

# PREVENTIVE MEDICINE RESIDENCY

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## TRAINING REQUIREMENTS

### (A) INTRODUCTION

Preventive Medicine is the specialty of medical practice that focuses on the health of individuals, communities, and defined populations. Its goal is to protect, promote, and maintain health and well-being and to prevent disease, disability, and death. Preventive medicine specialists have core competencies in biostatistics, epidemiology, social and behavioural science, health policy and administration, environmental and occupational medicine, planning and evaluation of health services, management of health care organizations, research into causes of disease and injury in population groups, and the practice of prevention in clinical medicine. They apply knowledge and skills gained from the medical, social, economic, and behavioural sciences.

The training in preventive medicine must be 60 months in length.

### (B) PROGRAMME OVERVIEW

- 36 months (ACGME-I accredited for R1-R3)
- 24 months (non ACGME-I accredited for R4- R5)

### (C) TRAINING REQUIREMENTS R1 – R3

The training programme must develop trainees' proficiencies in the following competencies through weekly tutorials/seminars and regular Preventive Medicine Grand Rounds (at least 9 times a year)

1. Patient (Population) Care
2. Medical Knowledge in Epidemiology, Biostatistics, Health Services Administration, Behavioural Aspects of Health, Clinical Preventive Medicine, Occupational and Environmental Medicine
3. Practice-based Learning and Improvement
4. Interpersonal and Communications Skills
5. Professionalism
6. Systems-based Practice

#### **Residency Year 1 (R1)**

A year 1 PGY1 resident's rotation will include 3-4 months in Internal/General Medicine, 3-4 months in General Surgery or Orthopaedic Surgery, and the remaining months in an elective clinical rotation such as Paediatrics or Obstetrics and Gynaecology (O&G).

In addition, he has to attend the regular Preventive Medicine Grand Rounds throughout the year and the weekly tutorials/seminars on preventive medicine from month 9 to 12.

#### **Residency Years 2 and 3 (R2 / R3)**

During Residency Years 2 and 3, residents will be exposed to a wide range of basic practicum experiences within the participating institutions, to gain experience in core areas such as health policy and administration, disease control and epidemiology, health promotion, occupational and environmental health and clinical preventive medicine. There will be a gradation in competency as they progress from one residency year to the next. R3 residents must participate in scholarly presentations at local or overseas conferences.

Required rotations during the practicum years are as follows:

At least six months in direct patient care for the general population in a primary care or intermediate/long-term care setting with exposure to broad spectrum of communicable and non-communicable diseases and health promotion.

At least three months in public health administration in a government public health agency.

At least three months in communicable disease control with exposure to epidemiological surveillance and communicable disease outbreak.

In addition, he has to attend the regular Preventive Medicine Grand Rounds and the weekly tutorials/seminars on preventive medicine throughout the whole two years.

#### **(D) TRAINING REQUIREMENTS R4 – R5**

##### 1. Foundational Requirements

The R4-R5 years must be in compliance with ACGME-I's Foundational Requirements.

Foundational requirements for all other specialties: <http://www.acgme-i.org/web/requirements/internationalfoundational.pdf>

##### 2. Specialty Specific Requirements

The training programme must develop trainees' proficiencies in the following competencies

1. Patient (Population) Care and
2. Medical Knowledge in:
  - (a) Clinical Preventive Medicine
  - (b) Epidemiology
  - (c) Biostatistics
  - (d) Behavioural Aspects of Health, Disease Prevention & Health Promotion
  - (e) Disease Surveillance & Outbreak Investigations
  - (f) Health Services Planning & Evaluation
3. Practice-based Learning and Improvement
4. Interpersonal and Communications Skills
5. Professionalism
6. Systems-based Practice

Additionally, the following cross-disciplinary competency areas will be emphasized and specifically developed in senior residents:

1. Leadership and Communications - Change and conflict management, and Organizational Development
2. Programme Planning - Integration of diverse disciplines and sectors
3. Implementation Science
4. Programme Evaluation - Use of quantitative, qualitative, and mixed methods

The details, specifications and developmental milestones of the competencies and entrustable professional activities (EPAs) for the different tracks are to be achieved over the 2-year training programme (Annex 1).

Supervisors will design a personalized training programme for his trainee in consultation with the Programme Director, Associate Programme Directors and the receiving organizations. The interests and career aspirations of the trainee and most importantly, the EPAs, will be considered in the development of the training Programme. The training programme must be approved by RAC.

Didactic training will include weekly one-afternoon sessions that provide opportunities for developing the breadth outside of the trainees' specialty area. These training sessions will include grand rounds, workplace health assessments, project presentations, journal clubs, case studies and paper critique sessions, as well as attendance and presentation at conferences. In addition, trainees are provided with another half day per week for personal study and research/scholarly activities.

### **6-month External Posting**

Trainees must be posted out of their main training institution for at least 6 months to gain depth in either Occupational Medicine (OM) or in one of the 3 Public Health (PH) Interest Tracks (Disease control and epidemiology; Health Policy and Management; Health Services Research) while maintaining some breadth in the other specialty areas or tracks.

### **Other Training Activities**

The trainee will be expected to take an active part in the teaching of nurses, undergraduates and medical officers, and presentation of posters and free papers in local, regional and/or international meetings, seminars or conferences.

In addition, the trainee must fulfil either one of the following during the training programme:

- (a) Publish at least ONE first author paper\* on a public health or occupational medicine topic (in Preventive Medicine context) in a refereed journal during the junior or senior residency years (Papers done prior to joining residency may be considered on a case-by-case basis), or
- (b) Maintain a portfolio (during R4 and R5 years) which demonstrates a systematic approach to acquiring knowledge and skills in their chosen field. The portfolio will have two parts:

Part 1: Three technical reports, each at least 2000 words in length, which exemplify the application of best practices. These reports may take the form of a:

- i. Scholarly article / review of a standard acceptable for journal publication;
- ii. Series of policy papers;
- iii. Comprehensive needs assessment exercise; or
- iv. Study report, covering the collection, analysis and interpretation of data for monitoring or evaluation of a health program for a defined population.

Part 2: Three process reports, one for each of the technical reports required in Part 1. These reports should document the learning experience, showing evidence of depth and rigor in the *preparation of the technical report*.

\*Senior residents are allowed to sit for the exit exam first and to be given 2 years from the date of the exit exam for their first author paper to be accepted or published. However, the paper have to be submitted by the time the resident applies for the exit exam. If the resident fails to meet the 2-year deadline, s/he will have to schedule a re-sit for the exit exam after their paper has been successfully accepted for publication.

### 3. Resident Competencies

#### 1.\*Common Entrustable Professional Activities (EPAs) for Public Health and Occupational Medicine

		R4 and R5 * (training conducted as a continuum for both years)
SA1	<b>Patient (population care and medical knowledge)</b>	<ul style="list-style-type: none"> <li>Systematically assess risks for diseases/injuries, review and apply scientific evidence, and develop an evidence-based guideline to address a proposed clinical preventive service.</li> </ul>
SA2	<b>Epidemiology</b>	<ul style="list-style-type: none"> <li>Assess the health of a local population and identify groups with poorer health.</li> <li>Design and conduct a basic epidemiological study to assess health status and risk factors for a range of diseases and conditions.</li> <li>Recommend appropriate courses of action to prevent and control a range of diseases and conditions.</li> </ul>
SA3	<b>Biostatistics</b>	<ul style="list-style-type: none"> <li>Use appropriate statistical methods to analyse a health problem.</li> <li>Demonstrate sufficient knowledge to identify the need for complex statistical analyses where appropriate</li> </ul>
SA4	<b>Behavioural Aspects of Health, Disease and Injury Prevention, and Health Promotion</b>	<ul style="list-style-type: none"> <li>Assess individual and population risk behaviours by integrating best practices and tools.</li> <li>Develop, implement and evaluate programmes to promote health and modify individual and population risk behaviours.</li> <li>Contribute to the development and/or implementation of a policy to promote health</li> </ul>
SA5	<b>Disease and Injury Surveillance and Outbreak Investigations</b>	<ul style="list-style-type: none"> <li>Monitor surveillance data to identify appropriate targets for individual, community, and/or systems interventions.</li> <li>Evaluate the quality and effectiveness of a surveillance system</li> </ul>
SA6	<b>Health Planning and Evaluation</b>	<ul style="list-style-type: none"> <li>Systematically review, assimilate and frame scientific evidence, to inform policy and the delivery healthcare services.</li> <li>Develop and implement a plan to address a health improvement need in the community</li> </ul>
SB	<b>Practice-Based Learning and Improvement</b>	<ul style="list-style-type: none"> <li>Systematically analyse and improve practice by using advanced quality improvement methods and implementation science.</li> </ul>
SC	<b>Interpersonal and Communication Skills</b>	<ul style="list-style-type: none"> <li>Act independently in a consultative role to other physicians and health professionals</li> <li>Lead and communicate effectively within inter-professional and multi-disciplinary teams.</li> </ul>
SD	<b>Professionalism</b>	<ul style="list-style-type: none"> <li>Demonstrate professional behaviour by role modelling, performing lifelong learning and publishing at least one first-author paper</li> <li>Teach and mentor junior residents in Preventive Medicine.</li> </ul>

		<ul style="list-style-type: none"> <li>Teach other professional groups to promote Preventive Medicine in the practice of individual and population-based medicine</li> </ul>
SE	<b>Systems-Based Practice</b>	<ul style="list-style-type: none"> <li>Incorporate and discuss considerations of cost awareness and risk-benefit analysis in patient and/or population-based care as appropriate</li> <li>Assess and improve performance in a healthcare delivery system.</li> <li>Advocate for quality patient and/or population-based care.</li> </ul>
SF	<b>Leadership and Communications</b>	<ul style="list-style-type: none"> <li>Lead and work effectively within multidisciplinary/multi-agency team.</li> </ul>
SG	<b>Programme Planning – Integration of Diverse Disciplines/Sectors</b>	<ul style="list-style-type: none"> <li>Demonstrate sufficient knowledge to contribute to the development of a programme or policy by applying a multifaceted assessment process and integrating different healthcare disciplines.</li> </ul>
SH	<b>Implementation Science – Change/Conflict Management and Organizational Psychology</b>	<ul style="list-style-type: none"> <li>Systematically apply key implementation principles in the implementation of a project to reduce resistance to change and promote its early adoption and sustainability.</li> </ul>
SI	<b>Evaluation</b>	<ul style="list-style-type: none"> <li>Demonstrate a level of expertise in the evaluation of a programme or expertise by appropriate use of quantitative and qualitative methods</li> </ul>

## **2. EPAs for Public Health – Epidemiology and Disease Control Track**

SA2	<b>Epidemiology</b>	<ul style="list-style-type: none"> <li>Apply epidemiological knowledge and skills in the design and conduct of a complex study of high validity.</li> </ul>
SA3	<b>Biostatistics</b>	<ul style="list-style-type: none"> <li>Use statistical software to perform statistical tests; and understand the application of more advanced statistical methods.</li> </ul>
SA5	<b>Disease and Injury Surveillance and Outbreak Investigations</b>	<ul style="list-style-type: none"> <li>Conduct an outbreak investigation and implement control strategies</li> <li>Design and manage a surveillance system; plan an outbreak investigation</li> </ul>
SA6	<b>Health Planning and Evaluation</b>	<ul style="list-style-type: none"> <li>Use appropriate epidemiological and statistical methods to analyse disease burdens and monitor the impact of health interventions.</li> </ul>

## **3. EPAs for Public Health – Health Policy and Management Track**

SA6	<b>Health Planning and Evaluation</b>	<ul style="list-style-type: none"> <li>Understand health manpower management, planning and professional development.</li> <li>Understand the strategic and operational considerations in the development and delivery of health services</li> <li>Involvement in a quality improvement initiative either in the community or within an institutional setting.</li> </ul>
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SE	<b>Systems-Based Practice</b>	<ul style="list-style-type: none"> <li>Coordinate, implement or develop the delivery of effective, efficient and safe patient care services in various healthcare delivery settings and systems.</li> </ul>
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#### 4. EPAs for Public Health – Health Services Research Track

SA2	<b>Epidemiology</b>	<ul style="list-style-type: none"> <li>Apply epidemiological knowledge and skills in the design and conduct of a complex study of high validity.</li> </ul>
SA3	<b>Biostatistics</b>	<ul style="list-style-type: none"> <li>Use statistical software to perform statistical tests; and understand the application of more advanced statistical methods.</li> </ul>
SA6	<b>Health Planning and Evaluation</b>	<ul style="list-style-type: none"> <li>Use appropriate epidemiological and statistical methods to analyse disease burden.</li> <li>Evaluate effectiveness of health interventions</li> <li>Develop tools to improve the targeting of health interventions</li> </ul>

#### 5. EPAs for Occupational Medicine

Entrusted Professional Activities (EPAs)		Competency/Milestones
SA2	<b>Epidemiology</b>	<ul style="list-style-type: none"> <li>Identify and address individual and organizational factors in the workplace in order to optimize the health of the worker and enhance productivity</li> </ul>
SA5	<b>Disease and Injury Surveillance and Outbreak Investigations</b>	<ul style="list-style-type: none"> <li>Develop, evaluate, and manage medical surveillance programmes for the workplace</li> </ul>
SA6	<b>Health Planning and Evaluation</b> * includes all kinds of programmes or interventions related to prevention, health promotion, service improvement, patient engagement	<ul style="list-style-type: none"> <li>Plan, design, implement, manage, and evaluate comprehensive occupational/environmental health programmes, projects, and protocols that enhance the health, safety, and productivity of workers, their families, and members of the community</li> </ul>
SE	<b>Systems-Based Practice</b>	<ul style="list-style-type: none"> <li>Coordinate, implement or develop the delivery of effective, efficient and safe patient care services in various healthcare delivery settings and systems</li> </ul>

\*EPAs in preventive medicine are defined as the activities that are essential to the practice of preventive medicine and require demonstration of competence in a range of domains.

### (E) LOG OF OPERATIVE / CLINICAL EXPERIENCE

Residents will be evaluated by multiple methods by a variety of individuals who come into contact with them during the training process. Assessment methods include oral and written examinations, objective structured clinical examination, project assessment, structured case discussions, and portfolios.

Assessment forms include the C1/AI end-of-rotation evaluation forms and learning evaluation documents of all the 6 ACGME competencies.

All residents must keep a log of their operative / clinical experience in the designated case log system and the above mentioned forms.

The senior resident is expected to keep a log book (Annex 2) and an updated monthly log of the EPAs (Annex 3) for the full duration of the 2-year training. The trainee will record projects undertaken as well as any participated continuing medical education (CME) activities in the log book. Other academic experiences, e.g. conferences, seminars, papers presented, should also be recorded.

## **(F) EXAMINATIONS**

### **I. Supervisors Assessment**

All supervisors will meet their residents regularly (at least monthly) to ensure applicable and high quality patient care and practicum experience.

The supervisor's evaluation of the senior resident should be performed at the end of every rotation using the designated forms (monthly log EPA, roadmap of the EPAs and C1 evaluation forms) and then submitted to the RAC for review.

#### **Formative assessment**

The trainee must meet his supervisor monthly with his updated EPAs and logbook. The objective is for the supervisor to review the progress of the trainee in his achievement of the EPAs.

The trainee must meet the Programme Director (PD) and the Senior Residency Competency Committee four-monthly and the Residency Advisory Committee (RAC) six-monthly. During these meetings, there will be an oral assessment of his competencies. His log book and EPAs will also be reviewed during these meetings.

The supervisor's evaluation of the trainee should be performed at the end of every rotation.

#### **Mid-posting Formal Assessment**

At the end of the first year of the Senior Residency training programme, the trainee will undergo a formal assessment by a review panel comprising the PD and APDs from the interest core group of the same interest track as the resident.

The trainee will be evaluated on:

- (a) Performance during the senior resident posting(s) (based on C1 Form)
- (b) Projects and learning activities documented in the logbook
- (c) Attendance at training sessions provided by the residency programme
- (d) Participation in scholarly activities eg teaching, presentations/posters at conferences
- (e) Progress on publication of first-author paper
- (f) Professional behaviour eg respect, compassion, integrity
- (g) Project presentation to the review panel

### **II. Feedback**

Residents should perform a yearly evaluation of teaching faculty and the training programme using the designated forms. These forms must be submitted to the RAC and kept absolutely confidential.

The PD and the Senior Residency' Competency Committee will obtain feedback on the workload and training activities from the trainees during the abovementioned meetings so that remedial action can be taken to improve the training programme.

### III. Examinations

R1	R2	R3	R4	R5
*OSCE  *C1 evaluation of ACGME-competencies  *Assessment by Clinical Competency Committee (CCC) for candidates recommended for acceleration	*In-training exam -MCQs -Paper summary/critique -Data interpretation -OSCE  *Assessment by CCC	MPH  Intermediate Examination by RAC  *C1 evaluation	"CCC assessment - C1 evaluation - Logbook documentation - Attendance - Participation in scholarly activities eg teaching, presentations/posters at conferences - Progress on publication of first-author paper - Professional behaviour - Project presentation  Assessment on project presentation by RAC	*C1 evaluation

\*Conducted by the Preventive Medicine Programme

## (G) CHANGES IN TRAINEESHIP PERIOD AND LEAVE OF ABSENCE

### I. Changes in Training Period

Residency should be continuous. If a training programme is interrupted for any reason whatsoever, the RAC may at its discretion, require the trainee to undergo a further period of training in addition to the minimum requirements of the programme or terminate the residency altogether. All trainees are required to conform to the residency training plan as approved by the RAC and complete all the exit and training requirements within the maximum candidature.

### II. Leave Of Absence

All residents are to comply with the prevailing MOH policy on Leave of Absence.

### III. Overseas Postings

Overseas attachment during Senior Residency training is not permitted with the exception of Radiation Oncology and Neurosurgery (*refer to JCST Circular 114/14*).