a global overview of existing programmes. *Gut.* 2015;64:1637–1649
9. Department of Health, Abu Dhabi. Cancer screening recommendations (doh.gov.ae).
10. Blair I, Sharif AA. Population structure and the burden of disease in the United Arab Emirates. *J Epidemiol Glob Health.* 2012;2:61–71
11. Koornneef E, Robben P, Blair I. Progress and outcomes of health systems reform in the United Arab Emirates: a systematic review. *BMC Health Serv Res.* 2017;17:672
12. Paulo MS, Loney T, Lapão LV. The primary health care in the emirate of Abu Dhabi: are they aligned with the chronic care model elements? *BMC Health Serv Res.* 2017;17:725
13. Alswat K, Aljumah AA, Sanai FM et al. Nonalcoholic fatty liver disease burden-Saudi Arabia and United Arab Emirates 2017–2030. *Saudi J Gastroenterol.* 2018;24:211–219
14. Kumar S, Sankari BR, Miller CM, Obaidli AAKA, Suri RM. Establishment of solid organ transplantation in the United Arab Emirates. *Transplantation.* 2020;104:659–663
15. Kumar S, Miller CM, Hashimoto K et al. Liver transplantation in the United Arab Emirates from deceased and living donors: initial 2-Year experience. *Transplantation*. 2021 (in press)
16. Kumar S, Lin S, Schold JD. Impact of donation after circulatory death donor allografts on outcomes following liver transplantation for fulminant hepatic failure in the United States. *Am J Transplant.* 2021;21:382–390