# Chief Residency Program in Singapore—10 Years On

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Nearly a decade ago in this journal, we shared our experience implementing Singapore's first chief resident (CR) program at our institution, National University Hospital (NUH).[1] Since 2010, Singapore has progressively adopted the Accreditation Council for Graduate Medical Education International (ACGME-I) training, and by 2012, all programs had been accredited under ACGME-I.[2] The number of new physicians entering the workforce in the last 10 years has almost doubled.[3] With health care administration becoming increasingly complex, effective medical leadership is urgently needed because it plays a critical role in improving quality of care, patient safety, and cost-efficient care.[4–6] Therefore, there is an increasing focus on medical leadership, and structured programs have been established in various countries to nurture it.[7,8] We describe the evolution and expansion of the CR program in the NUH Internal Medicine Residency Program over the past 10 years and the role it plays in medical leadership development.

## Background

The inaugural CR program was initiated in the department of medicine in 2008 and predated ACGME-I implementation in Singapore.[1] It was formulated in a "from the ground up" fashion, and residents who were identified to become CRs designed the framework for the program. They were closely guided by senior faculty members, with full support from the head of the department. CRs were appointed for 1 year and performed 4 prespecified roles in the earlier years: (1) liaison between junior and senior staff, (2) organizing educational activities, (3) planning and troubleshooting of roster and staffing matters on a day-to-day basis, and (4) leadership development. Interested candidates had to meet the prerequisites listed in BOX 1, as well as complete an interview with the head of the department.

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## Evolution of the CR Program

Over the years, the role of CRs evolved in tandem with departmental and residency program needs. With nationwide implementation of the ACGME-I residency program in 2010, the NUH Department of Medicine set up the internal medicine residency program in accordance with ACGME-I standards.[9] This program grew from 22 residents in 2008, to 100 residents across 3 residency years. To meet the needs of a growing number of residents, the CR program evolved from a modest team of 1 CR and 2 associate CRs (ACRs) in 2008, to the current model of 4 CRs and 6 ACRs.

The candidate selection process has evolved as well. Candidates are now first nominated by their peers and then interviewed by the head of the department and the program director. The current prerequisites are listed in BOX 2.

The CRs and ACRs serve 1-year terms, and each individual has a specific role. We briefly describe some of the roles here, and the details are organized in the TABLE. The internal medicine (IM) CR programs in the United States typically include residents who have completed 3 years of IM training, and 1 year as a CR and is dedicated to performing CR-related tasks. However, in our hospital, CRs are in the third and final year of IM residency training and they juggle their CR tasks with their ongoing training. In addition, and unique to Singapore, residents have to pass the United Kingdom Royal College of Physician membership examination as well as the American Board of Internal Medicine (Singapore) examination before they are allowed to enter fellowship or continue with their fellowship training. The need to prepare for 2 summative examinations presents additional stress to the residents, and CRs assist by organizing formal teaching sessions and managing the Herculean task of balancing the fulfillment of core rotations and leave requirements. The adoption of ACGME-I standards created the need for a formal education program, tracking of residency duty hours, and

**BOX 1** Initial Prerequisites for Chief Residents in 2008

- Six months or more of experience in the National University Hospital Department of Medicine
- Membership in the Royal College of Physicians Part I or higher
- Good clinical skills and knowledge as assessed by the attending physicians
- Leadership qualities
- Good interpersonal relationships as perceived by peers, attending physicians, and allied health care workers

nationally regulated protected teaching time. Formulation of various policies within the program are done with input from the CRs and ACRs, and administrative and training-related policies are constantly refined with feedback from the residents. This takes place formally via weekly meetings with the program leadership and regular feedback sessions between program directors and residents, and informally via e-mails or "corridor chats." Because of the increased awareness of burnout in residents, 1 CR and 2 ACRs have been tasked to develop innovative and informal methods to support at-risk residents.

In the pursuit of improving patient care and safety, CRs are involved in quality improvement by leading the Junior Unit against IneffiCiEncies (JUICE) Committee in implementing quality improvement programs.

As of 2018, the CR program has been adopted by almost all residency programs (12 residency and 6 senior residency programs) within the hospital.

## Formalized Leadership Training of CRs

The Residency Leadership Development Program (RLDP) was conceptualized in 2015 to provide an in-house structured training in leadership skills for all residents, especially for CRs, as part of the hospital leadership renewal. RLDP is a yearlong program with 4 seminars consisting of self-knowledge and leadership, change management and conflict resolution, teaching and mentoring, and a health systems and behind-the-scenes tour of service areas within the hospital. All these allow participants to understand the challenges of leadership as it applies to an organization. Additionally, a national medical leadership training program for senior residents was initiated by the Ministry of Health Holdings' Healthcare Leadership College in 2013. This annual program, called the Singapore Chief Residency Program, allows for leadership development and collaboration on policy, education, and quality improvement programs at a national level.[10]

**BOX 2** Current Prerequisites for Chief Residents and Associate Chief Residents

- Second (ACR) or final-year resident (CR) in the Internal Medicine Residency Program
- Membership in the Royal College of Physicians Part I or higher for ACR
- Membership in the Royal College of Physicians Part II or higher for CR
- Good clinical skills and knowledge as assessed by the attending physicians
- Strong leadership qualities
- Good interpersonal relationships as perceived by peers, attending physicians, and allied health care workers

Abbreviations: ACR, associate chief resident; CR, chief resident.

## Influence of CR Program on Career Choices

The CR program has successfully trained 20 CRs since its inception in 2008 and 19 obtained the fellowship of their choice. The fellowship programs consist of the entire spectrum of medicine ranging from cardiology to oncology and hematology. Of note, many former CRs have since taken senior faculty positions: 6 hold leadership or core faculty positions within IM and other residency programs. This has helped enhance the mentorship experience of current and future CRs. Other leadership and academic appointments include RLDP associate program director, vice-chairman of a medical board, associate editor of an international medical journal, assistant professors in affiliated medical schools, members of working groups for national health and education programs, presidents for local professional medical societies, co-organizers for regional and international medical conferences, and members of various international working groups and guidelines.

## Lessons Learned

Former CRs have pursued careers in various realms of hospital and academic work, including clinical leadership, research, and education, both locally and internationally. From this perspective alone, the CR program has demonstrated a clear impact on the development of future leaders and scholarship of medical education, quality, and safety.

The lessons described here are results of the experience of a single training program. There are no comparable CR programs that have a 10-year experience in Singapore. We started out modeling after the US CR program in 2008 and adjusted this model progressively to suit our local needs, the most challenging of which is balancing 2 systems—an ACGME-I accredited residency program and UK

**TABLE**
Role and Responsibilities of Chief Residents and Associate Chief Residents

| Position | Role | Definition of Role | Responsibilities |
|---|---|---|---|
| CR-1 | Postgraduate education | Planning and implementing resident education | Assist program directors to plan residency education curriculum, organize teachings and tutorials for Royal College of Physicians examinations, "near-peer" simulation training for emergency and acute medical scenarios, tutorials for ACGME-I In-Training Examinations, procedural skills and effective communication workshops |
| CR-2 | Undergraduate education | Planning and implementing education program for medical students from affiliated medical school | Organize resident-led teachings for clinical medical students: bedside tutorials, lectures, and objective structured clinical examination based teachings; organize 6-week structured elective program for visiting student interns and clerkship students; involvement in the Residency Selection Committee and matching exercise |
| CR-3 | Staffing | Planning and coordinating resident staffing | Staff residents for inpatient teams, specialty clinics, and overnight calls and night float; handle leave matters; plan staffing for emergency and mass casualty exercises; plan orientation program for incoming residents joining the department |
| CR-4 | Policy and welfare | Improving quality of patient care<br>Providing mentorship, support, and welfare to residents | Serve on the Junior Unit against IneffiCiEncies (JUICE) Committee, coordinate quality improvement programs, organize department resident-led mortality and morbidity rounds, provide counseling and support for residents at risk of burnout or who are facing coping difficulties, organize gatherings and team-building activities for residents to improve morale and promote cohesion |
| ACR-1 | Postgraduate education | Assisting the CR in planning and implementing resident education | Organize and teach at the weekly intern education seminars |
| ACR-2 | Undergraduate education | Assisting the CR in planning and implementing education program for medical students from affiliated medical school | Precept and orient clinical medical students joining the department |
| ACR-3<br>ACR-4 | Staffing | Assisting the CR in planning and coordinating resident staffing | Plan the ward roster and night duty roster of the interns, organize a primer and orientation program for new interns |
| ACR-5<br>ACR-6 | Policy and welfare | Assisting the CR in improving quality of care and welfare of residents | Counsel "at-risk" interns and supervise a buddy-system program |

Abbreviations: CR, chief resident; ACR, associate chief resident.

postgraduate examinations. The CR program has been successful in many ways. It has promoted the integration of residency training with other aspects of hospital organization, linked residents' projects to improve quality and safety, and assisted graduates in garnering clinical leadership and research positions. The need for training health professionals to lead, study, and educate others about the improvement of quality and safety is clear. NUH was a vanguard in this effort a decade ago with the development of the CR program. Today, this program provides an example of a residency training experience that has a national impact. It is an evolving and dynamic program that changes to meet health care needs. The CR program will continue to serve as an important role in training new medical leaders to take on the innumerable challenges that our health care community faces today.

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