



الهيئة السعودية للتخصصات الصحية  
Saudi Commission for Health Specialties

# Preventive Medicine



سَبَّحَ لِلَّهِ مَا فِي السَّمَاوَاتِ وَالْأَرْضِ

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We also would like to acknowledge that the CanMEDS framework is a copyright of the Royal College of Physicians and Surgeons of Canada, and the descriptions of the preventive medicine competencies contained in this document have been acquired from their resources. Further, the descriptions of hospital rotations have been adapted from the Saudi Board of Family Medicine's curriculum. Finally, various aspects of the descriptions of field rotations have been adapted (with permission) from documents relating to the public health and preventive medicine programs of the University of Toronto and McMaster University.



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## INTRODUCTION

“An ounce of prevention is worth a pound of cure” is an old proverb that remains true in the era of evidence-based medicine, during which cost-effectiveness studies have shown that prevention programs reduce the cost of health care services in the long term. Preventing diseases is of special importance in Saudi Arabia, as the country is currently experiencing a huge increase in preventable, lifestyle-related, non-communicable diseases. In addition, outbreaks, as well as the sustained transmission, of infectious diseases continue to occur in the country, leading to the double-burden phenomenon where communicable and non-communicable diseases coexist and mutually contribute to burdening the health of the population.

Preventive medicine is a medical specialty that combines knowledge and skills concerning population health with those of clinical practice; in particular, the specialty provides physicians with the necessary clinical insight to address threats to population health. Preventive medicine specialists work in diverse settings to promote, protect, and maintain health and well-being, and also to prevent diseases, disabilities, and mortality.

The Preventive Medicine Residency Program will allow residents to develop comprehensive competencies, training them to becoming future leaders in the field. Further, the program aims to equip residents with a sound and adequately broad foundation in preventive medicine and to help them become life-long learners. Residents in this program will be involved in health promotion and related projects across sectors and different disciplines, and will become frontline guardians against disease.

### Historical background

The Saudi Board of Community Medicine (SBCM) residency program, as this program was previously named, was established in 2009 under the auspices of SCFHS. The program began in a single training center in Jeddah, and was soon implemented in another five centers, namely: Riyadh, Abha, Madinah, Taif, and Makkah. SBCM replaced the Arab Board of Community Medicine, which commenced in 1991, also in Jeddah, and which was eventually phased out. Recently, the scientific council of the specialty has approved changing the name of SBCM to “Saudi Board of Preventive Medicine” (SBPM).

### Training physicians in public health and Preventive Medicine

There are a number of ways in which physicians can be trained in public health and preventive medicine; however, the two main paths are residency programs and academic master’s/PHD programs. Master’s/PHD programs are provided by universities and are usually based on academic courses in public health or related fields, e.g., health promotion or epidemiology. In contrast, residency programs focus on practical training and provide opportunities to engage in supervised, hands-on practice in the various professional activities related to the specialty of public health and preventive medicine. In addition, residency programs integrate clinical practice into residents’ training. Unlike master’s programs, where non-physicians constitute most enrollees, residency programs around the world are almost always comprised of physicians. The table below shows an example of the structure of certain countries’ residency programs.

Country	Specialty Name	Training Details and Accrediting Body	Duration of Residency Program
Canada	Public Health and Preventive Medicine	Royal College of Physicians and Surgeons of Canada (RCPS(C))	Five-year residency (clinical, MPH, practicum placements)
United States	Preventive Medicine	Accreditation Council for Graduate Medical Education (ACGME)	Three-year residency (one clinical, two rotations, MPH)
France	Public Health and Social Medicine	French National Council of Doctors (CNOM)	Four-year residency (master's, practicum placements)
Italy	Hygiene and Preventive Medicine	Italian Ministry of Education, University, and Research (MIUR)	Four-year residency

\* adapted from: Peik, Samuel M. et al., Medical Teacher 38.11 (2016): 1146-1151

In Saudi Arabia, various universities provide bachelor and master's degrees in public health. These programs constitute the main education path for graduate public health workers, as they concern many of the roles in the public health sector. Meanwhile, residency training for physicians in the field of public health/preventive medicine is provided by SBCM under the umbrella of SCFHS.

### Nature and scope of the practice

Preventive medicine physicians work in a variety of settings, including governmental agencies, occupational medicine, academia, public hospitals, and nongovernmental organizations. Furthermore, they can be involved in various roles, such as leadership and management, epidemiology, environmental health, global health, mental health, and communicable and non-communicable disease prevention and control.

As a result of the multidisciplinary nature of the specialty, training centers require the collaboration of other governmental agencies to facilitate the training of residents. Relevant agencies and training sites include infection-control departments within hospitals, as well as various public health-related departments within the Ministry of Health, Ministry of Municipal and Rural Affairs, Ministry of Education, Ministry of Agriculture, Ministry of Labor and Social Development, and the General Authority of Meteorology and Environmental Protection.

### Number of specialists

In 2000, the Association of the Schools of Public Health estimated that there was a shortage of approximately 150,000 public health workers in the United States; this number was determined by taking the standard workforce ratio of 220 workers per 100,000 population and comparing this with the ratio in the United States at the time.<sup>1</sup> Applying the same standard ratio in Saudi Arabia shows that we are currently in need of 61,000 workers. Furthermore, using this methodology to project requirements for 2025 shows that Saudi Arabia will require approximately 82,000 PH workers (the country's population in 2025 is estimated to be approximately 37,600,000 persons). However, we should note that these numbers relate to the general public health workforce, of which preventive medicine/public health physicians constitute a small proportion.

<sup>1</sup> Confronting the public health workforce crisis: ASPH statement on the public health workforce. Public health reports. 2008 May 1:395-8.

In this regard, a committee formed by IOM estimated the required number of public health physicians in the United States to be approximately 20,000 physicians<sup>2</sup> (a ratio of seven per 100,000 population); applying the same standard ratio in Saudi Arabia shows that we are currently in need of 1,900 such physicians.

### Current challenges

- Training places for practical placement

Various field rotations are conducted by the governmental public health departments; however, the underdeveloped public health care services in various regions in the country place a limit on the number of practical training places available for preventive medicine residents. Additionally, public health care workers in the field may not be capable of providing good mentoring/training for residents. Thus, building partnerships and collaboration with various agencies providing public health care services is vital in order to accomplish educational goals.

- Research

Research skills are an essential component of preventive medicine education; setting preventive medicine research priorities for the country and for specific regions, finding and/or creating opportunities to conduct research projects, and securing funds for such research projects are only some of the challenges present in this field. KACST, the main national research-funding agency in Saudi Arabia, issues an annual list of priorities for research in various fields; however, the priorities they set for the medical field do not always match the priorities of preventive medicine.

- Recruiting qualified academic staff

Over the last decade, there has been increased competition in the recruitment of qualified teaching staff; consequently, academic centers that provide academic courses for preventive medicine residents are now experiencing difficulty recruiting and maintaining the required number of academic staff.

### Options for career paths

Specialists in preventive medicine can choose to join the workforce as preventive medicine specialists/consultants in a variety of settings, or pursue further training in one of the sub-specialties of preventive medicine, such as epidemiology, occupational health, environmental health, child and adolescent health, and mental health.

### Most prevalent conditions in Saudi Arabia

Included below are lists of the conditions/diseases currently causing the greatest burden on population health in Saudi Arabia. The lists contain the most common causes of premature mortality, conditions that carry the highest burden, and emergency situations that preventive medicine residents should be prepared to address. However, it should be noted that this list is not exhaustive, and it does not imply that trainees should only master these topics.

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<sup>2</sup> Hernandez LM, Munthali AW, editors. Training physicians for public health careers. National Academies Press; 2007 Aug 9.

### Ten most common causes of premature mortality

Rank	Disease	YLLs per 100,000
1	Ischemic heart disease	2,172.10
2	Road injuries	1,103.40
3	Cerebrovascular disease	964.7
4	Congenital defects	766
5	Lower respiratory infection	560.2
6	Chronic kidney disease	504.2
7	Neonatal preterm birth	461.5
8	Alzheimer's disease	394
9	Neonatal sepsis	218.4
10	Diabetes	200.9

Source: Global Burden of Disease study (<http://www.healthdata.org/saudi-arabia>)

### Ten most common risk factors contributing to DALY

Rank	Risk factor
1	Dietary risks
2	High body-mass index
3	High systolic blood pressure
4	High fasting plasma glucose
5	High total cholesterol
6	Air pollution
7	Tobacco smoke
8	Low glomerular filtration rate
9	Low physical activity
10	Occupational risks

Source: Global Burden of Disease study (<http://www.healthdata.org/saudi-arabia>)

DALY: Disability-adjusted life year

### Ten most common emergency situations

Emergency situations
Pandemics/Outbreaks
Natural disasters (volcanos, earthquakes, flash floods)
Chemical-hazard-related emergencies
Radiation-hazard- related emergencies
Bioterrorism
Needlestick injuries
Food poisoning
War
Refugees
Temperature extremes

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## OBJECTIVES OF PREVENTIVE MEDICINE TRAINING

We would like to acknowledge that the CanMEDS framework is a copyright of the Royal College of Physicians and Surgeons of Canada, and many of the descriptions and preventive medicine competencies described below have been acquired from their resources.

### Definition

Preventive medicine is the medical specialty primarily concerned with the health of populations. The discipline's focus is the prevention and control of disease and injury, which is achieved through health-protection and health-promotion activities. Preventive medicine specialists monitor and assess the health needs of a population and develop, implement, and evaluate strategies for improving health and well-being

Building on foundational competencies in clinical medicine and the determinants of health, preventive medicine specialists demonstrate competencies in public health sciences including, but not limited to, epidemiology, biostatistics, and surveillance; the planning, implementation and evaluation of programs and policies; leadership, collaboration, and advocacy; and primary, secondary, and tertiary prevention and communication. These competencies are applied to a broad range of acute and chronic health care issues, including those related to environmental exposure, that can affect populations.

Within these diverse settings, preventive medicine specialists may be consultants, advisors, medical health officers, executives, managers, researchers, scholars, or educators.

### Goals

Preventive medicine residents must demonstrate a comprehensive knowledge of the science and art of preventive medicine, as well as the skills to apply this knowledge to a broad range of population health issues in the socioeconomic, political, and environmental contexts in which they occur. Residents must demonstrate that they possess the necessary knowledge, skill, and attitude to assess the determinants of health for the populations with which they work; these determinants can include, but are not limited to, income, environment, gender, education, social-support systems, health behaviors, and access to health care. Further, residents must demonstrate competence in incorporating these determinants of health into research methodologies, data presentations, and analyses, as well as into strategies that will improve the health of these populations.

Upon completion of training, residents are expected to be competent preventive medicine specialists capable of assuming public-health leadership and management roles in health-related organizations, and also of fulfilling the role of consultants in the specialty.

The resident must demonstrate a working knowledge of the theoretical basis of the specialty, including its foundations in clinical sciences, public-health sciences, and humanities. Residents must demonstrate that they possess the requisite knowledge, skills, and attitudes to effectively provide community-focused care to diverse populations. In all aspects of specialist practice, the resident must be capable of addressing issues relating to the determinants of health in a professional, ethical manner. In addition, residents are encouraged to develop a higher level of expertise in a core, related field, which can include, but is not limited to, communicable disease, environmental health, and chronic disease, and to acquire competency in an area of practice relevant to their own professional and personal development objectives including, but not limited to, education; global health; leadership, management, and administration; and occupational health.

## Preventive medicine competencies

Upon completion of training, the resident will have acquired the following competencies and will function effectively as a:

### Medical expert

#### Definition

As medical experts, preventive medicine specialists integrate all of the CanMEDS Roles, applying medical knowledge, clinical and preventive skills, and professional attitudes in their provision of care at individual, family, group, organization, community, and population levels. Functioning as a medical expert is the central physician role in the CanMEDS framework.

#### Key and Enabling Competencies: Preventive Medicine Specialists can:

- 1) Function effectively as consultants, integrating all of the CanMEDS Roles to provide optimal, ethical care at the individual, family, group, organization, community, and population levels
  - Perform consultations effectively, including presenting well-documented assessments and recommendations in written and/or oral form in response to requests from a variety of sources
    - Clarify the nature of the requests in question and establish, negotiating where required, the desired deliverables when called upon for advice
    - Efficiently collect and interpret information that is appropriate to the requests
    - Formulate clear and realistic recommendations
    - Communicate assessments and recommendations in the manner (oral, written, or both) that is most suitable to the given circumstances
    - Assess the implementation or impact of recommendations
  - Demonstrate knowledge of all CanMEDS competencies relevant to preventive medicine
  - Identify and appropriately respond to relevant ethical issues that arise in the care of individuals, families, groups, organizations, communities, and populations
  - Demonstrate the ability to effectively and appropriately prioritize professional duties when addressing multiple issues and problems
  - Demonstrate compassionate care at the individual, family, group, organization, community, and population levels
  - Recognize and observe the ethical dimensions of preventive medicine and relevant clinical decision-making
  - Demonstrate medical expertise in situations other than patient care; for example, in providing expert legal testimony and advising governments
- 2) Establish and maintain medical knowledge, skills, and behavior appropriate to preventive medicine
  - Apply knowledge of the fundamental biomedical, clinical, and epidemiological subjects relevant to preventive medicine practice
    - Describe the natural history, epidemiology, risk factors, and health burdens associated with the major communicable and non-communicable diseases, and injuries, that are of public health significance
    - Apply knowledge of the principles of:
      - Prevention and control of disease and injury
      - Health and disease surveillance
      - Health protection
      - Health promotion
      - Population-health assessment

- Describe the principles of infection control and their application to effective and appropriate procedures and policies designed to reduce risk
- Describe the general principles of emergency planning and incident management
- Discuss knowledge translation and social-marketing strategies that are relevant to the promotion of health
- Describe the analytic tests and methods used to explain differences in health and health-related behaviors including, but not limited to:
  - Analysis of variance (ANOVA)
  - Chi-square
  - Forecasting
  - Geospatial analysis
  - Kappa correlation
  - Life tables
  - Logistic regression
  - Modeling
  - Survival analysis
  - T-test
- Describe the methods used to explore knowledge, attitudes, beliefs, behaviors, and public-health interventions including, but not limited to:
  - The Delphi method
  - Focus groups
  - Key informant surveys
  - Nominal groups
  - Participant observation
  - Social network analysis
- Describe the CanMEDS framework of competencies relevant to preventive medicine
- Apply lifelong learning skills relating to the scholar role that allow them to implement a personal program for keeping up-to-date, enhancing areas of professional competence, and maintaining their specialty certification
- Integrate the best available evidence and best practices in order to enhance the quality of care, as well as patient and program safety, in preventive medicine

### 3) Perform a complete and appropriate assessment at the individual, family, group, organization, community, and population level

- Perform a health-based needs assessment for a defined population for a specific purpose, employing appropriate methods (qualitative, quantitative, or both) that are relevant, concise, and reflective of context and preferences; describe the results of such assessments; and make recommendations in regard to response actions
  - Assess health status, health inequalities, determinants, and different needs by analyzing population-level data, and can use this to support prioritization of action
  - Use and interpret information from a range of sources including, but not limited to, mortality, hospital admission, census, primary care, communicable disease, and reproductive and sexual health data, as well as cancer registries and health surveys, in order to support public health activities in an evidence-informed, resource-effective, and ethical manner
  - Use a range of methods to assess morbidity and the burden of disease within and between populations

- Effectively identify and explore health issues, including the related contexts, preferences, and values
  - Define, develop, select, and interpret relevant social, demographic, and health indicators from a variety of data sources including, but not limited to, vital statistics and administrative databases, registries, and surveys.
    - Discuss and take into account the use and limitations of these data sets
  - Identify and interpret the impact of health behaviors of individuals, groups, and populations, particularly with respect to nutrition, physical activity, the use of tobacco and other substances, sexuality, risk-taking, immunization, and participation in recommended prevention and screening programs
- Conduct assessments that are relevant, concise, and reflective of context and preferences concerning the purposes of preventive medicine.
  - Organize and analyze data, meta-data, information, and knowledge, using information technology as appropriate
  - Appraise the validity and relevance of data and data systems and assess their quality and appropriateness for purpose
  - Use data with consideration of the legal and ethical aspects of the collection, manipulation, retention, and release of the data; thereby allowing them to balance societal benefit with individual privacy
  - Integrate different types of data, using complex data sets or data from a variety of sources, to draw appropriate conclusions
  - Discuss and apply guidelines for assessing causality, such as by using Koch's postulates or Bradford-Hill criteria
- Select appropriate investigative methods that are evidence-informed, resource-effective, and ethical
  - Identify, select, and interpret biological risk markers including, but not limited to, age, sex, race, and genetic makeup
  - Select, discuss, and demonstrate an understanding of the relevant socio-economic, political, and environmental factors that should be noted during investigations into a given context including, but not limited to:
    - The distribution of wealth and power
    - Urbanization
    - Industrialization
    - Social attitudes and values
    - Immigration policies
  - Select, discuss, and demonstrate an understanding of physical environmental factors including, but not limited to:
    - Emissions and spills of hazardous materials
    - Noise
    - Air and water pollutants
    - Natural disasters
    - Climate-change effects that are relevant to the investigation of a given health context (individual, local, regional, provincial, national, or global)
  - Apply and interpret appropriate quantitative methods and analytical tests for explaining differences in health and health-related behaviors including, but not limited to:
    - T-test
    - ANOVA (Analysis of Variance)
    - Chi-square
    - Correlation
    - Logistic regression



- Kappa
      - Life tables
      - Survival analysis
    - Interpret appropriate quantitative methods and analytical tests for explaining differences in health and health-related behaviors including, but not limited to:
      - Modeling
      - Forecasting
      - Geospatial analysis
    - Apply and interpret appropriate qualitative methods for exploring knowledge, attitudes, beliefs, behaviors, and public-health interventions including, but not limited to:
      - Participant observation
      - Key informant surveys
      - Nominal groups
      - Focus groups
      - The Delphi method
      - Social-network analysis and similar applicable approaches
  - Demonstrate effective problem-solving and judgment skills for addressing health problems, including interpreting available data and integrating information in order to develop and implement management plans
    - Perform assessments of the health impacts policies or projects have on defined populations and then make informed recommendations
    - Use evidence from health-related and non-health-related sources, including qualitative and quantitative studies, to answer a defined question, taking into account the relative strengths and weaknesses of the evidence applied
    - Use appropriate frameworks to critically appraise evidence including, but not limited to, ecological, qualitative, etiological, interventional, and economic studies
    - Use economic analyses including, but not limited to, cost-benefit, cost-effectiveness, and cost-utility, in the assessment of health issues and proposed intervention options
    - Formulate balanced, evidence-informed recommendations, explaining key public health concepts using appropriate reasoning, judgment, and analytic methodologies for public-health settings
    - Ascertain, in a timely fashion, key public health information from a range of documents including, but not limited to, briefings, policies, and news reports, and use this appropriately and in conjunction with more widely known public health knowledge
    - Incorporate relevant legal and ethical frameworks into the assessment of evidence
- 4) Design and effectively implement and evaluate primary, secondary, and tertiary interventions relevant to preventive medicine
- Plan and design intervention-management plans in collaboration with individuals, families, groups, organizations, communities, and populations
    - Debate the relative importance of individual and societal decisions concerning health and ethical issues related to public-health practice
    - Discuss the theories of community development
    - Discuss the strengths and weaknesses of health-promotion interventions directed at populations, which can include, but are not limited to, social marketing, health-related public policies, and harm reduction
    - Communicate the need for health-promotion strategies in defined communities, presenting cases for action/inaction in response to presentations of health problems

- Develop plans for addressing health needs in defined communities, clarifying the theoretical bases for the proposals and developing business cases for the activities, while concurrently considering the strengths and weaknesses of the health-promotion interventions in question
- Apply the theoretical models of behavior change to the general population, as well as to high-risk and hard-to-reach groups
- Identify and demonstrate an understanding of factors that influence the potential for change in given contexts and populations
- Apply knowledge translation and social marketing in order to encourage the application of best practices
- Demonstrate the effective, appropriate, and timely performance of interventions relevant to preventive medicine
  - Advise on and co-ordinate public health actions that conform with existing local, provincial, and national policies and guidelines
  - Describe the general principles of emergency planning and incident management
  - Contribute to the development and utilization of community, provincial, and national emergency preparedness plans including, but not limited to, measures to prevent and manage exposure to biological and chemical agents and radiation-emitting agents and devices
  - Lead, or take a major role in, the investigation and management of significant incidents including, but not limited to, outbreaks of communicable diseases and incidents of non-infectious diseases
  - Contribute to the formulation of health-related public policies or legislation at local and national levels
  - Lead, or make significant contributions to, major public health campaigns that demonstrate an understanding of appropriate theory and the application of social marketing and mass communication
  - Implement and evaluate health-promotion interventions, including assessing outcomes, methods, and costs; identifying the strengths and limitations of the interventions; and communicating findings and making recommendations
  - Develop, implement, and evaluate health-protection programs, applying knowledge of common environmental hazards including, but not limited to, water and sewage treatment and quality control of water, soil, air, and food
- Ensure appropriate informed consent is obtained for therapeutic and preventive interventions

### 5) Demonstrate the proficient and appropriate use of procedural skills for diagnoses and interventions

- Demonstrate effective, appropriate, and timely performance of diagnostic procedures relevant to public health and preventive medicine
  - Identify known or potential health effects that are associated with particular hazards to health protection in populations, drawing on expertise as appropriate
  - Characterize the hazards identified, both quantitatively and qualitatively
  - Assess degrees of risk associated with exposure to hazards found in populations
  - Integrate hazard identification, characterization, and assessment into estimates of adverse events likely to occur in populations, basing this on hazards previously found in the populations in question
  - Design, implement, and evaluate surveillance systems that inform public health programs

- Apply the principles of infectious disease epidemiology to the investigation and management of communicable disease outbreaks in individuals, families, groups, organizations, communities, and populations
- Ensure appropriate informed consent consistent with the legal and regulatory frameworks of public health is obtained for interventions
- Document and disseminate information related to interventions performed and their outcomes
- Ensure adequate follow-ups and evaluations are conducted after interventions

6) Recognize the limits of one's own expertise and seek appropriate consultation from other health professionals

- Demonstrate an awareness of their own limits of expertise
- Demonstrate an ability to engage in effective, appropriate, and timely consultation with other health professionals when required in order to ensure optimal practice
- Arrange appropriate follow-up care and services for individuals, families, groups, communities, and populations

### Communicator

#### Definition

As communicators, preventive medicine specialists create effective relationships with individuals, families, groups, organizations, communities, and populations.

#### Key and Enabling Competencies: Preventive Medicine Specialists can:

1) Develop rapport, trust, and ethical relationships with individuals, families, groups, organizations, communities, and populations:

- Recognize that being a good communicator is a core skill for physicians, and that effective communication can foster improved outcomes
- Establish constructive relationships with individuals, families, groups, organizations, communities, and populations that are characterized by understanding, trust, respect, honesty, and empathy
- Respect confidentiality, privacy, and autonomy
- Listen effectively
- Show awareness of and respond to nonverbal cues
- Effectively facilitate all forms of encounters

2) Elicit and accurately synthesize relevant information and the perspectives of individuals, families, groups, organizations, communities, and populations, including those of colleagues and other professionals

- Gather information about health situations, including the beliefs, concerns, expectations, and experiences of all involved
- Seek out and synthesize relevant information from other sources and stakeholders

3) Accurately convey relevant information and explanations to individuals, families, groups, organizations, communities, and populations, as well as colleagues and other professionals

- Deliver information in a humane manner, and in such a way that it is understandable and encourages discussion and participation in decision-making

- 4) Develop a common understanding of issues, problems, and plans with individuals, families, groups, organizations, communities, and populations, as well as colleagues and other professionals, in order to develop shared plans
- Identify and explore problems to be addressed, including stakeholders' contexts, responses, concerns, and preferences
  - Respect diversity and differences including, but not limited to, the impact of gender, religion, and cultural beliefs on decision-making
  - Encourage discussions, questions, and interactions during encounters
  - Engage all stakeholders in shared decision-making in order to develop plans
  - Effectively address challenging communication issues through methods such as obtaining informed consent, delivering bad news, and addressing anger, confusion, misunderstanding, and conflicting priorities
- 5) Convey effective oral and written information
- Maintain clear, concise, accurate, and appropriate records of encounters and plans
  - Present reports of encounters and plans
  - Appropriately convey medical information in order to ensure the safe transfer of care
  - Effectively present health information to the public or media
    - Present epidemiological data and risk information to affected individuals, the public, other professionals, and the media using a variety of modalities
    - Apply risk-communication theory and various communication styles
    - Develop and implement communication plans, which should include media-related components, concerning public health issues
    - Effectively respond to public and media enquiries relating to specific health issues by using various media channels as required
    - Evaluate the effectiveness of different types of media including, but not limited to, print, broadcast, and web-based, in order to reach the intended audience

### Collaborator

#### Definition

As collaborators, preventive medicine specialists work effectively with others to achieve optimal health outcomes.

#### Key and Enabling Competencies: Preventive Medicine Specialists can:

- 1) Participate effectively and appropriately in interprofessional and interdisciplinary teams and with other partners including, but not limited to, community partners and populations served, as well as in sectors outside the health field
- Describe the roles and responsibilities of preventive medicine specialists to other professionals, especially in circumstances concerning legislative authority or emergency situations
    - Identify and describe the roles, expected contributions, and limitations of all members of interdisciplinary teams assembled to address health issues, educational tasks, or research questions
    - Identify individuals, groups, and other service providers capable of meaningfully contributing to the definition and solution of individual-, group-, and community-level public health issues, as well as education tasks or research questions concerning, among other topics, social-services agencies, mental-health organizations, the not-for-profit sector, and volunteers
  - Recognize and respect the diversity of roles, responsibilities, competencies and, as applicable, the authority of other professionals in relation to their own authority

- Describe the organization, structure, function, and effectiveness of community health and social services in at least one area, such as maternal and child health; dental health; child abuse; income maintenance, including the not-for-profit sector; volunteers; and other service agencies
  - Work with others to assess, plan, provide, and integrate services for individuals, families, groups, organizations, communities, and populations
  - Work with others to assess, plan, provide, and review other tasks, such as research, education, programs, and administrative responsibilities
    - Employ a variety of means through which to engage with and enable the participation of identified key stakeholders
    - Clearly articulate the goals and objectives of given collaborative processes
    - Foster collaboration between other individuals and groups
  - Effectively participate in interprofessional and interdisciplinary interactions including, but not limited to, team meetings
  - Enter into relationships with other professions in order to provide quality care or health programs
  - Demonstrate effective team participation including, but not limited to, team leadership and utilizing the principles of team dynamics including, but not limited to, the dyad model of physician-manager integration
  - Respect team ethics, including confidentiality, resource allocation, and professionalism
  - Demonstrate the ability to lead a health team, where appropriate
- 2) Effectively work with health professionals and other stakeholders, including community partners and the populations served, to prevent, negotiate, and resolve inter-professional and other conflicts
- Demonstrate a respectful attitude towards other colleagues and members of inter-professional teams
  - Work with other professionals to prevent conflicts
  - Employ collaborative negotiations to resolve conflicts
  - Respect differences and address misunderstandings and limits in regard to the scopes of practice of other professions
  - Recognize any differences, misunderstandings, or limitations that may contribute to interprofessional or interdisciplinary tension
  - Reflect on the functions of interprofessional and interdisciplinary teams
  - Demonstrate an ability to work collaboratively on initiatives with non-health-sector organizations and staff/volunteers
    - Enter into interdependent relationships with stakeholders/experts in other sectors in order to conduct the assessment and application of responses to issues impacting the determinants of health or other services outside of health care. Such stakeholders/experts can include, but are not limited to, school boards, water services, municipal planners, or ministries or other government departments outside of the health sector
    - Demonstrate an ability to meaningfully engage with the public/clients/community members in regard to the identification of issues and solutions that impact them

## Manager

### Definition

As managers, preventive medicine specialists are integral participants in organizations, as they organize sustainable practices, make decisions about allocating resources, and contribute to the effectiveness of health care and other systems.

Fulfilling a role that is unique among medical specialties, preventive medicine specialists, upon certification, are expected to be sufficiently competent to function in administration, management, and leadership roles within public-health-service delivery organizations and hospital administrations. These competencies are at the core of the preventive medicine specialty practice.

### Key and Enabling Competencies: Preventive Medicine Specialists can:

- 1) Participate in activities that contribute to the effectiveness of their health care organizations and systems (e.g., public health directorates, environmental health units, national registries, and national programs)
  - Work collaboratively with others in their organizations
  - Participate in quality-improvement initiatives designed to enhance the quality of care and patient safety in preventive medicine, integrating the best available evidence and practices
    - Design and implement data collection for a defined service question and integrate with other routinely available and relevant data
    - Assess evidence for proposed or existing screening programs, using established criteria relating to the performance of screening tests; this should include, but not be limited to, sensitivity, specificity, predictive value, and the number of patients requiring screening
    - Monitor and appraise the impact of screening and other disease detection and prevention programs
    - Describe the principles of infection control and their application to effective and appropriate procedures and policies that relate to reducing the risk of infection
    - Develop, implement, and critically appraise relevant practice guidelines
    - Investigate and intervene when a potential health hazard is identified in clinical settings
    - Manage projects and programs, including those that feature human, financial, and material resources
      - Hire, support, and guide staff, monitor performance, and receive and give constructive feedback
      - Develop and manage budgets; this can include, but is not limited to, aligning activities and accountability concerning resources, assessing the achievement of objectives, and performing flexible budgeting
      - Develop and implement plans to secure necessary material resources
      - Use information technology effectively in the management of projects and programs
    - Implement quality-improvement techniques that are appropriate for given organizations and settings
  - Describe the structure and function of the health care system as it relates to preventive medicine, including the roles of physicians
    - Compare and contrast the different models of public health structures
    - Discuss the organization of workplace health services in Saudi Arabia
    - Describe principles of health care financing, including physician remuneration, budgeting, and organizational funding

- 2) **Manage their practice and career effectively**
  - Set priorities and ensure that they balance professional responsibilities, outside activities, and their personal lives
  - Manage a practice, including finances and human resources
  - Implement processes to ensure personal practice improvement
- 3) **Appropriately allocate finite public health resources and participate in service planning, resource allocation, and evaluations at community, regional, and provincial levels**
  - Recognize the importance of the just allocation of health care resources, balancing effectiveness, efficiency, and access with optimal patient care
    - Allocate finite health resources using evidence-informed and ethical concepts
  - Apply evidence and management processes for cost-appropriate care
    - Apply an analysis of determinants of health to policy or program questions in order to assess the equity implications of options relating to the policies or programs concerned
- 4) **Serve in administration and leadership roles**
  - Effectively chair and participate in committees and meetings
  - Lead or implement changes in health systems
    - Develop visions, implement strategic plans, and effectively communicate this to other key stakeholders
    - Influence and negotiate in multi-agency arenas
  - Demonstrate critical self-appraisal and reflective practice while fulfilling administration and leadership roles
    - Demonstrate insight into their own leadership style, personality style, and preferences in different circumstances
    - Discuss and apply different approaches to leadership development
    - Use effective and appropriate leadership styles in different settings and organizational cultures, taking the differences between elected and appointed roles into account
    - Discuss and use techniques relating to conflict management, including negotiation and arbitration

### Health Advocate

#### Definition

As health advocates, preventive medicine specialists responsibly use their expertise and influence to advance the health and well-being of individuals, families, groups, organizations, communities, and populations. Preventive medicine specialists advocate for the health of individuals or groups and must use judgment in regard to balancing their efforts in order to ensure that good health for all is achieved. Competencies required to satisfactorily perform this role include a full understanding of the tools relating to population health assessment, community engagement, and the ability to work in partnership with a wide range of interested parties. Preventive medicine specialists apply strategies to influence and build health-based public policies and specific public health policies, and also to recognize the role of political factors and the political context; this allows them to influence decision-makers and policy decisions by making use of formal and informal systems.

#### Key and Enabling Competencies: Preventive Medicine Specialists can:

- 1) **Respond to individual, family, community, and population health needs and issues**
  - Identify the health needs, concerns, and assets of individuals, families, communities, and populations served
  - Identify opportunities for advocacy, health promotion, and disease prevention with individuals, families, communities, and populations served

- Demonstrate an appreciation of the possibility that competing interests may exist and can implement processes for decision making, incorporating an ethical approach, in order to resolve competing interests

### 2) Identify the determinants of health for the populations that they serve

- Recognize situations where advocacy is required and define strategies for obtaining the desired outcome
- Identify vulnerable or marginalized sub-populations within the communities and populations they serve and respond appropriately to their needs
  - Engage with vulnerable or marginalized sub-populations including, but not limited to, new immigrants and refugees and socio-economically disadvantaged persons and groups, in order to address health inequalities

### 3) Promote the health of individuals, families, communities, and populations as a means of improving health equality

- Describe approaches to addressing the health determinants of the populations they serve, including identifying the roles of public-health players
- Discuss and analyze health laws that are relevant to public health policy and healthy public policy
- Describe how public policy impacts on the health of the populations served
  - Integrate public health, preventive medicine, and social science evidence into strategies for healthy public policy
  - Discuss the processes for health impact assessments and analyze the health impacts of public policy
  - Discuss mechanisms of policy development and methods of implementation, including legislation, regulation, and incentives
  - Demonstrate an understanding of how competing values affect policy decision-making including, but not limited to, equality and the prosperity and common good of the community
  - Conduct policy analyses and evaluations
- Identify points of influence present in the health care system and its structure that impact population health
- Describe the ethical and professional issues inherent in health advocacy, including altruism, social justice, autonomy, integrity, reciprocity, and idealism
- Demonstrate an appreciation of the fact that the possibility that conflicts with managers or gatekeepers may occur is inherent in their role as health advocates for patients and communities
  - Demonstrate an appreciation of the potential for, and implement strategies to address, this form of conflict, balancing multiple accountabilities including, but not limited to, individuals, employers, the public, and other individuals within the health profession
- Describe the role of the medical profession in collectively advocating for healthy individuals, systems, and populations
  - Discuss strategies for advocating for quality improvement and patient safety from a population-health perspective, which includes addressing health inequalities.

### Scholar Definition

As scholars, preventive medicine specialists demonstrate a lifelong commitment to reflective learning, as well as the creation, dissemination, application, and translation of relevant knowledge.



### Key and Enabling Competencies: Preventive Medicine Specialists can:

- 1) Maintain and enhance professional activities through ongoing learning
  - Describe the principles of maintaining competence
  - Describe the principles and strategies for implementing a personal knowledge-management system
  - Recognize and reflect on learning issues in practice
  - Continually evaluate their own abilities, knowledge, and skills, and are aware of their professional limitations, seeking advice, feedback and assistance where appropriate
  - Pose appropriate questions that facilitate learning
  - Access and interpret relevant evidence concerning learning questions
  - Integrate new learning into practice
  - Evaluate the impacts of any changes in practice
  - Document the learning process
  
- 2) Critically evaluate health-related and other information and its sources, and appropriately apply this in decisions made during practice
  - Describe the principles of critical appraisal
  - Identify, access, and critically appraise data from a variety of sources, including individuals, administrative databases, and the Internet, as well as health, epidemiological, and social-sciences literature
  - Integrate critical-appraisal conclusions into professional practice
  
- 3) Facilitate the learning of individuals, families, students, residents, other health professionals, the public, and others, as appropriate
  - Describe principles of learning that are relevant to medical education
  - Collaboratively identify the learning needs and desired learning outcomes of others
  - Select effective teaching strategies and content to facilitate others' learning
    - Adapt educational and training strategies to the needs of learner(s)
  - Deliver effective lectures and presentations
  - Assess and reflect on teaching encounters
  - Provide effective feedback
  - Describe the principles of ethics with respect to teaching
  
- 4) Contribute to the development, dissemination, and translation of new knowledge and practices
  - Describe the principles of research and scholarly inquiry
    - Discuss and apply the principles of quantitative, qualitative, and action-based research/scholarly inquiry, such as study questions/objectives, designs, conduct, analyses, interpretations, and reporting
    - Discuss and apply sampling methods, as well as the estimation of appropriate sample sizes, including study power, alpha and beta levels, and considerations of type I and II errors
    - Calculate and interpret measures of frequency, including counts, rates, and ratios and, as applicable, their standardization
    - Calculate and interpret measures of risk including, but not limited to, relative risk, risk difference, attributable risk, odds ratio, etiologic fractions, and preventive fractions
  - Describe the principles of research ethics
  - Pose scholarly questions and participate in research processes
  - Conduct a systematic search for, and review of, relevant evidence including, but not limited to, systematic reviews and meta-analyses

- Recognize potential sources of bias and confusion in research and discuss methods of reducing the impact of these instances through study design and analysis
- Discuss interactions including, but not limited to, additive, multiplicative, synergist, and antagonist, and effect modification in research; further, discuss methods for their identification and interpretation
- Select and apply appropriate methods of addressing questions
- Appropriately disseminate and mobilize the findings of studies
- Complete scholarly research, quality assurance, and educational projects relevant to preventive medicine in a manner that is suitable for peer-reviewed publications or for presentation at academic meetings

### Professional Definition

As professionals, preventive medicine specialists are committed to ensuring the health and well-being of individuals and society through ethical practice, profession-led regulation, and high personal standards of behavior.

### Key and Enabling Competencies: Preventive Medicine Specialists can:

- 1) Demonstrate a commitment to individuals, families, groups, organizations, communities, and populations served, as well as their profession and society, through ethical practice
  - Exhibit appropriate professional behaviors in practice, including accountability, honesty, integrity, commitment, compassion, respect, and altruism
  - Demonstrate a commitment to delivering the highest quality practice and maintaining competence
  - Recognize and appropriately respond to ethical issues encountered in practice
  - Recognize and manage real or perceived conflicts of interest
  - Recognize, discuss, and apply the principles and limits of confidentiality, privacy, and access to information in accordance with the regulations defined by professional practice standards and applicable laws
  - Maintain appropriate relations with individuals, families, groups, organizations, communities, and populations
- 2) Demonstrate a commitment to individuals, families, groups, organizations, and populations served, as well as their profession and society, through participation in profession-led regulations
  - Demonstrate knowledge and an understanding of professional, legal, and ethical codes of practice
  - Fulfill necessary regulatory and legal obligations of current practice in preventive medicine
  - Demonstrate accountability to professional regulatory bodies
  - Recognize and appropriately respond when unprofessional behaviors of others is observed in practice
  - Participate in peer reviews
- 3) Demonstrate a commitment to physician health and sustainable practice
  - Balance personal and professional priorities in order to ensure high standards of personal health and sustainable practice
  - Improve their personal and professional awareness and insight
  - Recognize when other professionals need assistance and respond appropriately

## STRUCTURE OF THE TRAINING PROGRAM

The SBPM program has five major areas of activities:

- 1) Academic Training
- 2) Clinical Training (Hospital rotations and longitudinal clinical preventive clinics)
- 3) Field Rotations (mandatory and elective)
- 4) Research
- 5) Weekly Academic Half-days

These activity areas are designed to train preventive medicine specialists who are ready to begin practice. The educational objectives help to ensure that all elements of the board examinations are met.

The training year is divided into 6 rotations. The rotation duration is two months. Each rotation consists of a group of academic courses or a hospital/field rotation. During all rotations, there is one day every week dedicated for academic activities and research protected time.

In each training year, there will be one selective rotation. The content of the selective rotation will depend on the year of training, the training spots available for the training center, and most importantly on the competency achievement progress of each resident. It can be utilized for mass gathering rotation, fulfilling promotion requirements, data collection for required research projects, or remediation of failed rotations. One selective rotation during the whole program (four years of training) should be dedicated to mass gathering (Hajj and Omrah) rotation. Selective rotations during the other years should be decided by the program training committee for each resident.

### R1 structure

Rotation 1	Rotation 2	Rotation 3	Rotation 4	Rotation 5	Rotation 6
Principles of Epidemiology (6)		Writing Health-related Research Proposals (3)	<i>Hospital Rotations:</i> Internal Medicine	<i>Hospital Rotations:</i> Pediatrics	<i>Selective Rotation:</i> Mass gathering rotation, Fulfilling promotion requirem., Data collection, Remediation of failed rotations
Principles of Biostatistics (6)		Statistical Methods Involved in PM (9)			
Principles of Environmental Health (3)	Social & Behavioral Sciences (2)	Health Behavior and Health Education (3)			
Health System and Services (2)	Fundamentals of Health Care Management (3)	Introduction to Health Economics (3)			
Critical Appraisal (2)		Report-writing Skills (2)			
Academic Half-day (one half-day weekly)					
Protected Time Allocated for Research (one half-day weekly)					

\* Numbers in parentheses indicate weekly contact hours

## R2 structure

Rotation 1	Rotation 2	Rotation 3	Rotation 4	Rotation 5	Rotation 6
<i>Hospital Rotations:</i> Emergency Medicine	<i>Family Medicine</i> - General FM - Well baby - Antenatal	<i>Hospital Rotations:</i> Psychiatry OR Occupational Med	Ethics in Preventive Medicine (3)	Principles of Occupational Health (3)	<i>Selective Rotation:</i> Mass gathering rotation, Fulfilling promotion requirem., Data collection, Remediation of failed rotations
			Epidemiology and Control of Communicable Diseases (9)*		
			Epidemiology and Control of Non-Communicable Diseases (9)**		
			Introduction to Clinical Preventive Services (3)		
Academic Half-day (one half day weekly)					
Protected Time Allocated for Research (one half-day weekly)					

\* including investigations of outbreaks

\*\* including cancers, injuries, CVDs, DM, and obesity.

## R3 structure

Titles in *italics* (blue-shaded) indicate field rotations.

Rotation 1	Rotation 2	Rotation 3	Rotation 4	Rotation 5	Rotation 6
Advanced Epidemiology (6)	<i>Disaster Preparedness and Response (3)</i>	<i>Communicable Diseases</i>	<i>Infection Control</i>	<i>Environmental Health</i>	<i>Selective Rotation:</i> Mass gathering rotation, Fulfilling promotion requirem., Data collection, Remediation of failed rotations
Health Planning and Evaluation (3)					
Demography and Health (3)					
Infection Control (3)					
Communicating PH information (3)					
Clinical Preventive Services (one half day clinic weekly)					
Academic Half-day (one half day weekly)					
Protected Time Allocated for Research (one half-day weekly + two full weeks* for data collection)					

\* The two weeks for data collection will be during the selective rotation (T6).

## R4 structure

Titles in *italics* (blue-shaded) indicate field rotations.

Rotation 1	Rotation 2	Rotation 3	Rotation 4	Rotation 5	Rotation 6
<i>NCDs</i>	<i>Surveillance</i>	SR & Meta-analysis (3)	Mental Health (3)	<i>Elective*</i>	<i>Selective Rotation: Mass gathering rotation, Fulfilling promotion requirem., Data collection, Remediation of failed rotations</i>
		Health Care Quality and Patient Safety (3)	Nutrition in Health & Disease (3)		
		Biologic Basis of Vaccine Development (3)	Vector Biology and Vector-Borne Diseases (3)		
		Principles of Health Informatics (3)	Public Health Policy (3)		
		International Health (3)	Public Health Toxicology (3)		
Clinical Preventive Services (one half day clinic weekly)					
Academic Half-day (one half day weekly)					
Protected Time Allocated for Research (one half-day weekly)					

\* Elective rotations: Residents will select one or two (with a minimum of one month per rotation) of the following: Occupational Health, Health Promotion, Public Health Policy and Management, MCH, Mental Health, School health, Vector Control, Cancer Epidemiology and Control, or PH Elective

## TEACHING AND LEARNING ACTIVITIES

### Academic training

Academic training in the fields of preventive medicine, epidemiology, public health, and related sciences will be conducted through a series of courses distributed over the four years of the residency program. The depth of the courses will conform with the level of international master's programs in epidemiology and public health. Courses are listed below showing the general structure of each residency year. Descriptions of these courses can be found in 0.

### Clinical training

#### Clinical rotations

Hospital rotations include 10 months of clinical experience in internal medicine (specialized units: infectious diseases, geriatric medicine, cardiology, and endocrinology), pediatrics, emergency medicine, family medicine and psychiatry, or occupational medicine. During hospital rotations, residents will be assigned to clinical teams and will be involved in the clinical care of medical inpatients and outpatients; further, they shall also be involved with the diagnostic and therapeutic management of these patients, from admission to hospital until discharge. Evaluations are completed every month and at the end of each rotation. These rotations will enable residents to gain confidence and competency in terms of the assessment and overall management of common medical problems. By the end of their rotations, trainees should have acquired appropriate knowledge, skills, and attitudes, and should be capable of demonstrating the core competencies described below.

#### Guidelines:

- Hospital rotations scheduled during the first two years can be performed in any sequence, i.e., any rotation can be taken at any time during the first two years after the introductory course.
- Rotations that include inpatient settings cannot be transferred to the outpatient department (OPD).
- In OPD rotation, candidates should attend a minimum of eight clinics per week.

#### Content:

During appropriate hospital rotations, candidates should acquire the core knowledge and skills specified by the SBPM for each rotation.

#### Learning methods:

- Outpatient department
- Case discussions during clinical rounds
- Presentations on continuing professional development activities
- Chart reviews
- Clinical and other presentations
- Self-directed learning
- Small-group discussions
- Journal clubs
- Teaching of other health care professionals
- Learning with other health care professionals (dietitians, educators, nurses, etc.)

#### Description and objectives

More detailed descriptions and objectives of these rotations can be found in 0.

**Clinical preventive services (longitudinal):**

During R3 and R4, residents will spend one half-day every week in a clinical preventive-services clinic located in a hospital or primary health care center. The training center should prepare a rotation timetable at the beginning of each year in order to ensure that each resident spends sufficient time in each clinic.

- Core clinics:
  - Smoking Cessation
  - Physical-activity Counseling
  - Preventive Cardiology Clinics
  - Clinical Risk Assessment (CHD, DM, etc.)
  - Tuberculosis Screening and Control Clinic
  - Immunization Clinic (Child, Adult)
  - Well-baby Clinic
  - Travel Clinic
  - Screening Clinic (cancer, prenatal, NCD., etc.)
- Elective clinics:
  - Addiction Medicine
  - Nutrition and Weight Management
  - Sexually Transmitted Infections Clinic

**Field rotations****Field rotation overview**

During R3 and R4, residents will spend five rotations (2 months each) in field rotations. Training centers should prepare a rotation timetable for each resident at the beginning of the year. Rotation-specific objectives can be found in 0.

- Core Field Rotations:
  - Communicable Disease Control (CD)
  - Environmental Health (EH)
  - Infection Control
  - Non-communicable Diseases (NCD)
  - Surveillance
- Elective Rotations:
  - A resident may choose to pursue an elective of their choice or may pursue a structured elective; examples of such electives include: occupational health, health promotion, public health policy and management, MCH, mental health, school health, vector control, and cancer epidemiology and control.

**Training sites**

The rotations can be conducted in either accredited or non-accredited training sites. Accredited training sites are those that have been accredited by the SCFHS accreditation committee. As per the accreditation letter, residents can perform up to two rotations of field training at non-accredited sites. Accredited sites must undergo a review. For non-accredited sites, prior to allowing residents to perform rotations, the administrators of the program should complete a “Training Site Description” form and send it to the local committee for approval. Both accredited and non-accredited sites should sign an agreement with the program that explicitly states that they are facilitating field rotations. Residents may complete training at any accredited training sites relating to other Saudi Arabian Preventive Medicine Residency programs, provided an agreement between both programs is in place.

### Rotation planning and development

- **Rotation Planning**

As part of ongoing discussions with the program director (PD), residents will identify their preferences in regard to their site/supervisor for core rotations at least three months prior to the commencement of each rotation. Residents should consult with the PD, faculty, and other residents to identify site/supervisor options. Residents will contact the chosen supervisors or site coordinators in order to discuss the possibility of the rotation and shall keep the PD informed of these discussions. Furthermore, the supervisors and site coordinators in question shall keep each other informed in regard to other requests, back-up supervision, and capacity issues.

Residents will review the program objectives for the rotation and begin to develop and document their personal objectives a sufficient period of time before each field rotation begins. These objectives will be based on the SBPM's training objectives as well as the specific objectives of the rotation. Each resident's objectives document should be tailored to help the resident achieve their personal learning goals.

- **Supervision**

Rotation supervisors should hold a certification in preventive medicine, community medicine, public health, or equivalent, and should be appointed as trainers in the residency program. Residents will ensure, prior to confirmation of their rotation, that their chosen supervisors can accommodate the programs and related personal activities, such as academic half-days, special call requests, fulfilling certain program roles such as acting as chiefs or resident representatives, as well as vacations. Residents and their supervisors will discuss on-call expectations prior to commencing the rotation, if possible, or during the orientation. Residents are expected to be on call for the CD rotation and, whenever possible, it is recommended residents also be on call for the EH or management rotation.

Supervisors will make arrangements to provide the necessary space and equipment to ensure that residents can function optimally during their placement. Supervisors should make arrangements for the holding of an orientation session for the rotation and the host organization/agency during the first week of the rotation. Supervisors and residents should discuss the frequency of planned structured teaching, mentorship, and informal and formal feedback.

- **Personal Learning Objectives**

Once residents and supervisors have agreed on placements, residents will send supervisors:

- Rotation-specific objectives
- A draft of their personal learning objectives
- Rotation-specific assessment/evaluation forms (i.e., ITERs)

Residents and their supervisors shall discuss and approve the personal and rotation objectives prior to the commencement of the rotation. Residents shall send a copy of their personal objectives to the PD for the residents' files.

### Resident expectations

- During the rotation, residents shall:
  - Attend and appropriately participate in agency meetings
  - Appropriately interact with senior staff employed by or working with the agencies/organizations in question
  - Participate in field activities with front-line staff employed by or working with the agencies/organizations in question
  - Respond to and manage questions and issues from agency/organization staff and/or the community (e.g., community physicians, teachers, school principals, the public, etc.), while under appropriate forms of supervision for their levels of training.
  - Communicate in regard to any absences, whether planned or unintended, with relevant stakeholders (e.g., managers or other staff closely involved in the residents' day-to-day work)



- Accept and manage increasing responsibility and authority throughout the rotation.
- On-call duty:
  - Residents are expected to be on call for the CD and infection control rotations (e.g., outbreak teams, MERS teams, control and command centers) and, wherever possible, it is recommended residents also be on call for the EH rotation or other relevant rotations.
  - Residents may cover call for other core and elective rotations.
  - Residents are expected to be on call once per week on average. Deviation from this will require permission from the PD.
- End-of-rotation report:
  - Residents are required to submit a reflective report at the end of each rotation. The aim of this activity is to build the residents' report writing skills.
- Duty at "Hajj Entry Points":
  - Residents must be available for one of the Eid vacations during the four-year program to work in medical services at one of the entry points.
- Seminar Projects:
  - Residents should have a specific project to be delivered by the end of each rotation in order to demonstrate that they have achieved the rotation objectives (see also "promotion requirements")
- Absences from rotations due to program activities:
  - Residents are expected to attend the academic half-day on a weekly basis.
  - Residents are expected to have a weekly half-day of protected time allocated to research
  - Residents are expected to participate in a weekly half-day clinic

### **Supervisor expectations**

- Assist residents in developing placement-specific educational objectives, which will form the basis of the mid- and end-of-rotation in-training evaluations.
- Ensure that residents receive an orientation to the rotation and the agency/organization.
- Negotiate a "work plan" with residents that will enable them to meet their proposed educational objectives within the site context.
- Supervise and provide feedback on mutually agreed projects during the rotation (policy/procedure, in-training, article, rounds, etc.), if appropriate.
- Note that the scopes and durations of the projects should not require residents to continue with their projects beyond the period of their rotation. Projects must be limited to the duration of the rotation.
- Provide adequate supervision of residents with regard to meeting the placement-specific educational objectives, especially responding to and managing preventive medicine questions from agency/organization staff and the community (e.g., community physicians, teachers, school principals, and the public).
- Provide residents with increasing responsibility and authority throughout the rotation.
- Meet regularly (at least weekly) with residents and undertake the following:
  - Informal (or formal) discussions concerning residents' performance, progress, and plans for the upcoming week.
  - Discussion about residents' concerns regarding the meeting of program and personal objectives.
- Conduct mid- and end-of-rotation in-training evaluations on residents' performance.

### Assessment

- Residents shall be assessed based on the personal and program objectives agreed at the outset of the rotation.
- Formal resident assessments must use the In-Training Evaluation Report (ITER) form.
- A formal, written ITER should be completed at the mid-point and end-point of each rotation.
- Significant concerns identified during the mid-term assessment must be communicated in writing to the PD.
- End-of-rotation evaluations should include a full discussion of the evaluation with residents before the evaluations are submitted to the PD. The end-of-rotation evaluations should be submitted within one week of the final day of the rotation.
- The PD must review the assessment/evaluation record prior to filing.

### Evaluation

- At the end of the rotation, residents must evaluate the placement and supervisor using the appropriate forms (see 0)

### Research

Through both coursework and field placements, all residents are expected to gain a reasonable understanding of the principles of research. Residents who wish to have more hands-on experience in regard to research will find numerous opportunities to do so throughout their training.

Each resident is required to perform TWO research projects during their residency training. This should be conducted as follows:

- During R1 & R2: Each resident is required to create ONE review article (systematic review or narrative review). This review article must be:
  - Completed and submitted to the supervisor before the Year 2 promotion exam AND
  - Published (or accepted for publication) in an ISI journal before the end of Year 4.
- During R3 & R4: Each resident is required to conduct ONE original research according to the SBPM guidelines and submit it as an article manuscript of publishable quality. This manuscript should be submitted to the program by the 1st of September during year 4 for it to be eligible for part two of the final exam. This manuscript should also be accompanied with either:

A

- Proof that it was published or accepted for publication in an ISI journal
- In such a case, there will be NO oral defense

OR

B

- Proof that it was submitted for publication in an ISI journal
- In this case, the program will form a committee (including an external examiner) to hear an oral defense of the research project.

## Didactic

### Academic half-day activities (AHD)

#### Attendance:

In order to learn preventive medicine concepts and to be integrated into the preventive medicine residency program, all residents are expected to attend academic half-days (AHDs) throughout their residency training. If special circumstances cause a resident to be absent from an AHD, the resident in question must notify the chief resident as far in advance as possible (approval of the absence will be subject to approval by the PD). Failure to do so may result in disciplinary action.

In preparation for parts 1 and 2 of the SCFHS examinations, residents are permitted to skip all AHDs during the final month preceding the exam date. Following their exams, attendance at AHDs is mandatory until residents have finished the residency program.

#### Structure:

Item	Time (1): 9:00 – 10:20	Time (2): 10:40 – 12:00
<b>Week 1</b>	Outbreak presentation Public health lab	Critical appraisal (therapy)
<b>Week 2</b>	Health program Health organization	Critical appraisal (diagnosis)
<b>Week 3</b>	Well-known surveys Well-known RCTs	Critical appraisal (prognosis)
<b>Week 4</b>	Hot topics Public health issues	Critical appraisal (SR)

Explanations of the terms mentioned in the above structure as well as examples of topics and a template for the timetable can be found in 0.

### Online required courses

The following online courses must be completed by each resident. These are distributed over the four years of residency training in accordance with the “promotion requirements” (see the “assessment” section).

- National Committee of Bioethics (course and researcher registration):
  - <http://bioethics.kacst.edu.sa/>
- WHO Vaccine-safety online course:
  - <http://vaccine-safety-training.org>
- Emergency Responder Health Monitoring and Surveillance online course:
  - <http://emergency.cdc.gov/training/erhmscourse/index.asp>
- CERC Online Training:
  - <http://emergency.cdc.gov/cerc/training/basic/index.asp>
- Health-literacy online course:
  - [http://www2a.cdc.gov/TCEOnline/registration/detailpage.asp?res\\_id=4125](http://www2a.cdc.gov/TCEOnline/registration/detailpage.asp?res_id=4125)

### Universal e-learning topics

The Saudi Commission for Health Specialties has developed an e-learning platform designed to deliver high value, interdisciplinary topics of the utmost importance to trainees and to ensure that they all receive high-quality teaching and develop essential core knowledge. These topics are common to all specialties and are delivered in a modular fashion. At the end of each learning unit, there is an online formative assessment.

Upon completion of all topics, trainees undertake a combined summative assessment in the form of context-rich multiple-choice questions (MCQ), in which they must attain minimum competency. The following are mandatory modules to be completed at each level:

- R1: modules 1 and 4
- R2: modules 2 and 3
- R3: modules 6 and 7

**Module 1: Introduction**

- 1) Prescribing drugs safely
- 2) Hospital-acquired infections
- 3) Antibiotic stewardship

- 1) **Prescribing Drugs Safely:** By the end of the learning unit, you should be able to:
  - Recognize the importance of prescribing drugs safely in health care
  - Describe the various adverse drug reactions, giving examples of commonly prescribed drugs that can cause such reactions
  - Apply principles of drug-drug interactions, drug-disease interactions, and drug-food interactions to common situations
  - Apply principles of prescribing drugs in special situations, such as renal failure and liver failure
  - Apply principles of prescribing drugs in elderly and pediatric age-group patients, and for patients undergoing pregnancy and lactation
  - Promote evidence-based, cost-effective prescription
  - Discuss the ethical and legal frameworks governing the safe prescribing of drugs in Saudi Arabia
  
- 2) **Hospital-acquired Infections (HAI):** By the end of the learning unit, you should be able to:
  - Discuss the epidemiology of HAI, with special reference to HAI in Saudi Arabia
  - Recognize HAI as one of the major emerging threats in health care
  - Identify the common causes and environments of HAI
  - Describe the risk factors of common HAIs, such as ventilator-associated pneumonia, MRSA, CLABSI, and vancomycin-resistant enterococcus (VRE)
  - Identify the role of health care workers in the prevention of HAI
  - Determine appropriate pharmacological (e.g., selecting antibiotics) and non-pharmacological (e.g., removing indwelling catheters) measures for the treatment of HAI
  - Propose a plan to prevent HAI in the workplace
  
- 3) **Antibiotic Stewardship:** By the end of the learning unit, you should be able to:
  - Recognize antibiotic resistance as one of the most pressing public health threats globally
  - Describe the mechanism of antibiotic resistance
  - Determine the appropriate and inappropriate use of antibiotics
  - Develop a plan for safe and proper antibiotic usage, including appropriate indications that antibiotics are required, durations of prescriptions, types of antibiotic to use, and the discontinuation of use.
  - Appraise local guidelines concerning the prevention of antibiotic resistance

**Module 2: Cancer**

- 1) Cancer prevention
- 2) Surveillance and follow-up of cancer patients
- 1) **Cancer Prevention:** By the end of learning unit, you should be able to:

- Conclude that many major cancers are preventable
- Identify smoking prevention and other life-style modifications as major preventing measures
- Recognize cancers that are preventable
- Discuss the major cancer-prevention strategies at the individual and national level
- Counsel patients and families in a proactive manner regarding cancer prevention, including screening

2) **Surveillance and Follow-Up of Cancer Patients:** By the end of the learning unit, you should be able to:

- Describe the principles of surveillance and follow-ups for patients with cancers
- Enumerate the surveillance and follow-up plans for common forms of cancer
- Describe the role of primary care physicians, family physicians, and other similar health care professionals in the surveillance and follow-up of cancer patients
- Liaise with oncologists to provide surveillance and follow-up concerning patients with cancer

**Module 3: Diabetes and Metabolic Disorders**

- 1) Recognition and management of diabetic emergencies
- 2) Management of diabetic complications
- 3) Comorbidities of obesity
- 4) Abnormal ECG

1) **Recognition and Management of Diabetic Emergencies:** By the end of the learning unit, you should be able to:

- Describe pathogenesis of common diabetic emergencies, including their complications
- Identify risk factors and groups of patients vulnerable to such emergencies
- Recognize patients presenting with diabetic emergencies
- Institute immediate management
- Refer patients to the next appropriate level of care
- Counsel patients and families on methods of preventing such emergencies

2) **Management of Diabetic Complications:** By the end of the learning unit, you should be able to:

- Describe the pathogenesis of important complications of diabetes mellitus type 2
- Screen patients for such complications
- Provide preventive measures for such complications
- Treat such complications
- Counsel patients and families, placing a special emphasis on prevention

3) **Comorbidities of Obesity:** By the end of the learning unit, you should be able to:

- Screen patients for the presence of common and important comorbidities of obesity
- Manage obesity-related comorbidities
- Provide dietary- and life-style-related advice for the prevention and management of obesity

4) **Abnormal ECG:** By the end of the learning unit, you should be able to:

- Recognize common and important ECG abnormalities
- Institute immediate management, if necessary

**Module 4: Medical and Surgical Emergencies**

- 1) Management of acute chest pain
- 2) Management of acute breathlessness

- 3) Management of altered sensorium
- 4) Management of hypotension and hypertension
- 5) Management of upper GI bleeding
- 6) Management of lower GI bleeding

For all the above, the following learning outcomes apply:

By the end of the learning unit, you should be able to:

- 1) Triage and categorize patients
- 2) Identify patients who require prompt medical and surgical attention
- 3) Generate preliminary diagnoses based on physical examinations and patients' histories
- 4) Order and interpret urgent investigations
- 5) Provide appropriate immediate management for patients
- 6) Refer patients to the next level of care, if needed

### Module 6: Frail Elderly Patients

- 1) Assessment of frail elderly patients
- 2) Mini-mental state examination
- 3) Prescribing drugs for the elderly
- 4) Care of the elderly

1) **Assessment of Frail Elderly Patients:** By the of the learning unit, you should be able to:

- Enumerate the differences and similarities between the comprehensive assessment of elderly patients and the assessment of other patients
- Perform comprehensive assessments, in conjunction with other members of the health care team, of frail elderly patients, placing a special emphasis on social factors, functional status, quality of life, diet and nutrition, and medication history
- Develop problem lists based on the assessment of elderly patients

2) **Mini-Mental State Examination (mini-MSE):** By the end of the learning unit, you should be able to:

- Review the appropriate usages and advantages, and potential pitfalls, of mini-MSEs
- Identify patients suitable for undergoing mini-MSEs
- Screen patients for cognitive impairment through mini-MSEs

3) **Prescribing Drugs for the Elderly:** By the end of the learning unit, you should be able to:

- Discuss the principles of prescribing drugs for the elderly
- Recognize poly-pharmacy, prescription cascade, inappropriate dosages, inappropriate drugs, and deliberate drug exclusion as major causes of morbidity in the elderly
- Describe the physiological and functional decline in the elderly that can contribute to increased drug-related adverse events
- Discuss drug-drug interactions and drug-disease interactions among the elderly
- Show familiarity with Beers criteria
- Exhibit rational prescribing habits in regard to the elderly
- Counsel elderly patients and their families on safe medication usage

4) **Care of the Elderly:** By the end of the Learning Unit, you should be able to:

- Describe the factors that must be considered while planning care for the elderly
- Recognize the needs and well-being of care-givers

- Identify the local and community resources available for assisting the provision of care for the elderly
- Develop, with input from other health care professionals, individualized care plans for elderly patients

**Module 7: Ethics and Healthcare**

- 1) Occupational hazards of HCW
- 2) Evidence-based approach to smoking cessation
- 3) Patient advocacy
- 4) Ethical issues: transplantation/organ harvesting, withdrawal of care
- 5) Ethical issues: treatment refusal, patient autonomy
- 6) Role of doctors in death and dying

1) **Occupational Hazards of Health Care Workers (HCW):** By the end of the learning unit, you should be able to:

- Recognize common sources and risk factors concerning occupational hazards among HCW
- Describe common occupational hazards in the workplace
- Show familiarity with legal and regulatory frameworks governing occupational hazards among HCW
- Exhibit a proactive attitude towards promoting workplace safety
- Protect yourself and colleagues against potential occupational hazards in the workplace

2) **Evidence-based Approach to Smoking Cessation:** By the end of the learning unit, you should be able to:

- Describe the epidemiology of smoking and tobacco usage in Saudi Arabia
- Review the effects of smoking on smokers and their family members
- Effectively use pharmacologic and non-pharmacologic measures to treat tobacco usage and dependence
- Effectively use pharmacologic and non-pharmacologic measures to treat tobacco usage and dependence among special population groups, such as pregnant ladies, adolescents, and patients with psychiatric disorders

3) **Patient Advocacy:** By the end of the learning unit, you should be able to:

- Define patient advocacy
- Recognize patient advocacy as a core value governing medical practice
- Describe the role of patient advocates in the care of patients
- Exhibit a positive attitude towards patient advocacy
- Be a patient advocate when conflicting situations arise
- Show familiarity with local and national patient advocacy groups

4) **Ethical issues: Transplantation/Organ Harvesting, Withdrawal of Care:** By the end of the learning unit, you should be able to:

- Apply the key ethical and religious principles governing organ transplantation and withdrawal of care
- Be familiar with the legal and regulatory guidelines regarding organ transplantation and withdrawal of care
- Counsel patients and families in regard to applicable ethical and religious principles
- Guide patients and families in regard to making informed decisions

- 5) **Ethical issues: Treatment Refusal, Patient Autonomy:** By the end of the learning unit, you should be able to:
- Predict situations where patients or families are likely to decline prescribed treatment
  - Describe the concept of a “rational adult” in the context of patient autonomy and treatment refusal
  - Analyze key ethical, moral, and regulatory dilemmas in regard to treatment refusal
  - Recognize the importance of patient autonomy in the decision-making process
  - Counsel patients and families who are declining medical treatment on the best interests of the patients
- 6) **Role of Doctors in Death and Dying:** By the end of the learning unit, you should be able to:
- Recognize the important role a doctor can play during the process of death
  - Provide emotional and physical care to dying patients and their families
  - Provide appropriate pain management in dying patients
  - Identify suitable patients for referral to palliative care services



## ASSESSMENT OF TRAINEES

Residents in the SBPM will be assessed holistically during their four-year training periods. In order to develop a well-coordinated system of teaching, learning, and assessment, all assessment modalities will be based on the core competencies and specific objectives of the training program.

The purpose of the assessment is to:

- 1) Support a competitive learning environment by conducting continuous formative assessments at the end of each course and summative continuous assessments at the end of each semester.
- 2) Monitor learning processes, both individually and collectively
- 3) Inculcate standard professional growth through continuous in-training evaluation reports [CER] and by mandating the maintaining of a log book
- 4) Ensure professional, 360-degree evaluation through FITER is conducted at the end of training in R4
- 5) Award a Certificate of Training Completion
- 6) Allow external evaluators or auditors to evaluate the overall training program

### Overall Types of Assessment

#### High-stakes summative exams:

In accordance with the policy prescribed by the SCFHS, the high-stakes exams include the part 1 exam, and the part 2 final exam. Refer to the “General Assessment Bylaws” and the “Assessment Conduct Regulations” documents issued by the Central Assessment Committee for details on regulation and conduct of these exams. Refer to the “SBPM Exam Blueprint” issued by the Scientific Examination Committee and approved by the Central Assessment Committee for details on the specifications and content of part 1 and part 2 exams. All the above-mentioned documents are available through SCFHS web portal.

#### Continuous formative assessment:

This will be set at the end of each course in a form appropriate to the course learning outcomes. The formative assessment shall be discussed with the trainees in order to clarify misconceptions or to enrich knowledge. The scores in this assessment will not be counted towards those of the summative exam. Mini-CEX will be used at the site of attachments or simulators in order to assess the preventive clinical skills of trainees; feedback will be given to trainees in order to improve their preventive or public-health management skills.

The continuous summative assessment will be conducted in order to ensure that the trainees are eligible to be promoted from a year to another and, in the final year (R4), to be eligible to sit the high-stakes final exam. According to SCFHS new policy for continuous assessment, promotion is based on various assessment tools aiming to assess cognitive domain, skills as well as attitudes. The Scientific Council of preventive medicine and the Central Committee for Training approved the following assessment tools and their relative weights to be used as promotion criteria in each year in SBPM.

Tool \ Year		R1	R2	R3	R4
Knowledge	End-of-Year written Promotion Exam	✓	✓	✓	
	Academic Activities	✓	✓	✓	✓
Skill	Research Activities	✓	✓	✓	✓
	Logbook/Portfolio	✓	✓	✓	✓
	Community Activities				✓
	OSCE/OSPE				✓
Attitude	ITERS	✓	✓	✓	✓

### Promotion Requirements (Portfolio Content)

In order for a trainee to be promoted from the current training level to the higher, certain set of requirements are needed to be fulfilled. These requirements have been selected to ensure a competency based progress of the trainee. Appendix F summarizes promotion requirements in relation to training level and competency role.

### Organization of assessment

- Formative assessment will be the responsibility of the program director.
- High-stakes summative assessment as represented by Part I exam, final written and clinical exam will be organized by the Scientific Exam Committee in SCFHS
- Portfolio assignments should be submitted online to specific coordinators before the due date, and the record will be maintained in the office. The trainees should maintain a hard copy of their portfolio.
- Mini-CEX forms will be compiled by trainees and will be duly signed and rated by clinical/field assessors
- Log books will be developed separately for parts 1 and 2, designed to record achievements relating to seven competencies, and shall be accordingly filled by trainees on a daily basis. They must be signed by mentors at end of each rotation, and monthly logs must be signed by supervisors of the programs.
- ITERs (R1, 2, and 3) & FITER (R4) are evaluation reports that must be endorsed by the program director.

**Mini-CEX Evaluation Form**

Mini-CEX Evaluation Form										
Name of Trainee: _____										
Level of Trainee: _____										
Module/Course objective: _____										
Place of Rotation: _____										
SKILLS	Unsatisfactory			Satisfactory			Excellent			NO
	ND	MMj	NAD	MMn	AD	LC	OC	HC	P	
Greets patient										
Takes relevant Hx										
Checks for lab investigations										
If missing any steps, advise now										
Writes prescriptions										
Mentions precautions										
Explains doses										
Gives advice concerning compliance										
Books next visit										
<p>Global Rating: _____</p> <p>Remarks by Assessor: _____</p> <p>ND: Not done; MMj: Missed major steps; NAD: Not appropriately done; MMn: Missed minor steps; AD: Appropriately done; LC: Low confidence; OC: Optimal confidence; HC: High confidence; P: Perfect</p>										

**ITER Form**

Same as given in SCFHS

**FITER form**

Same as given in SCFHS

**Log book**

Log Book					
Trainee's _____					ID:
Name _____		of _____		Trainee:	
Name _____		of _____		Center	
Level _____		of _____		Trainee:	
Reg _____					#
Title of Page:					
Day & Date	Place of Activity	Name of Activity	Level of Performance; P1/2/3	Signature of Clinic Mentor	Signature of Program Supervisor

## APPENDICES

### Appendix A: Description of academic courses

#### R1 courses

##### Principles of Epidemiology

This course will include the following topics: the definition and uses of epidemiology; descriptive epidemiology (person, place, and time) and its use for developing hypotheses of possible risk factors of a disease; principles and methods of epidemiology, including disease measures, validity and reliability, association and causation, susceptibility, and bias, confounding, and effect modification; the strengths and weaknesses of various epidemiologic study designs; and measures of disease burdens (frequency, association, and impact measures). The course will also cover: the natural history of diseases and screening, levels of disease prevention, epidemiologic and demographic transitions, and professionalism and ethics in epidemiologic work. The course will involve lectures, small-group discussions, and tabletop and computer exercises.

##### Principles of Biostatistics

The course covers the concepts and uses of biostatistics in preventive medicine. It includes the following topics: graphical and descriptive techniques commonly used to summarize health data; probability theory, types of variables, and normal and binomial distributions; statistical estimation (point estimates and confidence intervals) and hypothesis testing (significance tests, e.g., t-tests and chi-square tests); describing estimation, testing, and interpretation for single-group summaries, such as means, medians, variances, correlations, and rates; describing estimation, testing, and interpretation for comparisons of two groups, such as odds ratios, relative risks, and risk differences; describing the basic concepts of ANOVA; and interpreting the results of statistical analyses in order to provide evidence. In addition, residents will develop basic skills concerning the use of statistical computing software to perform data analyses. The course will involve lectures, small-group discussions, and tabletop and computer exercises.

##### Principles of Environmental Health

This course will cover the following topics: methods used in environmental epidemiology, the quantification of exposure and effect, biological monitoring, risk and source assessment, pathways of exposure, and methods of controlling chemical, biological, and physical factors within the environment that impact human health. Additionally, the course will cover water and sewage treatment and quality control of water, soil, air, and food.

##### Social & Behavioral Sciences

This course involves discussions on the contribution of social science disciplines to the identification and solution of public health problems. It introduces key concepts of social and behavioral aspects of public health: culture, race/ethnicity, gender, sexuality, poverty/disparity, factors relating to individual behavior change, community empowerment, and structural policy change. It uses health problems (e.g., diabetes, cancer, and HIV/AIDS) to examine individual and social issues and responses. The course provides an understanding of the varied contributions of social science to public health interventions and investigations, and introduces candidates to the different disciplines of sociology, anthropology, and social geography, and also to their specific contributions to conceptualizing and understanding public health issues.

### **Health Systems and Services**

This course introduces the concepts of health systems, comparing health systems in different parts of the world and providing specific examples of these systems; for example, those of Cuba, the United Kingdom, Canada, and the USA. It then describes and compares health systems in GCC nations, with a special emphasis on Saudi Arabia. Moreover, the course provides information on different levels of health care, with a special emphasis on the importance and development of primary health care.

### **Fundamentals of Health Care Management**

Focusing on Saudi Arabia's health care delivery systems, this course involves discussions on methods of managing health care organizations, including management processes, organizational structures, and types of governance and management issues. Key topics and concepts are introduced, including management theories and tools, managing health care organizations, administrative management responsibilities of health care environments, approaches to performance improvement, and financial management.

The course also addresses practical issues in program planning, such as needs assessment and designing and calculating the cost of interventions. Moreover, it also involves examinations of major issues in program planning and evaluation, such as processes, effectiveness analysis, and evaluation methods and measurements.

### **Introduction to Health Economics**

This course introduces students to the application of economic tools in the health care system and the public health system. Topics include: introduction of key economic concepts; making choices with scarce resources; efficiency, equity, elasticity of demand, costing, production, marginal analysis, and opportunity cost; conditions under which normal markets and insurance markets work; health care financing and universal health coverage; and principles and application of economic evaluation in health care.

### **Health-research Proposal Writing**

This course covers the nature and origins of scientific writing, as well as the components of a scientific paper. It then involves a description of the correct methods of preparing titles, as well as authorship, abstract, introduction, materials and methods, results, discussion, and acknowledgements, and references sections (including citation methods). Moreover, it covers reporting results and the preparation of tables and graphs. The course then briefly covers the peer-review process, publishing process, ethics in health research, the role of funding agencies, and methods of preparing for a conference presentation (oral/poster). It provides students with the skills to present the rationale of proposed studies, select a research team, and construct time tables for study execution, as well as the ability to estimate, allocate, and write research budgets.

### **Statistical Methods in PM**

The course covers some advanced concepts of biostatistics in preventive medicine. It includes the following topics: sampling techniques and sample-size estimation, correlation and regression multivariate analysis (multiple linear and multiple logistic analysis), survival analysis (univariate methods and proportional hazards regression), standardization of rates and ratios, and interpretation of data analysis.

### **Health Behavior and Health Education**

Students will be introduced to the concepts and theories of health education, with special reference to their application in preventive medicine, primary health care, and clinical practice.

Characteristics of successful health education messages will be emphasized within different related settings. Furthermore, different health promotion strategies will be discussed.

### **Critical Appraisal**

This course provides students with the skills to classify literature and to evaluate the relevance of published articles to specific health problems; it also enables students to evaluate the validity of different articles and reports and to detect different types of bias and confounders in primary and secondary sources of information. Additionally, the course exposes students to different critical-appraisal checklists and allows students to acquire the skills to present critical appraisals in scientific meetings.

### **R2 courses**

#### **Epidemiology and Control of Communicable Diseases**

The course introduces students to basic epidemiology of communicable diseases (CDs) including the classification of communicable diseases and disease determinant factors, e.g., agents, hosts, and environment. It also discusses the cycle of CD transmission, the natural history of CDs, prevention and control measures for CDs, and methods of measuring CDs in the population and their impact.

#### **Epidemiology and Control of Non-Communicable Diseases**

The course covers major non-communicable diseases (NCD), with a special focus on cardiovascular diseases and common cancers. It includes the following topics: epidemiology, pathogenesis, and diagnosis of NCD; the morbidity and mortality burden of NCD; risk factors for NCD (genetic versus environmental and modifiable versus non-modifiable, with a special emphasis on tobacco consumption, lack of physical activity, obesity, and imbalanced diets); strategies for primary and secondary prevention of NCD as well as relevant cohort studies and clinical trials; and global, regional, and national efforts in this respect.

#### **Ethics in Preventive Medicine**

This course covers basic concepts and principles of ethical applications in preventive medicine, including: international guidelines in research and clinical practice; ethics in community-based surveys that feature human subjects, with special reference to Islamic principles in this regard; ethics in clinical practice; and ethics in publishing research results.

#### **Principles of Occupational Health**

This course discusses the effect of different occupations on the health of workers, the role of pre-employment and periodic medical examinations of workers, analysis of occupational health hazards, regulations related to occupational health in Saudi Arabia, and the composition of occupational health teams and the roles of each member. It will introduce candidates to methods of preventing occupational hazards and of managing common occupational diseases.

### **R3 courses**

#### **Advanced Epidemiology**

In this course, residents will be exposed to advanced concepts of epidemiology while also focusing on its applications in public health. Contents will include: analysis of age, birth cohort, and period effects; understanding and handling a lack of validity, i.e., bias; identifying and addressing non-causal associations i.e., confounding; assessing the role of chance, i.e., random error; defining and assessing the heterogeneity of effects, i.e., interaction; the effect of matching on epidemiological studies; quality assurance and control in epidemiological studies; causality; application to public health policy; communicating results of epidemiologic studies; ecological studies; and screening.

#### **Health Planning and Evaluation**

This course addresses practical issues in program planning such as needs assessment, health priority setting, and designing interventions and calculating the cost of these interventions. It also examines major issues in program planning and evaluation, such as processes, effectiveness analysis, evaluation methods, and measurements.

#### **Demography and health**

Residents will be exposed to basic concepts of demography and population dynamics; interaction of population dynamics with health and health-related issues; and the use of demographic methods in epidemiology and public health. Course contents will include definitions and basic concepts of demography; major population trends; population dynamics and forces for change; sources of demographic information; growth rates; population pyramids; population projection; life-table analysis; the effect of population changes on the health of societies; the effect of health status on population changes; the role of population studies on health and social policy and programs; and demographic behavior in the context of social and economic and policy.

#### **Infection Control**

This course addresses factors relating to the spread of infections within health-care settings, including prevention, monitoring/investigation of a demonstrated or suspected spread of infection within a particular health-care setting, and its management.

#### **Disaster Preparedness and Response**

This course concerns an introduction to preparedness for public health emergencies, including natural disasters, unintended human acts, terrorism (chemical, biological, radiological, and explosive), and emerging threats such as pandemics, with a special emphasis on mass gatherings such as the Hajj. Other topics include: disaster epidemiology; environmental health; food and nutritional issues in emergencies; the design and implementation of health services; the management of communicable diseases; and caring for a displaced population. The course will address the main public health activities involved in preparing for and responding to public health emergencies; the roles of public health agencies in emergencies, and interactions with public safety and other agencies.

#### **Maternal & Child Health**

This course analyzes the structure, organization, administration, and management of social and health-service programs serving populations in regard to maternal and child health. It covers some basic concepts of maternal and child health, including: biological, social, political, and economic contexts within which maternal and infant health problems arise; aspects of women's health in the Arab World/GCC nations; and maternal and child nutrition.

#### **Experimental Designs**

This course will introduce the concepts and applications of experimental designs in depth, particularly focusing on designs that contribute to public health policy. Course contents will include design strategies of experimental studies, including clinical trials, field trials, community intervention, and cluster randomized trials; operational aspects of conducting experimental studies; the recruitment of study subjects and the generalizability of findings; data-analysis methods; traditional approaches and recent trends; measurement error; and ethical considerations in experimental studies.

#### **Communicating Health Information**

This course is designed to help students improve their ability to communicate with different audiences (e.g., news media, policy makers, and the general public) using various channels (e.g., written and oral) and to help students learn strategies based on scientific and practical recommendations.



Students will learn effective means of developing health-communication plans and of communicating public health information to nonscientific audiences. The primary readings are sourced from the APHA textbook: “Nelson DE et al. Communicating Public Health Information Effectively: A Guide for Practitioners.”

#### **R4 courses**

##### **Systematic Review and Meta-analysis**

This course involves reviewing methods used in systematic reviews and meta-analysis. Topics include building a team, formulating a research question and hypothesis, searching literature, abstracting information, and synthesizing evidence both qualitatively and quantitatively. The course also covers methods of formulating an answerable research question, defining inclusion and exclusion criteria, searching for evidence, data extraction, assessing the risk of bias in underlying studies, qualitative synthesis, meta-analysis, sensitivity analysis, and assessing meta-bias. Additionally, practical sessions on conducting a systematic review using hands-on exercises are included.

##### **Health Care Quality and Patient Safety**

This course introduces students to the latest developments in improving health care quality and patient safety through lectures, interactive exercises, and case studies relevant to preventive medicine specialists, healthcare administrators, and clinicians. Additionally, health care quality and patient safety are examined from a strategic viewpoint with the goal of training health care administrators to be effective decision makers.

##### **Vaccine Development**

This course reviews the processes used to evaluate all aspects of vaccine development and the use of immunizations for disease prevention. Topics include: vaccines currently in use and vaccines likely to be licensed within the near future; different types of vaccines; immune mechanisms important for the development of vaccines; biological obstacles to vaccine development and strategies for overcoming these obstacles, processes involved in developing vaccines; technologies used for vaccine development, including recombinant DNA techniques and the use of novel adjuvants and antigen-carrier systems; and revising guidelines for the use of vaccines.

##### **Principles of Health Informatics**

In this course, students will be introduced to the philosophy, ethical viewpoints, history, terminology, and frameworks of health-information systems and how the different components of health-information systems interact with each other. It teaches interactions between the software, hardware, data, networks, and people. Students will also learn to understand the confidentiality of health data and security issues in healthcare. The course covers the uses of health-information systems to identify sub-populations of interest, to describe the health status and needs of populations, to improve the health of populations, and to evaluate services provided to populations.

##### **International Health**

This course introduces students to the concepts of global and international health, with a special emphasis on public health laws. This includes: an overview and definitions; health determinants (biological, environmental, social, economic, political, etc.); variations of health and disease within and between countries over time; global health and ethics, including equality in healthcare; environmental impacts on international health; roles of information and communication technology in global health; international health regulations – 2005; millennium development goals; and public health laws.

**Mental Health**

This course covers the basic concepts of community mental health from both medical and social perspectives. It also discusses classifications of mental disorders, as well as their possible risk factors, from clinical and public health perspectives. In addition, estimates of the magnitude of mental disorders at community, global, and regional levels are introduced. Furthermore, prevention and control programs that pertain to the GCC, particularly KSA, will be discussed.

**Nutrition in Health and Disease**

This course concerns an overview of the physiological requirements and functions of energy, macronutrients, and the vitamins and minerals that influence health and disease risk. Topics include: principles of human nutrition; dietary sources; nutrient requirements, status, absorption, metabolism, and function; components of a healthy diet, the major problems relating to nutrition; and scientific bases for nutritional recommendations. This course also examines epidemiologic methodology in relation to nutritional measures and reviews the current knowledge regarding diet and other nutritional indicators as etiologic factors in disease.

**Vector Biology and Vector-borne Diseases**

This course presents principles of the transmission of human pathogens by insects, mites, and ticks. Biological properties of vectors and their interactions with pathogens will be discussed, along with basic components of arthropathogen disease cycles and principles of pathogen-transmission dynamics. Additionally, major groups of arthropod-borne pathogens and vectors will also be discussed. Special topics will include emergent pathogens as well as traditional and modern disease-control strategies.

**Health Policy**

This course introduces students to the policy process and some of the main policy issues prevalent in public health today. Topics include: strategies for conducting a literature synthesis of a policy issue; frameworks for policy analysis; policy-analysis tools; and social, cultural, economic, commercial, and institutional factors that can affect the design and implementation of health policies. By the end of the course, residents should be able to develop policy options, evaluate policy alternatives, and prepare effective policy documents.

**Public Health Toxicology**

This course introduces the basic concepts of toxicology as they apply to the effects of environmental agents (e.g., chemicals, metals) on public health. Topics include: the distribution, cellular penetration, metabolic conversion, and elimination of toxic agents, as well as the application of these concepts to the understanding and prevention of morbidity and mortality resulting from environmental exposure to toxic substances.

**Appendix B: Description of hospital rotations**

Hospital rotations include 10 months of clinical experience in internal medicine (specialized units: infectious diseases, geriatric medicine, cardiology, and endocrinology), pediatrics, emergency medicine, family medicine, and psychiatry or occupational medicine. During hospital rotations, residents will be involved in the clinical care of medical inpatients and outpatients. Specifically, residents shall be involved in the diagnostic and therapeutic management of these patients, from admission to hospital until discharge. Residents will also be assigned to clinical teams. Evaluations are completed every month and at the end of each rotation; this will enable residents to gain confidence and competency in terms of the assessment and overall management of common medical problems. By the end of the rotation, residents should have acquired relevant knowledge, skills, and attitudes and should be capable of demonstrating the core competencies described below.

### Guidelines

- Hospital rotations performed during the first two years can be conducted in any sequence, i.e., any rotation can be taken at any time during the first two years after the introductory course.
- Rotations that include inpatient settings cannot be transferred to the outpatient department (OPD).
- In OPD rotation, candidates should attend a minimum of eight clinics per week.

### Content

During appropriate hospital rotations, candidates should acquire the core knowledge and skills specified by the SBPM for each rotation.

### Learning methods

- Outpatient department
- Case discussions during clinical rounds
- Presentations on continuing professional-development activities
- Chart reviews
- Clinical and other presentations
- Self-directed learning
- Small-group discussions
- Journal clubs
- Teaching other healthcare professionals
- Learning with other health care professionals (dietitians, educators, nurses, etc.)

### Internal Medicine

Duration: two months

Level: R1–R2

### Objectives & Competencies

#### Medical Expert

- Demonstrate a thorough understanding of relevant basic sciences, including pathophysiology, drug therapy, and the microbial basis of diseases relating to the presenting problems and disease conditions listed below
- Perform complete clinical patient assessments, including taking patients' histories and performing relevant physical examinations
- Formulate appropriate provisional diagnoses and alternative diagnoses of key presenting problems and underlying conditions
- Order appropriate and selective investigations and interpret the findings in the context of patients' problems
- Have the ability to attend to all problems presented by patients and be capable of coping with unexpected occurrences

#### Collaborator

- Be aware of the community resources for supporting the patients' care
- Facilitate the coordination of patient care, including collaboration and consultation with other health professionals and caregivers

#### Communicator

- Conduct effective consultations within the context of consultation models

- Document patient findings in the medical records in a legible and timely manner

**Health Advocate**

- Advocate for patients’ and communities’ healthcare needs.

**Scholar**

- Demonstrate evidence-based healthcare in patient management
- Integrate clinical knowledge and effective patient-centered care skills into patient care

**Professional**

- Apply professionalism and ethics when making decisions regarding individual patient care
- Act professionally during the care of patients and their families and in interactions with health care teams and communities.

**Content**

<b>Conditions</b>	Diabetes mellitus, metabolic syndrome and obesity, hypertension, hyperlipidemia, asthma, COPD, bronchiectasis, pulmonary embolism, pneumothorax, pleural effusion, pneumonia, urinary tract infections, gastroenteritis, upper respiratory tract infections, fevers of unknown etiology, malaria, tuberculosis, brucellosis, visceral leishmaniasis, Rift Valley fever, dengue fever, swine flu, coronavirus infection, Ischemic heart diseases, Pleurisy, Pulmonary embolism, GERD, valvular heart disorders, arrhythmias, viral hepatitis, non-viral hepatitis, chronic liver disease and cirrhosis, syphilis, HSV, gonorrhea, chlamydia, hypo- and hyperthyroidism, SLE and similar disorders, inflammatory bowel disease, headache, deep vein thrombosis, stroke, meningitis, infectious arthritis, nephropathies, osteoporosis/Vitamin D deficiencies, thyroid disease, PUD, gastritis
<b>Procedures</b>	Intramuscular, intravenous, subcutaneous, and intradermal injections; peak flow measurement and inhaler techniques; urine dipstick and microscopy; fecal occult blood testing; peripheral intravenous line; adult lumbar puncture; insertion and removal of Foley’s catheters; performing ECGs; naso-gastric tube insertion and lavage

**General Rules**

- Training should preferably be conducted in general medical units as well as in specialized units relevant to preventive medicine (e.g., cardiology, endocrinology, infectious diseases)
- The training duration is four weeks in inpatient settings and four weeks in the outpatient internal medicine department
- The number of monthly on-call shifts should not exceed five
- Residents should not be on call during rotation in the OPD.
- Residents should be released to attend the academic day.

**Emergency Medicine**

Duration: two months

Level: R1–R2

### Objectives & Competencies

#### Medical Expert

- Demonstrate a thorough understanding of relevant basic sciences, including pathophysiology and the microbial basis of diseases relating to the presenting problems and disease conditions listed below
- Perform complete clinical patient assessments, including taking histories and performing relevant physical examinations
- Formulate appropriate provisional diagnoses and alternative diagnoses of key presenting problems and underlying conditions
- Order appropriate and selective investigations and interpret the findings in the context of patient problems
- Manage common medical emergencies in adults such as diabetic ketoacidosis, acute severe asthma attacks, meningitis, and trauma
- Recognize the social, economic, and cultural factors affecting the causation and management of emergencies
- Perform the core procedures defined below

#### Collaborator

- Facilitate the coordination of patient care, including collaboration and consultation with other health professionals and caregivers

#### Communicator

- Conduct effective consultations within the context of consultation models
- Document patient findings in medical records in a legible and timely manner

#### Scholar

- Demonstrate evidence-based healthcare in patient management
- Integrate clinical knowledge and effective patient-centered care skills into patient care

#### Professional

- Apply professionalism and ethics in making decisions regarding individual patient care.
- Act professionally during the care of patients and their families and in interactions with health care teams and communities

**Content**

<b>Conditions</b>	Abdominal/pelvic pain, cough, dyspnea, fever, headache, joint pain/injury, contraception, red eye, skin rash/lesion, neck pain/mass, vaginal bleeding, urinary stone, rectal bleeding, diarrhea/constipation, palpitation, deep vein thrombosis, ante-partum, loss of consciousness, bronchial asthma, violence (wife/child/elderly), stroke hemorrhage, renal colic, urinary tract infections, vaginal discharge, chest pain, angioedema/urticaria, gallbladder stones, meningitis, dysuria, vomiting, hepatitis, hemorrhoids, fractures, seizures, spontaneous vaginal delivery, epistaxis, migraine, hematemesis, hypertension, burns, hemoptysis
<b>Procedures</b>	Intramuscular, intravenous, subcutaneous, and Intra-dermal injections; peripheral intravenous lines for adults and children; lumbar punctures; naso-gastric tube insertion and lavage; performing ECGs; insertion and removal of Foley's catheters; obtaining arterial blood gases; intubation of airways; thoracic tube insertion; aspiration and injections of joints (e.g., shoulder and knee joints); splinting and techniques of immobilizing sprained joints and fractures; closed reduction of joint dislocation; soft-tissue injections (e.g., planter fasciitis); proctoscopy; wound debridement and wound management (closure and dressings); suturing and laceration repair and suture removal; incision and drainage of superficial abscesses; local anesthesia techniques (infiltration, ring block); incision and drainage of perianal hematoma; nasal packing or cauterization to control epistaxis; ear wax aspiration and ear syringing; removal of foreign bodies from the nose and external ear; peak flow measurement and inhaler techniques; urine dipstick and microscopy; fecal occult blood testing

**General Rules**

- Training is conducted in the adult emergency room over two months.
- There should be 16 shifts per month of eight hours each.
- Residents should be released to attend the academic day

**Learning Resources**

- The Washington Manual of Critical Care. MH Kollef, TJ Bedient, W Isakow, CA Witt.
- Current Clinical Strategies: Critical Care Medicine. M Brenner.
- ABC of Emergency Medicine, BMJ

**Pediatrics**

Duration: two months

Level: R1-R2

**Objectives & Competencies**

**Medical Expert**

- Demonstrate a thorough understanding of relevant basic sciences, including pathophysiology and the microbial basis of diseases relating to the presenting problems and disease conditions listed below
- Perform complete clinical patient assessments, including taking histories and performing relevant physical examinations

- Formulate appropriate provisional diagnoses and alternative diagnoses of key presenting problems and underlying conditions
- Order appropriate and selective investigations and interpret findings in the context of patients' problems
- Have the ability to attend to all problems presented by patients and be capable of coping with unexpected occurrences
- Manage common medical emergencies in pediatrics, such as diabetic ketoacidosis, acute severe asthma attack, and meningitis
- Identify the important norms relating to the physical, intellectual, emotional, and social development of children at different ages
- Identify the effect of diseases of children on the family
- Organize, plan, conduct, and evaluate a well-baby clinic (screening, records, and immunizations)
- Effectively make prescriptions for children in terms of dose, route, expected side-effects, and interactions

### **Collaborator**

- Facilitate the coordination of patient care, including collaboration and consultation with other health professionals and caregivers

### **Communicator**

- Conduct effective consultations within the context of consultation models
- Educate and counsel parents on diagnoses, causative factors, prognoses, and prophylaxis
- Communicate with patients and their parents in relation to management plans
- Document patient findings in the medical records in a legible and timely manner
- Have the ability to train mothers in methods of establishing and maintaining breastfeeding

### **Health Advocate**

- Implement health-promotion and disease-prevention policies, as well as interventions, for individual patients and the patient population served
- Identify the determinants of health within communities, including barriers to accessing care and resources
- Identify opportunities for advocacy within the health communities served and respond appropriately

### **Scholar**

- Demonstrate evidence-based healthcare in patient management
- Integrate clinical knowledge and effective patient-centered care skills into patient care

### **Professional**

- Apply professionalism and ethics in making decisions regarding individual patient care
- Act professionally during the care of patients and their families and in interactions with healthcare teams and communities

**Content**

<b>Conditions</b>	Abdominal/pelvic pain, back pain, cough, dyspnea, fever, headache, joint pain, injury, diarrhea, constipation, loss of weight, obesity, well-baby clinic, failure to thrive, milestones, dysuria, breastfeeding, vomiting, vaccinations, infantile colic, enuresis, short stature, jaundice, impetigo, chicken pox, herpes (simplex/zoster), acute bronchitis/bronchiolitis, bronchial asthma, child abuse, gastroesophageal reflux disease, irritable bowel disease, gastroenteritis
<b>Procedures</b>	Intramuscular, intravenous, subcutaneous, and intradermal injections; peripheral intravenous line for children; lumbar puncture; swabs (throat, eye, ear, wounds, vaginal, urethral, etc.); peak flow measurement and inhaler techniques; urine dipstick and microscopy

**General Rules**

- Training should preferably be conducted in general pediatrics units as well as in specialized units relevant to preventive medicine (e.g., infectious-disease, endocrinology, or well-baby clinics)
- The number of monthly on-call shifts should not exceed five.
- Residents should not be on-call during rotation in the OPD.
- Residents should be released to attend the academic day

**Learning resources**

- Nelson Textbook of Pediatrics—RE Behrman, RM Kliegman, AB Jensen
- Essentials of Family Practice—Robert Rakel
- Essential Pediatrics—David Hull
- Community Pediatrics—Leon Polana

**Psychiatry**

**Duration: two months**

**Level: R1–R2**

**Objectives & Competencies**

**Medical Expert**

- Demonstrate a thorough understanding of relevant basic sciences, including path physiology and the microbial bases of diseases relating to the presenting problems and disease conditions listed below
- Perform a complete clinical patient assessment, including taking histories and conducting and interpreting the findings of appropriate mental-status examinations
- Formulate appropriate provisional diagnoses and alternative diagnoses of key presenting problems and underlying conditions
- Order appropriate and selective investigations and interpret the findings in the context of patient problems
- Recognize, assess, manage, and follow-up on psychiatric conditions commonly encountered in family medicine settings, including psychiatric emergencies
- Recognize and appropriately manage patients with psychiatric complaints, and appropriately refer those who require referral
- Identify social, economic, and cultural factors affecting the etiology, course, and management of psychiatric and behavioral problems.
- Perform effective counseling and behavioral modifications appropriate to a primary care setting
- Demonstrate proper prescribing for psychiatric problems



**Collaborator**

- Facilitate the coordination of patient care, including collaboration and consultation with other health professionals and caregivers
- Recognize the role of other professionals (e.g., psychologists, social workers, and agencies involved in such care) and have the ability to utilize their expertise

**Communicator**

- Conduct effective consultations within the context of consultation models
- Document patient findings in the medical records in a legible and timely manner

**Scholar**

- Demonstrate evidence-based health care in regard to patient management
- Integrate clinical knowledge and effective patient-centered care skills into patient care

**Professional**

- Apply professionalism and ethics in making decisions regarding individual patient care.
- Act professionally during the care of patients and their families and in interactions with health care teams and communities

**Content**

<b>Conditions</b>	Depressive disorders, anxiety disorders, somatization, delirium, dementia, alcohol/drug abuse, sleep disorders, psychosis, addiction, personality disorders
<b>Procedures</b>	Mini-mental State Examination, counseling, cognitive behavioral therapy

**General Rules**

- The number of monthly on-call shifts should not exceed five.
- Residents should not be on call during rotation in the OPD.
- Residents should be released to attend HDRCs.

**Learning resources**

- Diagnostic and Statistical Manual of Mental Disorders: Primary Care Version. American Psychiatric Association.
- Primary Care Medicine. Office Evaluation and Management of the Adult Patient, 6th Edition. Allan Goroll et al.
- Textbook of Family Practice. Rakef

**Family medicine rotation**

Duration: two months

Level: R1–R2

### Objectives & Competencies

In caring for patients, integrate current biomedical knowledge with a psychological and social understanding of health and illness. Residents should employ a holistic approach to providing health care services to their patients and their families and communities, incorporating preventive and curative medicine.

#### Medical Expert

- Demonstrate a thorough understanding of relevant basic sciences, including path physiology, drug therapy, and the microbial basis of diseases relating to the key presenting problems and disease conditions listed above
- Perform complete clinical patient assessments, including taking histories and conducting relevant physical examinations
- Formulate appropriate provisional diagnoses and alternative diagnoses of key presenting problems and underlying conditions
- Order appropriate and selective investigations and interpret the findings in the context of patient problems
- Have the ability to address all problems presented by patients and be able to address unexpected occurrences
- Apply knowledge of common problems, wellness, and prevention within the framework of the family medicine approach to patient care (biopsychosocial model).
- Apply a holistic approach to health care, exemplified by the following key components:
  - Biopsychosocial aspects of care
  - Comprehensive care
  - Continuity of care
  - Context of care
  - Coordination and integration of care
- Establish and maintain the clinical knowledge, skills, and attitudes required to meet the needs of the practice and the patient population served

#### Collaborator

- Be aware of the community resources available for supporting the care of patients
- Provide comprehensive and continuing care throughout the life cycle, incorporating appropriate preventive, diagnostic, and therapeutic interventions
- Facilitate the coordination of patient care, including collaborations and consultations with other health professionals and caregivers

#### Communicator

- Conduct effective consultations within the context of consultation models
- Consciously enhance the patient-physician relationship, recognizing the characteristics of therapeutic and caring relationships
- Effectively manage time and resources
- Document patient findings in the medical records in a legible and timely manner

#### Health Advocate

- Advocate for patients' and communities' healthcare needs

#### Scholar

- Demonstrate evidence-based healthcare in patient management
- Integrate clinical knowledge and effective patient-centered care skills into patient care

**Professional**

- Apply professionalism and ethics in making decisions regarding individual patient care
- Act professionally during the care of patients and their families, and in interactions with healthcare teams and communities

**Rotation Structure**

Day	AM		PM
<b>Sunday</b>	Academic Half-day	<b>Break</b>	Research-protected Time
<b>Monday</b>	Family Medicine Clinic		Family Medicine Clinic
<b>Tuesday</b>	Family Medicine Clinic		Self-Directed/Portfolio
<b>Wednesday</b>	Family Medicine Clinic		Family Medicine Clinic
<b>Thursday</b>	Family Medicine Clinic		Family Medicine Clinic

**Rules**

- Residents should attend a minimum of seven clinics per week
- For effective training and discussion, the number of patients in each clinic should not exceed 12
- The minimum number of patients’ clinics attended for the purpose of developing expertise in continuity of care and follow-ups is two/week
- There must be a minimum number of two clinics/week, and these should include full supervision by the clinical teacher/trainer.

**Appendix C: Objectives of field rotations**

**Rotation objectives for non-communicable disease prevention**

In this rotation, residents shall gain experience assessing the health needs of a population, investigating health issues, assessing sociopolitical realities and advocating for the appropriate action to improve health; planning, implementing, and evaluating chronic disease prevention and promotion programs and/or strategies; contributing to the formulation of public policy; collaborating and building relationships; and contributing to the body of knowledge of community medicine as it relates to chronic disease and its prevention and promotion.

CanMEDS Domain	Specific Rotation Objectives	Tasks
<b>Medical Expert</b>	<p>Demonstrate skill in using a variety of methods to assess the health of a population in regard to chronic disease.</p> <p>Demonstrate knowledge of the development and implementation of surveillance and control methods applicable to non-communicable disease, risk factors, and health-related behaviors.</p> <p>Demonstrate the ability to gather information, analyze and describe health issues, and decide on appropriate courses of action.</p> <p>Demonstrate the ability to interpret and apply knowledge in particular situations.</p>	<p>Assess and interpret:</p> <ul style="list-style-type: none"> <li>- existing data sources and indicators for chronic disease;</li> <li>- the distribution and determinants of health in regard to specific populations, as well as their impact on specific chronic diseases in the population</li> <li>- health behavior data, particularly with respect to nutrition, physical activity, the use of tobacco and other substances, risk taking, and participation in recommended screening programs</li> <li>- related social, economic, and environmental factors</li> <li>- epidemiologic data</li> <li>- the potential for change in a given context or population</li> <li>- exhibit knowledge of practice guidelines for the prevention of chronic diseases</li> </ul> <p>Identify:</p> <ul style="list-style-type: none"> <li>- conditions or population characteristics that lend themselves to surveillance, and select and understand appropriate methodologies and factors that influence the potential for change in a given context or population.</li> </ul>

		<p>Gather information, and analyze and describe the health of the population, e.g.:</p> <ul style="list-style-type: none"> <li>- chronic disease rates</li> <li>- biological risk markers</li> <li>- health behaviors</li> <li>- quantitative and qualitative methods for explaining differences in health and health-related behaviors</li> </ul> <p>Apply principles and strategies of:</p> <ul style="list-style-type: none"> <li>- harm reduction</li> <li>- disease prevention</li> <li>- health promotion</li> </ul>
<b>Communicator</b>	<p>Demonstrate skill in communicating assessments and recommendations related to chronic disease issues (including rationale) to community partners, service providers, policy makers, and the public, both orally and in writing.</p>	<p>Develop health-promotion strategies for chronic disease issues</p> <p>Develop communication plans, including media components, for chronic diseases.</p> <p>Respond to enquiries from the media and other stakeholders in relation to chronic disease issues.</p> <p>Demonstrate effective listening skills, and elicit and provide feedback.</p> <p>Demonstrate group-facilitation skills.</p>
<b>Collaborator</b>	<p>Develop effective relationships for gathering and sharing information with physicians and other service providers, community partners, clients, and patients.</p> <p>Demonstrate a collaborative approach to the delivery of services.</p>	<p>Effectively participate in interdisciplinary teams for the purpose of information exchange, conflict resolution, and problem solving.</p> <p>Identify and contact appropriate partners who can contribute to the assessment and resolution of certain chronic disease issues.</p> <p>Employ a variety of means of engaging with stakeholders.</p> <p>Clearly articulate the goals and objectives of a given collaborative process.</p> <p>Identify and describe the roles and expected contributions of members of interdisciplinary teams assembled to address health issues.</p>
<b>Manager</b>	<p>Demonstrate the ability to plan and administrate chronic-disease prevention programs; to assess issues and advocate</p>	<p>Prioritize program alternatives.</p>

	for the appropriate action; and to plan, implement, and evaluate a chronic disease program and/or specific strategies within it.	Design an implementation plan for a chronic disease/health promotion program or initiative. Conduct a program evaluation. Understand and use leadership, negotiation, and conflict-resolution skills. Set agendas, chair meetings, and act as a secretary.
<b>Health Advocate</b>	Apply knowledge of the distribution and determinants of health-status information in order to develop a position on a chronic disease issue. Demonstrate knowledge in, and apply the theories and principles of, health promotion and behavioral sciences.	Identify opportunities for policy changes and/or advocacy. Define advocacy positions and defend them persuasively. Understand and utilize strategies to support policy change. Demonstrate the ability to assist in the development of community capacity.
<b>Scholar</b>	Develop, implement, and monitor personal learning plans. Demonstrate the ability to critically appraise research and literature. Contribute to the development of new knowledge. Facilitate the education of patients and clients, residents, other health professionals, and the community.	Develop personal learning plans. Pose research questions and actively participate in research processes (e.g., epidemiologic research, needs assessment, cost-effectiveness study, qualitative research, and evaluative research). Contribute to new knowledge through the dissemination of findings. Demonstrate the ability to use and interpret statistics. Participate in/lead the teaching of agency staff, medical students, other residents, other health professionals, and members of the community.
<b>Professional</b>	Deliver the highest quality care with integrity, honesty, and compassion. Exhibit appropriate personal and interpersonal professional behaviors. Practice medicine in a manner that is ethically consistent with the obligations of a physician.	Evaluate own skills and abilities, show awareness of the limits of own professional competence, realize when to consult with others. Identify ethical issues (e.g., informed consent, privacy rights, conflict of interest) in the course of practice and apply appropriate strategies to address them. Recognize and respond effectively to the unprofessional behavior of others. Demonstrate an awareness of, and exhibit, appropriate interpersonal behavior in professional relationships.

Find opportunities to evaluate and improve skills in this area.  
 Demonstrate professional behavior, including timely attendance at work and at meetings and in regard to responses during on-call periods.

**Communicable disease rotation**

In this rotation, residents will gain experience assessing the CD-related health needs of a population; investigating-CD health issues; assessing sociopolitical realities and advocating for appropriate actions for improving health; planning, implementing and evaluating CD/immunization-related health programs and/or strategies; and understanding the application of legal, technical, economic, and health-based educational approaches to CD-related issues.

CanMEDS Domain	Specific Rotation Objectives	Tasks
<b>Medical Expert</b>	Demonstrate skill in using a variety of methods to assess the health of a population in relation to CD.	Assess and interpret: <ul style="list-style-type: none"> <li>- existing data sources and indicators for CD and immunization</li> <li>- health-behavior data</li> <li>- related social, economic, and environmental factors</li> <li>- epidemiologic data</li> <li>-CD/infection control guidelines</li> </ul> Gather information, and analyze and describe the health of the population, for example: <ul style="list-style-type: none"> <li>- communicable disease rates</li> <li>- biological risk markers</li> <li>- health behaviors (including immunization practices, sexual practices, risk taking, environmental monitoring (e.g., water and food))</li> <li>- Infection-control practices and other practices that impact on disease transmission.</li> </ul> Use computers in epidemiologic investigations and data analysis Investigate and manage communicable disease outbreaks. Develop, implement, and evaluate CD surveillance and control programs. Develop, implement, and evaluate immunization programs
<b>Communicator</b>	Demonstrate skill in communicating assessments and recommendations related to CD issues (including rationale) to	Develop communication plans, including media components, for CD issues. Respond to media enquiries concerning CD issues.

	community partners, service providers, policymakers, and the public, both orally and in writing. Demonstrate knowledge of the principles of risk communication.	Demonstrate effective listening skills, and elicit and provide feedback. Demonstrate group-facilitation skills. Respond to enquiries from other stakeholders (e.g., school boards, teachers, and family members)
<b>Collaborator</b>	Develop effective relationships for the gathering and sharing of information with physicians and other service providers, community partners, clients, and patients Demonstrate a collaborative approach to the delivery of services.	Effectively participate in interdisciplinary teams for the purpose of information exchange, conflict resolution, and problem solving. Identify and contact appropriate partners who can contribute to the assessment and resolution of a CD issue. Employ a variety of means of engaging with stakeholders. Clearly articulate the goals and objectives of given collaborative processes. Identify and describe the roles and expected contributions of members of interdisciplinary teams assembled to address health issues.
<b>Manager</b>	Demonstrate an ability to conduct planning and administration as part of immunization and CD-, and infection-control programs	Conduct needs assessments. Prioritize program alternatives. Design implementation plans for CD programs or initiatives. Conduct program evaluations. Develop organizational policies and procedures. Set agendas, chair meetings, and act as a secretary.
<b>Health Advocate</b>	Apply knowledge of the distribution and determinants of health-status information in order to develop a position on a CD/Immunization/Environmental health issue.	Demonstrate policy analysis, development, and implementation skills. Identify opportunities for policy change and/or advocacy. Define an advocacy position and defend it persuasively. Demonstrate the ability to assist in the development of community capacity.
<b>Scholar</b>	Develop, implement, and monitor a personal continuing-education strategy. Critically appraise sources of information relevant to the practice of preventive medicine. Facilitate the learning of patients and clients, residents, and other health professionals in the community.	Pose research questions and actively participate in research processes (e.g., epidemiologic research and documenting outbreak investigations). Contribute to the development of new knowledge through the dissemination of findings. Develop personal learning plans. Demonstrate the ability to critically appraise research and literature.



	Contribute to the development of new knowledge.	Demonstrate the ability to use and interpret statistics. Conduct field investigations or surveys on CD issues. Participate in/lead the teaching of agency staff, medical students, other residents, other health professionals, and members of the community.
<b>Professional</b>	Deliver the highest quality care with integrity, honesty and compassion. Exhibit appropriate personal and interpersonal professional behaviors. Practice medicine in a manner that is ethically consistent with the obligations of a physician.	Evaluate own skills and abilities, be aware of own limits of professional competence, realize when to consult with others. Identify ethical issues (e.g., informed consent, privacy rights, and conflict of interest) during practice and apply appropriate strategy to address them. Recognize and respond effectively to unprofessional behaviors in others. Exhibit appropriate interpersonal behaviors in professional relationships.  Demonstrate professional behavior, including timely attendance at work and at meetings, and in regard to responses during on-call periods.

**Environmental health rotation**

This rotation is designed to allow residents to gain experience in assessing the environmental health needs of a population, investigating environmental health issues, assessing sociopolitical realities, and advocating the appropriate actions for improving health; planning, implementing and evaluating environmental health programs and/or strategies; contributing to the formulation of public policy; collaborating and building partnerships; and contributing to the body of knowledge of community medicine and how it relates to the domain of environmental health.

CanMEDS Domain	Specific Rotation Objectives	Tasks
Medical Expert	Demonstrate skill in using a variety of methods, in a number of settings, to assess the health of a population in regard to environmental issues. Demonstrate the ability to gather information on, and analyze and describe, the health of a population and its relation to the environmental health issue at hand. Demonstrate the ability to interpret epidemiologic studies	Access and interpret existing environmental health data sources and indicators, demographics, social and economic factors, epidemiologic data, risk assessments, and hazard analyses. Conduct risk assessments of environmental hazards. Apply principles and strategies of harm reduction and health promotion to a variety of environmental and occupational health risks. Contribute to the development of a community emergency-response plan,

	<p>and apply knowledge in a particular situation.                  Demonstrate skill in investigating and managing environmental health hazards.                  Demonstrate knowledge in the development and implementation of surveillance and control methods.                  Demonstrate knowledge of the principles of toxicology.                  Demonstrate knowledge of the characteristics and methods for monitoring water, soil, food, and air.</p>	<p>including measures to prevent and manage biological, chemical, and radiological agents.                  Use appropriate legislation in response to environmental issues.                  Undertake cluster investigations.</p>
Communicator	<p>Demonstrate skill in communicating assessments and recommendations related to environmental health issues (including rationale) to community partners, service providers, policy makers, and the public, both orally and in writing.                  Demonstrate knowledge of the principles of risk communication.                  Demonstrate effective listening skills, and elicit and provide feedback.</p>	<p>Develop communication plans, including media components, for environmental health issues                  Respond to media enquiries concerning environmental issues.</p>
Collaborator	<p>Demonstrate a collaborative approach to the delivery of services.                  Demonstrate team-building activities and facilitation skills.</p>	<p>Develop effective relationships for gathering and sharing information with physicians and other service providers, community partners, clients, and patients.                  Effectively participate in interdisciplinary teams for the purpose of information exchange, conflict resolution, and problem solving.                  Identify and contact appropriate partners who can contribute to the assessment and resolution of environmental health issues.                  Employ a variety of means of engaging with stakeholders.                  Clearly articulate the goals and objectives of a given collaborative process.                  Identify and describe the role and expected contribution of the members of an interdisciplinary team assembled to address an environmental health issue.</p>

<p>Manager</p>	<p>Demonstrate ability in environmental-program-planning and administration; the ability to assess issues and advocate for the appropriate action; the ability to plan, implement, and evaluate environmental health programs and/or strategies; the ability to contribute to the formulation of environmental health policy; and the ability to collaborate and build relationships.</p>	<p>Conduct needs assessments.                      Prioritize program alternatives.                      Undertake the design, implementation, and evaluation of environmental health programs.                      Use leadership, negotiation, and conflict-resolution skills.                      Develop organizational policies and procedures.                      Establish agendas, chair meetings, and act as a secretary.</p>
<p>Health Advocate</p>	<p>Demonstrate policy development and implementation.                      Demonstrate the ability to assist in the development of community capacity.</p>	<p>Apply knowledge of the distribution and determinants of health-status information in order to develop a position on an environmental issue.                      Identify opportunities for policy change and/or advocacy.                      Define an advocacy position and defend it persuasively.                      Utilize strategies for supporting policy change.</p>
<p>Scholar</p>	<p>Demonstrate the ability to critically appraise research literature.                      Demonstrate the ability to use and interpret statistics.</p>	<p>Pose research questions and actively participate in research processes (e.g., epidemiologic research, needs assessments, cost-effectiveness studies, qualitative research, and evaluative research.)                      Contribute to the development of new knowledge through the dissemination of findings.                      Develop personal learning plans.                      Conduct field investigations or surveys.                      Participate in/lead the teaching of agency staff, medical students, other residents, other health professionals, and members of the community.</p>
<p>Professional</p>	<p>Demonstrate awareness of, and exhibit appropriate interpersonal behaviors in, professional relationships.</p>	<p>Evaluate own skills and abilities, be aware of own limits of professional competence, realize when to consult with others.                      Identify ethical issues (e.g., informed consent, privacy rights, and conflicts of interest) that may arise in the course of practice and apply appropriate strategies for addressing them.                      Recognize and respond effectively to unprofessional behaviors in others.</p>

**Appendix D: Field rotation assessment form**

RESIDENT ASSESSMENT OF FIELD PLACEMENT	
If possible, please complete electronically. If needed, the space provided can be increased in order to allow you to fully answer the questions.	
<b>**Please e-mail or give a hard copy to the Program Director and/or the Program Assistant**</b>	
<b>1</b>	<b>Name of Resident:</b> _____
<b>2</b>	<b>Field Placement Site:</b> _____
<b>3</b>	<b>Dates of Placement:</b> _____
<b>4</b>	<b>Principle Supervisor:</b> _____
	<b>a. Other individual acting in a supervisory role:</b> _____
<b>5</b>	<b>Rotation</b>
a)	Were specific goals set for this rotation? (please attach a copy).
b)	Was there a mid-rotation evaluation? Yes/No If no, why not?
c)	Were goals achieved?
d)	Did any factors limit the achievement of goals?
e)	Were additional goals achieved? Please list them.
f)	Please provide an assessment of the:
	a. Quality of teaching/educational experience of the rotation
	b. The availability/accessibility of the supervisor and other relevant personnel
	c. On call periods and projects requested (support and provide information)
	d. The realism of the workload and expectations
	e. The sufficiency of variety/exposure to a wide range of issues

	f. Feasibility of completing tasks during rotation (state if you were expected to carry over tasks to the next rotation)
	g. Instruction regarding publishing/presenting work
<b>6</b>	<b><u>Please list three strengths of this rotation</u></b>
	1)
	2)
	3)
<b>7</b>	<b><u>Please give three suggestions concerning how the rotation could be improved</u></b>
	1)
	2)
	3)
<b>8</b>	<b><u>Additional comments:</u></b>

## Appendix E: Academic Half-day

### Structure

Item	Time (1): 9:00 – 10:20	Time (2): 10:40 – 12:00
Week 1	PROMED outbreak Public health lab	Critical appraisal (therapy)
Week 2	Health program Health organization	Critical appraisal (diagnosis)
Week 3	Well-known surveys Well-known RCTs	Critical appraisal (prognosis)
Week 4	Hot topics Public health issues	Critical appraisal (SR)

- PROMED outbreak: The PROMED mailing list monitors disease outbreaks around the world. Residents are advised to subscribe to PROMED. In this session, a resident will select a recent outbreak reported in PROMED and prepare a presentation on the topic. The presentation should cover the following items:
  - Descriptive epidemiology
  - The clinical picture
  - Diagnosis and management
  - Risk of the importation of the disease to Saudi Arabia
  - Prevention and control
  - Communication: write a press release, health-education message, etc.
  - Elevator statement (a very short summary of the outbreak).
- Public health lab:
  - Public Health Preparedness Capabilities
  - Lab tests that are of significance to public health:
  - Related topics:
    - Topic examples: biosafety levels,
- Health program (e.g., NCD control program):
  - Background
  - Target goals
  - Theoretical framework
  - Interventions
  - Evaluation strategies
  - Applicability in SA
- Health organization
  - A national or international organization working in or related to health
  - Discuss the organization's structure, governance, funding source, goals, activities, important publications and/or programs, etc.
  - Examples: WHO, UNICEF, EPA, etc.
- Well-known surveys/RCTs:
  - Overview
  - Variables
  - Sampling: frame, strategy, special features, etc.
  - Sample size: justification, strata, weighting, etc.
  - Measurements: instruments, validation, psychometric properties with interpretation
  - Quality measures
  - Results of the last survey: prevalence, effect size, interpretation

- Examples: BRFSS, NHANES, NHIS, DHS, Whitehall, Women’s Health Study, STEPS, Framingham,
- Hot topics:
  - A topic that has recently been highlighted by the media (nationally or internationally)
  - Prepare an “elevator statement” for the topic
- Preventive Medicine/Public health issues:
  - Issues that are of importance in preventive medicine
  - Environmental example: Maximum contaminant levels (what they are, how they are set, the agencies involved, levels reported in Saudi Arabia, etc.)
- Critical appraisal:
  - Prepare a timetable so that by the end of the year, each candidate has critically appraised one article in each category (therapy, diagnosis, prognosis, systematic review).

**Example of topics**

Category	Titles of topics
Hot topics	Processed meat and carcinogenesis Plastic food containers and cancer Mobile phones and health risks (cancer, burn injuries, car accidents) Fad diets
Hot articles	AJPM issues relating to behavioral counseling Cholesterol and cardiovascular diseases American Statistical Association position paper on the use of p-values Any new recommendations by USPSTF
Well-known surveys/RCTs	Behavioral Risk Factor Surveillance System (BRFSS)
	National Health and Nutrition Examination Survey (NHANES)
	National Health Interview Survey (NHIS)
	Demographic and Health Surveys (DHS)
	Whitehall Study (I and II)
	Women's Health Initiative
	STEPS surveys
	Framingham Heart Study
	Global Adult Tobacco Survey, Global Youth Tobacco Survey
European Prospective Investigation into Cancer and Nutrition (EPIC)	
Health program	Roll Back Malaria
	Stop TB
	The Multi-Country HIV/AIDS Program for Africa (MAP)
	The Global Fund to Fight AIDS, Tuberculosis and Malaria (The Global Fund or GFATM)
	Global Polio Eradication Initiative
	Tips From Former Smokers (Tips) Campaign (not a program but worth discussion)
	The Framework Convention on Tobacco Control (FCTC)
Health organization	WHO









## Appendix F: Promotion requirements

Competency	R1	R2	R3	R4
<b>Expert</b>	<ul style="list-style-type: none"> <li>BLS certificate</li> </ul>	<ul style="list-style-type: none"> <li>WHO Vaccine-safety online course</li> </ul>	<ul style="list-style-type: none"> <li>Infection-control report</li> <li>Surveillance report</li> </ul>	<ul style="list-style-type: none"> <li>BLS certificate</li> <li>Surveillance evaluation</li> <li>Four outbreak or disease cluster investigations</li> </ul>
<b>Expert (Clinical)</b>	<ul style="list-style-type: none"> <li>Log book (clinical)</li> <li>Two Mini-CEX</li> </ul>	<ul style="list-style-type: none"> <li>Log book (clinical)</li> <li>Two Mini-CEX</li> </ul>	<ul style="list-style-type: none"> <li>Log book (clinical)</li> <li>Two Mini-CEX</li> </ul>	<ul style="list-style-type: none"> <li>Log book (clinical)</li> <li>Two Mini-CEX</li> </ul>
<b>Scholar</b>	<ul style="list-style-type: none"> <li>Research proposal (Original)</li> <li>Two CAPs*</li> </ul>	<ul style="list-style-type: none"> <li>Manuscript submitted for publication (Review)</li> <li>Three CAPs</li> </ul>	<ul style="list-style-type: none"> <li>Two CAPs</li> <li>One CAT</li> <li>One peer-review of manuscript/article</li> </ul>	<ul style="list-style-type: none"> <li>Manuscript submitted for publication (original)</li> <li>Two CAPs</li> <li>One CAT</li> <li>One peer-review of manuscript/article</li> </ul>
<b>Communicator</b>	<ul style="list-style-type: none"> <li>Two seminars (evaluated)</li> <li>Research poster</li> <li>Health-literacy online course</li> </ul>	<ul style="list-style-type: none"> <li>Three seminars (evaluated)</li> </ul>	<ul style="list-style-type: none"> <li>Three seminars (evaluated)</li> <li>Communication plan (including a media brief)</li> </ul>	<ul style="list-style-type: none"> <li>Three seminars (evaluated)</li> <li>Scientific presentation</li> <li>Health-education project</li> </ul>
<b>Advocate</b>		<ul style="list-style-type: none"> <li>White paper assignment</li> </ul>	<ul style="list-style-type: none"> <li>Community profile/Health-related needs assessment</li> </ul>	<ul style="list-style-type: none"> <li>Policy analysis document</li> </ul>
<b>Leader</b>		<ul style="list-style-type: none"> <li>ERHMS online course</li> <li>CERC Online Training</li> </ul>	<ul style="list-style-type: none"> <li>Program plan/Evaluation report</li> </ul>	
<b>Professional</b>	<ul style="list-style-type: none"> <li>NCBE certificate</li> </ul>	<ul style="list-style-type: none"> <li>Research-protocol ethical</li> </ul>		

	and registration	review document		
<b>Rotation evaluations</b>	• ITERs	• ITERs	• ITERs	• ITERs
<b>Trainee selected</b>	Residents can select products for inclusion in their portfolio that indicate their achievement of program competencies			

\*CAP: Critically Appraised Paper; CAT: Critically Appraised Topic; NCBE: National Committee of Bioethics; ERHMS: Emergency Responder Health Monitoring and Surveillance; CERC: Crisis and Emergency Risk Communication

**Explanation of items**

**Outbreak or disease cluster investigation:**

- This requires a submission of four outbreak or disease investigation reports by the end of R4.
- Each resident will act as the lead investigator on at least two disease outbreaks (out of the four) during their residency training.
- A field survey on an epidemiologic issue can substitute for one investigation. These investigations will involve direct contact for the taking of epidemiologic histories and making other measurements in the community.
- Preliminary findings and recommendations for control will be due within five days of returning from the field. The resident shall prepare a final report describing the purpose, methods, findings, and recommendations for control.
- The report should be evaluated by a trainer. An evaluation form should be attached.

**Log book (clinical):**

- The log book should be used to document activities relating to clinical practice (clinical rotations and clinical preventive services clinics)
- Residents will document the diagnosis and management of clinical cases they encounter during their practice.

**Mini-CEX:**

- Residents are required to document the event using the SCFHS forms signed by the assessor and the supervisor
- The aim of this exercise is to assess the clinical practice of the residents in their place of work.
- A minimum of TWO Mini-CEX forms are required per year.

**Manuscript submitted for publication (review):**

- The aim of this exercise is to allow residents to experience the process of reviewing literature and summarizing, writing, and submitting for publications so that they are exposed to all skills involved in the process.
- The manuscript can be a narrative review, mini-review, or a systematic review

**CAPs (critically-appraised papers):**

- Residents should select a scientific paper and conduct a critical appraisal using one of the available critical appraisal forms
- Residents are expected to cover all types of articles during their residency training (therapy, diagnosis, prognosis, etiology, and systematic review).
- CAPs submitted in the same year should not be of the same article type.

**Seminars (evaluated):**

- This exercise concerns a seminar presented by residents during the academic half-day
- The seminar should be evaluated by faculty staff using a signed form

**Research poster**

- This exercise aims to train residents on methods of preparing a scientific poster
- Residents will submit a finalized poster accompanied by an evaluation form signed by the supervisor
- The posters should be submitted to a conference/symposium (evidence to be attached)

**Community profile/Health-related needs assessment:**

- Residents will select a community group and conduct health-related needs assessments or prepare a community profile for the selected group
- Community groups can be any “community,” e.g., geographical (city or a district), special group (special needs, elderly), etc.
- The assessment should be submitted as a report based on one of the international frameworks
- The report must be accompanied by a supervisor evaluation

**NCBE (National Committee of Bioethics) certificate and registration:**

- Registration as a researcher with the NCBE is a requirement for any researcher in KSA

**Surveillance report:**

- This exercise concerns a summary report describing the epidemiology of a disease/phenomenon status in the community based on surveillance or registry data
- This should be submitted as a report

**Research proposal (original):**

- This exercise concerns assessing the outcome of the course “Health Research Proposal Writing” delivered in R1.

**Health education project**

- Residents will implement/participate in a health education program/activity
- Participation could involve planning, budget development, seeking funds, team building, or team leading, as well as the design, production, or pretesting of educational materials
- Participation should include field work by the resident
- The project should be submitted as a report, giving details and reflecting on activities in which the resident participated

**White-paper assignment**

- Residents will select a topic of public interest and write a summary of evidence on the topic

**Research protocol ethical review document**

- Residents will conduct an ethical review for a research protocol
- Research protocols should be provided by the training center

**Surveillance evaluation:**

- Residents will select ONE aspect in ONE of the surveillance systems and conduct an evaluation.
- Residents will review existing data, identify operational and technical difficulties (such as lack of a standardized diagnosis), develop solutions to those difficulties, and assess the impact of those changes.
- The evaluation should be submitted as a report.

**Infection-control report**

- During their field attachment, residents will select a hospital outbreak or an infection-control issue and conduct an investigation
- Residents will submit a report that includes a reflection on the work they performed.
- Report evaluations by supervisors should be attached.

**Manuscript submitted for publication (original):**

- The manuscript is used to assess the outcome of the course

**CAT (critically-appraised topics)**

- Residents will select a public health question and summarize the evidence available in order to answer that question

- Examples can be found here: <https://cats.uthscsa.edu/search.php> (select “Public Health,” under “Browse by Specialty”)

**Peer-review of a manuscript/article**

- The goal of this exercise is to train residents on the peer-review process
- Residents can conduct a peer-review of other residents’ manuscripts

**Communication plan (including a media brief)**

- This involves preparing a communication plan for a health issue, including preparing a brief suitable for distribution to mass media
- One of the international frameworks should be employed
- Suggested textbook (contains framework and templates):
  - Nelson, D. E. (2002). Communicating public health information effectively: A guide for practitioners. Washington, D.C: American Public Health Association.

**Program plan/Evaluation report**

- The program plan can be for a non-existing health program
- The program evaluation should be for an existing health program for which residents have access to relevant documents
- The program plan/evaluation should be based on one of the known frameworks.
- The plan/evaluation should be submitted as a report and accompanied by a supervisor evaluation.

**Scientific presentation**

- This exercise is designed to train residents on how to prepare a scientific presentation suitable for conferences
- Residents will submit a finalized presentation accompanied by an evaluation form signed by supervisor

**Policy-analysis document**

- Residents will select a health policy and conduct a policy analysis
- The analysis should be submitted as a report accompanied by a supervisor evaluation

**Websites for online courses (to be completed as a part of the promotion requirements):**

- National Committee of Bioethics: <http://bioethics.kacst.edu.sa/>
- WHO Vaccine safety online course: <http://vaccine-safety-training.org>
- Emergency Responder Health Monitoring and Surveillance online course: <http://emergency.cdc.gov/training/erhmscourse/index.asp>
- CERC Online Training: <http://emergency.cdc.gov/cerc/training/basic/index.asp>
- Health Literacy online course: [http://www2a.cdc.gov/TCEOnline/registration/detailpage.asp?res\\_id=4125](http://www2a.cdc.gov/TCEOnline/registration/detailpage.asp?res_id=4125)