

Implementing Resident Research Program to Enhance Physicians Research in the United Arab Emirates

Abstract

Objectives: The Dubai Residency Training Program (DRTP) commenced in the year 1993; then, a “Residency Research Program (RRP)” has implemented from 2011 to promote research among young physicians. This study was conducted by the Dubai Health Authority to review the RRP to assess its effectiveness in meeting original objectives and generating desired outcomes. **Methods:** Source documents such as the chronicles of the DRTP, communication between the stakeholders, resident feedback, research director, and program director reports were accessed and retrospectively reviewed. **Results:** Seven research workshops and ten advanced statistics courses were held. Ten scholarships were provided to the residents for “Introduction to Clinical Research Training” held by Harvard Medical School. Of 370 residents, a total of 156 residents submitted their research proposal, of which 128 residents presented their thesis. Nineteen residents presented their research on international conferences, 12 published their study, and 9 got award locally. **Conclusions:** Efforts are focused on improving the quality of the research projects, as well as getting residents involved in research that leads eventually to publication. Research is a major component of DRTP; nevertheless, it is challenging for residents to conduct research successfully because of some barriers inherent in residency training. This experience was the first in the United Arab Emirates, and we believe that this paper will contribute to the integrating research in residency programs by the educators and academics in across countries within the region.

Keywords: Education, medical residents, medical, middle east, physicians, research, residency training

Introduction

The United Arab Emirates (UAE) is relatively a young country, and research involving human subjects is new to the country. Human research studies in this region have not been appropriately identified as such but rather considered quality improvement initiatives.^[1] Furthermore, basic science and behavioral studies contribute to the bulk of human research. However, the government policy is giving the research top priority in the UAE.^[2] Hence, initiatives by the government to encourage medical research, including research conducted by medical trainees, have enabled a transformation from the traditional practice of medicine to evidence based. Commonly cited barriers on conducting research include lack of knowledge about institutional research programs, lack of confidence regarding medical writing skills, failure to understand the value of research, lack of funding

support, unavailability of faculty mentors, and most importantly, lack of time.^[3,4]

Gulf Cooperation Council (GCC) countries are in crucial need for raising the culture of research among their young physicians. To overcome these challenges, the Dubai Residency Training Program (DRTP) commenced in the year 1993 has implemented research as an integral component for the residents in 2011 in forms of “Residency Research Program (RRP).” This was the first experience in the region, and it was based on a comprehensive approach to the importance of research in medical residency uptake, academic career, evidence-based practice, considerations for subspecialty fellowship, and to generate overall satisfaction during residency training.^[5-7]

The last 7 years have witnessed the seamless integration of research into the residency program toward its evolution. However, many specialties still fail to generate a robust research agenda for want

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of resources and expertise that deter the residents away from conducting original research. A systematic analysis of the RRP to assess its efficiency to meet original objectives and generate desired outcomes was received. The purpose of this study was to analyze and evaluate the RRP within Dubai residency training. It is anticipated that the results of the investigation will be useful to improve the program, develop and update institutional guidelines and furthermore be a learning model for residency programs in the Middle East.

Methods

Pedagogical framework: Context and process

The review analysis of RRP was conducted by the Dubai Health Authority (DHA), one of the first and the oldest promoters of the medical residency program in the UAE, between October 2017 and March 2018. Source documents such as the chronicles of the residency program, communication between the stakeholders, resident feedback; research director, program faculty, and program director reports were accessed and retrospectively reviewed. A retrospective analysis of the source documents assured systematic assessment of the requirements of various board's such as the Saudi Board, Arab Board, and German Board. The observations from the assessment of the source documents were reported by researchers blinded to the study objectives. Institutional review board (IRB) approval was not required as per the institutional and national guidelines.

The DRTP currently trains 370 medical residents annually, from a spectrum of 14 programs.^[8,9] Nine hundred and sixty physicians in different specialties have completed the program over the past 24 years. Among the 14, 10 specialties such as emergency medicine, internal medicine, family medicine, surgery, obstetrics and gynecology, radiology, pediatrics, ophthalmology, psychiatry, and ear, nose, and throat are affiliated requirements for the Arab Board of Health Specializations. While neurology, neurosurgery, and anesthesia have to fulfill affiliation requirements for the Saudi Commission for Health Specialties, and

orthopedics and trauma cater to the affiliation needs of the German board. The DRTP program, hosted by the DHA for training residents in all the hospitals governed by the DHA, is accredited by both the Arab Board of Health Specializations and the Saudi Commission for Health Specialties. Interestingly, in spite of the Arab Board requirements for a thesis submission by residents for obstetrics and gynecology, surgery, community medicine, and pediatric specialties, a formal research program did not find its way into the DRTP until the year 2011 [Table 1].

Learning environment and format: Enablers, outcomes, and impact for the residency research program (2011–2017), research curriculum, and training workshop

The launch of the “RRP” in 2011 and the introduction of the “Research Methodology Workshop” were perceived by the higher authorities in DHA as a significant step to generate high-quality physicians familiar in evidence-based medicine. The residents very well accepted the introduction of the mandatory study curriculum and the research workshop in the 2nd year of residency. Toward the beginning of the 2nd year, the residents were accustomed to their hospital, had their Arab board (Part I), or Saudi board examination completed. Hence, the residents were quite confident about their research interest and research subject.

Research methodology workshop

The “Research Methodology Workshop” is a 3-day intensive training conducted by qualified and experienced physicians in DHA specialized in research methodology. The workshop starts by introduction on types of health-related research, how to conduct literature review, research methodology, sample size calculation, brief on medical statistics, research ethics, and finally different styling of bibliography in scientific manuscript. The primary goal of this intensive workshop is to guide the residents in developing scientific way of thinking and design a study that eventually gets published in scholarly journals. DRTP enrolls new residents, number vary 68–78 per year. All residents have to attend the workshop.

Table 1: A summary of different residency training programs and their mandates for research and thesis submission

Specialty board	Programs research is mandatory	Time for submission of thesis
The Arab Board of Health Specializations	Obstetrics and gynecology	End of R4
	Surgery	End of R4
	Community medicine	End of R5
	Pediatrics	End of R4
Saudi Commission for Health Specialties	None	None
Germany Medical Residency Training	Orthopedics and trauma	End of R4
Dubai Residency Training Program	All 14 residency programs*	End of R4

R4: Fourth year of residency program; R5: Fifth year of residency program. *Family medicine, pediatrics, obstetrics and gynecology, general surgery, internal medicine, emergency medicine, psychiatry, radiology, neurology, ophthalmology, ear, nose, and throat, anesthesia, neurosurgery, and cardiology

After the workshop, every resident is invited to a personal meeting with the principal of RRP, to discuss their research topic further and get assistance in designing the study. These meetings sometimes are held for three to four times, to assist the resident to get the scientific way of thinking and to be research oriented on their approach for selecting research topic. Afterward, the resident was asked to write the research proposal independently and to review it with the research mentor. The research proposal was then sent to the “Residency Research Review Board” which consisted of an expert in research, an epidemiologist, a representative of each specialty and a coordinator. The review board will critically review the research proposal and then send the feedbacks to the resident. The resident replies to the feedback point to point within 4–6 weeks. If the response was satisfactory, then the review board will scientifically approve the research and send it forward for ethical approval. The main aim of

this process is for the resident to be acquainted with the process of study design, conducting research, and further to recognize the ethical requirements of performing different types of research. Several challenges were faced during the past 7 years which were resolved by the RRP team [Table 2].

Timeframe of residency research program

The RRP workshop is usually held in January/February of the 2nd year of the residency program. The personal research meeting and discussions, plus submission of the research proposal by the resident, are usually taken care between February and June of that academic year. The remaining part of the 2nd year of residency and the 3rd year are generally allocated for data collection and analysis. Deadline for submission of thesis is May of year 4 of residency training.

Table 2: Initiatives, timeline, and outcomes of the resident research program at Dubai Health Authority, 2011-2017

Academic year	Initiatives	Time/additional support required	Outcomes
2011	Resident research principal (a faculty member in medical education department who is appointed fulltime for following up medical residents research)	Literature review on the same experience in the region and worldwide	This initiative was the first in the region
2012	Development of residency research workshop Integrated research in residency curriculum Open discussion with research expert was provided for residents Research proposals review committee was developed Subcommittee of IRB for residency research was developed	Support of program directors was required Support of experts in the field to participate in the review process	We were able to integrate research in six residency curriculum: Family medicine, internal medicine, pediatrics, psychiatry, obstetrics and gynecology, and radiology The open discussion with research expert and review committees for both scientific and ethical aspects also facilitated the speed of research proposal approval
2013	Research coordinator dedicated to residency research Research day initiated Guideline for thesis was developed Statistics support was provided for residents	Support from director of medical education to hire research assistant Support of statisticians in the hospital to assist the residents	The research coordinator assigned specific for the RRP, enhanced the level of communications between the residents and RRP team
2014	Ethics was integrated in residency Research workshop Integrated research in IPP Research day/week off was implemented	Support of research ethics expert Support of program directors	Integrating the research on yearly IPP encouraged residents to further pursue research conduction
2015	Research track was developed Archive for thesis was developed	Support of IT	These initiatives assisted in taking further steps in advancing the nature of investigation being conducted and take it to the publication and international conference presentation level
2016	Intensive Biostatistics course initiated Refworks course initiated “Researcher’s Responsibility” workshop was initiated	Support of epidemiologist in other sector Support of director of medical education department	
2017	More external trainings were introduced to residents	Support of director of medical education department	To increase the knowledge of residents on worldwide research methodologies

IRB: Institutional review board; RRP: Residency research program; IPP: Individual performance plan; IT: Information technology

Results

Research rotation

Research rotation was not a common practice for residency training in Dubai. Getting the program directors on board to have a shared vision for research residency and garner their support and trust was most challenging. Subsequently, the program directors accepted to have research integrated into the curriculum either as a 2–4 weeks study block within the 2nd and 3rd years of residency or to assign two academic days per month as “Research day.” The response of the residents was positive to the introduction of the research block, where they could work on their proposals, collect, and analyze data and prepare manuscripts.

Research mentoring

Mentoring residents to enable them to conduct research were a paramount task. Similar to other reports,^[10] the establishment of a research program, in the department of medical education, was a game changer for the DRTP program. However, the DHA system or any similar system in the region predominantly operates as a health service provider. Conventionally, the health service providers focus on patient diagnosis and treatment with little or no exposure to teaching and research. Incidentally, during the initial period research mentors who supervised the residents had no research publications to their credit. The challenge has been partly overcome by obtaining feedback from the residents in the previous year about their mentor. A highly positive feedback from the residents assured retention of the mentorship status. The mentors were selected by the medical residents based on their field of interest. Some mentors had publications and some did not. However, the RRP was a learning process for both residents and the mentor. The mentors for the research did not receive any incentives.

Research support services

Providing research support to residents was vital to meet research milestones. Research support involves the introduction of a basic statistics course in the residency research workshop, early on, followed by an advanced statistics and data analysis course during years 2 and 3 of residency. In addition, several training workshops such as “Investigators responsibilities” and “Hands on research methodology workshop” plus “Critical appraisal workshop” further assisted the residents in developing their research skills. Moreover, we provided selected scholarships for residents to complete the Harvard Medical School Clinical Research Training program. This program was 6-month duration, and all the financial supports were provided by the DRTP.

Research review and the institutional review board

Adoption of the standard International Conference on Harmonization-Good Clinical Practice guidelines organized the process of review of resident’s research proposals. The spurt in the number of resident research projects amounting between 30 and 40 per year crippled the process of timely review. Research proposals, as is the common practice in the country, is examined for both scientific rigor and ethical content.^[2] Hence, an IRB subcommittee was introduced in 2014, which facilitated the review of resident research proposals without burdening the central IRB.

Discussion

Although the DHA employs more than 13,000 employees and a sizable number of them are physicians in more than 80 medical specialties and subspecialties, the DHA was functioning solely as a health service provider for long time. Sensitizing the leadership at the DHA, getting a buy-in from the program directors and the trust of the residents was critical to project residency research as the future of medicine. The annual appraisal system for both residents and their mentors based on their research performance criteria and research accomplishments facilitated by the research director proved to be significant landmarks in the sustainability of the resident research program at the DHA.

Besides all these challenges, the RRP has achieved a lot in the last 7 years. We were able to complete the following [Figure 1]. Seven residency research workshops, 11 advanced statistics courses, and 7 RefWorks courses for study referencing were held. Ten scholarships were provided to the residents for “Introduction to Clinical Research Training” held by Harvard Medical School. A total of 156 residents submitted their research proposal and got the approval, of which 126 residents submitted their thesis and got the approval. Nineteen residents presented their research at the international conference, 12 residents published their study, and 9 residents received an award for their research [Table 3 and Figure 1]. Resident’s feedback was mostly positive on their research and publication experience. However, more studies need to be performed in this aspect.

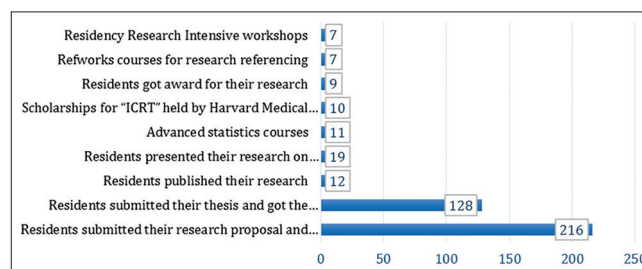


Figure 1: Outcomes of residency research program from 2011 to 2017.
*Introduction to Clinical Research Training (e.g., 270 residents attended the research program)

Table 3: Summary of residency research program during the last 7 years (2011-2017)

Specialty	Number of residents	Number of residents conducting research	Number of research proposal submitted	Number of thesis submitted [†]
Family medicine	70	67	44*	35
Pediatrics	44	39	37	40 [‡]
Obstetrics and gynecology	22	20	20	33 [‡]
General surgery	18	14	10	20 [‡]
Internal medicine	57	39	25*	-
Emergency medicine	43	17	9*	-
Psychiatry	14	8	4*	-
Radiology	11	9	4*	-
Neurology	6	3	3*	-
Total	285	216	156	128

*Some proposals were joint research conducted by two or three residents; [†]Not all residents submitted thesis by the end of their residency training; [‡]Nine pediatrics, 13 obstetrics and gynecology and 12 surgery residents from previous batches submitted their thesis to be reviewed and approved by our panel

Conclusions

As the resident research program matures, our objective has shifted to incorporate past achievements while adding innovative changes. Efforts are focused on improving the quality of the research projects, as well as getting residents involved in research that leads eventually to publication. Possible additional enhancements include integrating research block in the residency training and increasing the mandatory expectations for residency research. In conclusion, research is a major component of residency training in Dubai; nevertheless, it is challenging for residents to conduct research successfully because of specific barriers inherent in residency training. This is the first experience of integrating research in residency program in the region, and specifically, in GCC countries, our experience might be of help for program directors and residency program managers on how to overcome challenges and further improve their training programs in this aspect.

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Conflicts of interest

There are no conflicts of interest.

References

- Nair SC, Ibrahim H. Assessing subject privacy and data confidentiality in an emerging region for clinical trials: United Arab Emirates. *Account Res* 2015;22:205-21.

- Abdulrahman M, Nair SC. Overall assessment of human research and ethics committees in the United Arab Emirates. *J Empir Res Hum Res Ethics* 2017;12:71-8.
- Jibrin I, Dy N. Clinical research during internal medicine residency: A practical guide. *Am J Med* 2007;120:e5.
- Rivera JA, Levine RB, Wright SM. Completing a scholarly project during residency training. Perspectives of residents who have been successful. *J Gen Intern Med* 2005;20:366-9.
- Kanna B, Gu Y, Akhuetie J, Dimitrov V. Predicting performance using background characteristics of international medical graduates in an inner-city university-affiliated internal medicine residency training program. *BMC Med Educ* 2009;9:42.
- Takahashi O, Ohde S, Jacobs JL, Tokuda Y, Omata F, Fukui T, *et al*. Residents' experience of scholarly activities is associated with higher satisfaction with residency training. *J Gen Intern Med* 2009;24:716-20.
- Carrick FR, Abdulrahman M, Hankir A, Zayaruzny M, Najem K, Lungchukiet P, *et al*. Randomized controlled study of a remote flipped classroom neuro-otology curriculum. *Front Neurol* 2017;8:349.
- Ahmed A, Qayed KI, Abdulrahman M, Tavares W, Rosenfeld J. The multiple mini-interview for selecting medical residents: First experience in the Middle East region. *Med Teach* 2014;36:703-9.
- Abdulrahman M, Qayed KI, AlHammadi HH, Julfar A, Griffiths JL, Carrick FR. Challenges facing medical residents' satisfaction in the Middle East: A report from United Arab Emirates. *Teach Learn Med* 2015;27:387-94.
- Ibrahim H, Nair S. Focus on international research strategy and teaching: The FIRST program. *Perspect Med Educ* 2014;3:129-35.