الهيئة السعودية للتخصصات الصحية
Saudi Commission for Health Specialties

CLINICIAN INVESTIGATOR


بسم الله الرحمن الرحيم

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II. COPYRIGHT STATEMENTS

The Central Training Committee and the Specialty Scientific Council should both approve any changes or amendments to this document. Unless a different implementation date is mentioned, this document shall be considered effective from the date the updated electronic version of this curriculum was published on the Saudi Commission's website.

We would also like to acknowledge that the CanMEDS framework is a copyright of the Royal College of Physicians and Surgeons of Canada, and many of the description's competencies have been acquired from their resources (Please refer to: CanMEDS 2015 physician competency framework; Frank JR, Snell L, Sherbino J, editors. CanMEDS 2015 Physician Competency Framework. Ottawa: Royal College of Physicians and Surgeons of Canada; 2015.).

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Through their active participation, all members of the Clinician Investigator Program's Establishment Committee have contributed to the development of the CIP content.

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V. INTRODUCTION

The Saudi Commission for Health Specialties (SCFHS) welcomes clinicians to the exciting world of its Clinician Investigator Program (CIP). This groundbreaking program is designed to align with the national-level strategic plan and Vision 2030 of Saudi Arabia, highlighting the Kingdom's commitment to advancing healthcare and research for a vibrant society.

1. Overview

The primary objective of the CIP is to prepare clinicians to become primary investigators and leaders in cutting-edge basic, translational, and clinical research upon completion of the program. By equipping clinicians with the necessary knowledge, skills, and attitudes, the CIP aims to foster a new generation of healthcare professionals, who will promote national and multinational research, drive innovation, and contribute to the advancement and vision of healthcare in Saudi Arabia.

Aligned with the Vision 2030 goals, the establishment of the CIP demonstrates Saudi Arabia's dedication to transforming its healthcare system and becoming a global leader in advancing research and health. By investing in the development of highly skilled clinician investigators, the SCFHS aims to enhance the quality of patient care, promote evidence- and value-based practice, and strengthen the overall healthcare system for a vibrant society.

Through this program, clinicians will gain expertise in conducting rigorous basic, translational, and clinical research; utilizing cutting-edge methodologies; and effectively analyzing data and real-world evidence. The training journey is designed to lay the foundation for research essentials, ethics, and administration and leadership skills and incorporate them while learning and conducting basic, translational, and clinical research. The training is tailored to facilitate critical evaluation of the scientific literature, design and implementation of research studies, and interpretation of research findings. Essential skills will also be acquired through grant writing, bioethics, research administration and coordination, and effective communication of research findings to both scientific and nonscientific audiences. The program is conducted under the supervision of SCFHS-certified research mentors and accredited training centers.

The CIP creates a supportive environment that fosters collaboration, mentorship, and interdisciplinary interactions. It provides opportunities to work alongside renowned researchers and experts in their respective fields, enabling clinicians to develop a robust network and engage in collaborative research initiatives.

The CIP under the SCFHS is a significant initiative that supports Vision 2030 and the national strategic plan. By preparing clinicians to lead state-of-the-art clinical research, this program contributes to the advancement of healthcare in Saudi Arabia and positions the nation as a global leader in health research and innovation.

2. Context of Practice

Biomedical research involves the study of human health and disease and is an essential component in developing new drugs, treatments, and preventive measures. Biomedical research improves our understanding of existing diseases and aids in the development of innovative diagnostics and therapeutics. With cumulative biomedical research, certain diseases have been eliminated, while groundbreaking and lifesaving discoveries have been made in the treatment of others1. Such discoveries have led to significant improvements in quality of life and public health worldwide and had a tremendous impact on the natural history of many diseases1-3.

Clinical research in Saudi Arabia is growing rapidly. The Saudi Food and Drug Authority (SFDA) is the regulatory body for clinical trials in the country and has been working to streamline the approval process for drugs and medical devices, making it more attractive for industry partners, pharmaceutical companies, and researchers to conduct clinical trials in Saudi Arabia. In 2021, the SFDA received 477 drug clinical trial applications, compared to 18 applications in 2010[4]. The most studied therapeutic areas were oncology, endocrinology/metabolism, cardiology, and infectious diseases.

In line with the Saudi Vision 2030, the Saudi government is investing heavily in clinical research. The top research priorities in Saudi Arabia are health and wellness, sustainable environment and supply of essential needs, energy and industrial leadership, and economies of the future. These align with the national plan to diversify the Saudi economy and reduce its dependence on oil. In 2020, the government launched the National Clinical Trials Program, which aims to increase the number of clinical trials conducted in Saudi Arabia to 100 per million people by 2025.

Rigorous and sound biomedical research requires specific knowledge and skill sets in research methodology, necessitating specific training. Clinician-scientists are health professionals clinically trained who are in a wide range of disciplines, including medicine, pharmacy, nursing, allied health, and psychology, and who devote a substantial portion of their careers to research and innovation2,5. Clinician-scientists, or investigators, are “vital forces in transforming clinical observations into testable research hypotheses and translating research findings into medical advances.”6

The government's dedication to bolstering clinical research makes structured and synchronized educational initiatives in research methodology, along with focused clinician training, imperative for fulfilling the anticipated demand for superior-quality research. The SCFHS is participating in this march to increase the population of competent Saudi researchers by preparing the next generation of clinician investigators. One initiative is the exceptional CIP, which is an integral component of healthcare system delivery. By preparing clinicians for research careers, this program ensures that our future providers will be able to contribute to scientific progress that improves the health and clinical outcomes of our population.

3. Goals of the Clinician Investigator Program

The CIP prepares healthcare practitioners to become highly skilled clinician-investigators. It combines their clinical training and practice with research training, aiming to increase their research knowledge and skills so they can fill a niche as specialist researchers in their own fields. The program offers integrated, rigorous, and structured training in core research competencies to assist in the career development of competent researchers.

This program offers a unique opportunity for SCFHS-registered healthcare providers to develop the skills and knowledge required to become successful healthcare investigators.

The CIP aims to equip healthcare practitioners with the necessary skills, knowledge, and attitudes to become competent investigators. The specific goals of the CIP include the following:

1. Protocol Development: Master the development of research protocols that address relevant clinical questions, adhere to ethical standards, and are methodologically rigorous. This includes defining research objectives, designing study procedures, and outlining statistical analysis plans.

2. Research Methodology Skills: Provide training in research design, data collection, statistical analysis, and interpretation of results. This includes understanding various study designs and data management and statistical methods relevant to clinical research.
3. Data Management and Analysis: Train clinicians in effective data management practices, including data collection, storage, and analysis. This may involve instructions in the use of statistical software and the interpretation of results.
4. Grant Writing: Provide skills and knowledge for securing research funding by training healthcare practitioners to write successful grant applications, understand funding mechanisms, and navigate the grant submission process.
5. Ethical Conduct of Research: Instill a strong understanding of research ethics and responsible research conduct. Clinician-investigators should be well-versed in the ethical principles and guidelines governing human and animal research.
6. Practical Research Application: Ensure healthcare practitioners can apply learned goals by expecting them to complete a research project during their participation in the program.
7. Dissemination of Results: Teach healthcare professionals how to communicate research findings effectively through presentations, publications, and other dissemination methods. This includes understanding different audiences and tailoring communication strategies accordingly.
8. Integration of Research into Clinical Practice: Encourage the integration of research findings into clinical practice. Clinician-investigators should understand how research evidence can be applied to improve patient care and outcomes.

4. Goals and Responsibilities of Curriculum Implementation

Ultimately, this curriculum seeks to guide participants to become *competent* investigators in their respective specialties. Achieving this goal requires significant effort and coordination from all stakeholders. As *"adult learners,"* participants must be proactive, fully engaged, and exhibit a careful understanding of learning objectives, the ability to engage in self-directed learning, problem-solving skills, an eagerness to apply learning through reflective practice from feedback and formative assessment, self-awareness,

and a willingness to ask for support when needed. The program director, along with the research mentors, play vital roles in ensuring this curriculum is successfully implemented. Participants should share the responsibility for curriculum implementation.

The CIP Training Program Committee (TPC) and Institutional Training Committee (ITC) will guarantee that the content of this curriculum is constantly updated to match the highest standards in postgraduate education for each participant's specialty.

VI. ABBREVIATIONS USED IN THIS DOCUMENT

Abbreviation	Definition
CIP	Clinician Investigator Program
IRB	Institutional Review Board
AAHRPP	Association for the Accreditation of Human Research Protection Program
ITC	Institutional Training Committee
SCFHS	Saudi Commission for Health Specialties
SFDA	Saudi Food and Drug Authority
TPC	Training Program Committee
CBE	Competency-based education
CanMEDS	CanMEDS Framework by the Royal College of Physicians and Surgeons of Canada
ACGME	Accreditation Council for Graduate Medical Education
RCPSC	Royal College of Physician and Surgeons of Canada
UK	United Kingdom
Mini-PAT	Mini-Peer Assessment Tool
FITER	Final In-Training Evaluation Report

Abbreviation	Definition
AITER	Annual In-Training Evaluation Report
ITER	In-Training Evaluation Report
MCQs	Multiple Choice Questions

VII. PROGRAM LEARNING AND COMPETENCIES

1. Introduction to Learning Outcomes and Competency-based Education

Training should be guided by well-defined "*learning objectives*" driven by targeted "*learning outcomes*" of a particular program to serve specific needs for each participant's specialty. Learning outcomes aim to reflect the professional "competencies" and tasks with which trainees hope to be "entrusted" after graduation. This will ensure that graduates meet the expected demands of the healthcare system and patient care in relation to their specialty. *Competency-based education* (CBE) is an approach to "adult learning" that is based on achieving *pre-defined*, *fine-grained, and well-paced* learning objectives driven by complex professional competencies.

Professional competencies related to healthcare are usually complex and contain a combination of multiple learning domains (knowledge, skills, and attitudes). The CBE approach is expected to alter them. Several CBE models have been developed for postgraduate education in healthcare (e.g., CanMEDS by the Royal College of Physicians and Surgeons of Canada (RCPSC), the CBME-Competency model by the Accreditation Council for Graduate Medical Education (ACGME), tomorrow's doctor in the UK, and multiple others). The concepts below are to enhance the implementation of CBE in this curriculum.

Competency: Competency is a cognitive construct that assesses one's potential to perform efficiently in a given situation based on professional standards. Professional roles (e.g., clinician-investigator experts, health advocates, communicators, leaders, scholars, collaborators, and professionals) are used to define competency roles to make them manageable for learning and assessment.

Milestones: Milestones are the stages along the developmental journey throughout the competency continuum. Trainees will be assisted throughout their learning journey at the junior and senior levels to transform from novice or supervised practitioners into master or unsupervised practitioners. This should

not undermine the role of supervisory and regulatory bodies in independent practitioners' malpractice. Milestones are expected to enhance the learning process by pacing training and assessment to match the developmental level of the trainees (junior versus senior).

Learning Domains: Whenever possible, efforts are directed to annotate learning outcomes with the corresponding domain (K = Knowledge, S = Skills, and A = Attitudes). More than one annotation may exist for a given learning outcome.

Content-area Categorization: Learning outcomes should be categorized into broad content areas related to professional practice. Examples of these categories include diagnostic versus therapeutic, simple versus complex, and acute versus chronic.

Trainees are expected to progress from a novice to a mastery level in a set of professional competencies. SCFHS endorses the CanMEDS to articulate professional competencies. This curriculum applies the principles of competency-based medical education. CanMEDS/ACGME/OTHER represents a globally accepted framework outlining competency roles. The CanMEDS 2015/ACGME 2018 Framework" has been adopted in this section.

2. Clinician Investigator Program Competencies

The table below displays the CanMEDS roles and their corresponding definitions, as well as the Key and Enabling Competencies.

CanMEDS Role	Definition	Key and Enabling Competencies
Clinician Investigator Expert	The integration of all CanMEDS roles, applying healthcare knowledge, clinical and research skills, and professional values in their provision of high-quality clinical care and health communications	**Clinician Investigators are able to:** 1. Practice healthcare within their defined scope of practice and expertise 1.1. Demonstrate a commitment to high-quality care of their patients and high-quality health research. 1.2. Integrate the CanMEDS Intrinsic Roles into their practice. 1.3. Apply knowledge relevant to their discipline and research in Saudi Arabia 1.3.1. Legislation, regulations, and policies related to the conduct of research. 1.3.2. Research ethics frameworks, requirements, and processes for research ethics approval 1.3.3. Legislation, regulations, and policies relating to data collection, retention, and disclosure. 1.3.4. Research funding opportunities, requirements, and processes for application 1.3.5. Funding support services should be available. 1.4. Perform scholarly work. 1.5. Carry out professional duties in the face of multiple competing demands. 1.5.1. Balance the demands of patient care responsibilities with those of a research career. 1.6. Recognize and respond to the complexity, uncertainty, and ambiguity inherent in medical practice and research. 1.6.1. Recognize when studies are causing harm and understand the rules for terminating a trial.

CanMEDS Role	Definition	Key and Enabling Competencies
Communicator	As communicators, clinician investigators form relationships with research participants that facilitate the gathering and sharing of essential information for conducting health research.	1. Share information about participation in a research study, including the risks, benefits, and alternatives to participation. 1.1. Solicit and answer questions from the potential participant. 1.2. Obtain and document informed consent, explaining the risks and benefits of, and the rationale for, participation in a study. 1.3. Share information with participants on the outcome or findings of the research study. 1.4. Share information with participants on any side effects or potential harm from participating in the research study.
Collaborator	As collaborators, clinician-investigators work effectively with others to conduct high-quality research.	1. Work effectively with clinicians, scientists, and other colleagues in the healthcare professions and health research 1.1. Identify collaborators with the skills and resources needed to carry out a study. 1.2. Form a research team, including staff, collaborators, and mentors. 1.3. Consult with statisticians, methodologists, and other experts as applicable. 1.4. Collaborate with colleagues, technicians, and students in the conduct of a research study. 1.5. Build and maintain partnerships and networks. 2. Work with clinicians, scientists, and other colleagues in healthcare professions and health research to promote understanding, manage differences, and resolve conflicts. 2.1. Show respect toward collaborators. 2.2. Implement strategies to promote understanding, manage differences, and resolve conflict in a manner that supports a collaborative culture. 3. Communicate effectively and promptly with local research governing authorities (e.g., SFDA, Saudi National Institute of Health, etc.), if indicated. 4. Effectively communicate any concerns regarding the study subject in the setting of a noted clinical concern or drop-out from study participation to the appropriate party while maintaining confidentiality and best practices.

CanMEDS Role	Definition	Key and Enabling Competencies
		5. Ensure the appropriate handoff to the next team of all needed information for the continuity of the research conducted if the investigator is completing a given project.
Leader	As leaders, clinician-investigators engage with others to contribute to a high-quality healthcare system supported by health research and take responsibility for the delivery of excellent research care through their activities as clinicians, administrators, scholars, and teachers.	1. Contribute to the improvement of healthcare delivery. 1.1. Apply scholarly investigative methods to contribute to improving patient care. 2. Engage in the stewardship of health research resources. 3. Demonstrate leadership in research. 3.1. Manage and/or lead research teams and projects and engage with the larger research enterprise. 3.2. Engage in quality management of research performed by their team. 3.3. Plan and lead team meetings 3.4. Perform critical analysis of methodology, relevance, and novelty for manuscripts, journal articles, and/or grant reviews. 3.5. Provide constructive feedback in peer review activities. 3.6. Demonstrate leadership skills to enhance health research. 4. Manage career planning, finances, and human resources for health in research activities. 4.1. Set priorities and apply time management to integrate practice and personal life. 4.2. Manage research projects and resources. 4.2.1. Identify the expertise and human resources required. 4.2.2. Manage project timelines and monitor costs. 4.3. Identify and build a network of mentors. 4.4. Implement processes to ensure research skills and career development. 5. Apply appropriate management skills in funding/budget planning and administration (e.g., human resources, physical resources, finances). 6. Learn and apply the principles of Health and Research Economics.

CanMEDS Role	Definition	Key and Enabling Competencies
Health Advocate	As health advocates, clinician-investigators contribute their expertise and influence as they work with communities or patient populations to improve healthcare and health research. They work with those they serve to determine and understand their needs, speak on behalf of others when required, and support the mobilization of resources to effect change.	1. Respond to the needs of the communities or populations they serve by conducting health research in a socially accountable manner. 1.1. Lead or contribute to research initiatives that target health inequities or disparities. 1.1.1. Advocate for societal funding for health research, including identification of research priorities, improvement of research safety, and funding for knowledge translation. 1.1.2. Protect the community from safety hazards (e.g., infectious materials, chemicals, biological waste, nuclear radiation). 1.1.3. Advocating for human subjects as research participants. 1.2. Incorporate patient and community voices and priorities into developing and conducting research initiatives. 1.3. Advocate for the appropriate and ethical use of animals as research subjects.
Scholar	As scholars, clinician-investigators demonstrate a lifelong commitment to excellence in practice through continuous learning and teaching others, evaluating evidence, and contributing to the creation, dissemination, application, and translation of new knowledge and practices.	1. Continuously enhance their professional activities through ongoing learning. 1.1. Actively seek opportunities and challenges for personal learning and growth. 2. Teach students, residents, the public, and other healthcare professionals. 2.1. Mentor, teach, and supervise trainees. 3. Integrate the best available evidence into practice. 3.1. Recognize practice uncertainty and knowledge gaps in clinical and other professional encounters and generate focused questions to address them. 3.1.1. Identify, articulate, and prioritize unmet clinical and population health needs. 3.1.2. Translate clinical and population health needs into research questions. 3.2. Critically evaluate the integrity, reliability, credibility, and applicability of health research and literature. 3.2.1. Perform literature searches.

CanMEDS Role	Definition	Key and Enabling Competencies
		3.2.2. Perform critical appraisals of relevant literature. 3.2.3. Describe gaps in the literature, including content, methods, and applicability. 3.3. Integrate evidence into decision-making in their practice. 4. Contribute to the creation and dissemination of knowledge and practices applicable to health. 4.1. Appropriately practice the scientific principles of research and scholarly inquiry and the role of research evidence in promoting healthy people and communities and in healthcare. 4.2. Identify ethical principles for research and incorporate them into obtaining informed consent, considering potential harms and benefits and vulnerable populations. 4.2.1. Recognize and respond to ethical, privacy, and safety issues encountered when conducting scholarly activities. 4.3. Pose questions amenable to scholarly investigation and select appropriate methods to address them. 4.3.1. Identify important questions to advance the field. 4.3.2. Explore what is known about the study question. 4.3.3. Develop a research hypothesis, question, or aim appropriate for investigation within the context of the existing evidence base. 4.3.4. Synthesize information to refine the research hypothesis or question. 4.3.5. Select relevant funding opportunities. 4.3.6. Obtain ethics approval. 4.3.7. Conduct a research study. 4.3.7.1. Select an appropriate study design. 4.3.7.2. Create a detailed and feasible study protocol.

CanMEDS Role	Definition	Key and Enabling Competencies
		4.3.7.3. Develop a budget for the study protocol. 4.3.7.4. Create an analysis plan. 4.3.7.5. Collect, use, disclose, and retain data. 4.3.7.6. Select and use appropriate methods for data analysis and synthesis. 4.3.7.7. Identify challenges or limitations in the study and its findings and how these may affect the interpretation and generalization of the study findings. 4.3.7.8. Integrate the findings with information from previous studies and the literature. 4.3.7.9. Draw conclusions from the research findings. 4.3.7.10. Propose next steps in answering the research question or for further research. 4.4. Summarize and communicate to professional and lay audiences, including research participants and patients and their families, the findings of relevant research and scholarly inquiry. 4.4.1. Disseminate the findings of a research study 4.4.1.1. Summarize results in text, tabular, and graphic forms. 4.4.1.2. Summarize and synthesize findings 4.4.1.3. Prepare abstracts, including visual abstracts. 4.4.1.4. Prepare and submit manuscripts for publication. 4.4.2. Communicate research to various audiences, including research

CanMEDS Role	Definition	Key and Enabling Competencies
		participants, the scientific community, the media, and those on social media. 4.4.2.1. Define key messages. 4.4.2.2. Adapt to the target audience and setting. 4.4.2.2.1. Use plain language to share results in a manner that enhances understanding and is accessible to patients and the public. 4.4.2.3. Select and use appropriate visual aids. 4.4.2.4. Respond to questions and comments. 4.5. Translate research findings or outcomes into clinical care.
Professional	As professionals, clinician-investigators are committed to the health and well-being of research participants, individual patients, and society through ethical clinical and research practice, high personal standards of behavior, accountability to the profession and society, clinician-led regulation, and maintenance of personal health.	1. Demonstrate commitment to participants by applying best practices and adhering to high ethical standards. 1.1. Exhibit appropriate professional behaviors and relationships in all aspects of research, demonstrating honesty, integrity, humility, commitment, compassion, respect, altruism, respect for diversity, and maintenance of confidentiality. 1.2. Demonstrate commitment to excellence in all aspects of research. 1.3. Recognize and respond to ethical issues encountered in research. 1.4. Recognize and manage conflicts of interest. 1.5. Exhibit professional behaviors in the use of technology-enabled communication. 2. Demonstrate commitment to society by recognizing and responding to societal expectations in healthcare and health research. 2.1. Demonstrate accountability to patients, society, animal research subjects, and the profession by responding to the societal expectations of clinicians.

CanMEDS Role	Definition	Key and Enabling Competencies
		2.1.1. Demonstrate commitment to equity, diversity, integrity, inclusivity, and anti-oppression practices. 2.2. Demonstrate commitment to patient safety and quality improvement. 3. Demonstrate commitment to the profession by adhering to standards and participating in clinician-led regulation. 3.1. Fulfill and adhere to professional and ethical codes, standards of practice, and laws governing practice. 3.1.1. Adhere to legislation, regulations, and policies for the conduct of research and protection of privacy. 3.2. Recognize and respond to unprofessional and unethical behaviors in investigators and other colleagues in the healthcare professions and in health research. 3.2.1. Addressing issues related to corruption identified in managing research resources (financial, physical, and/or human) 3.3. Participate in peer assessment and standard setting. 3.4. Participate in peer reviews. 4. Demonstrate commitment to clinician health and well-being for optimal patient care and research. 4.1. Exhibit self-awareness and manage influences on personal well-being and professional performance. 4.1.1. Demonstrate awareness of one's own assumptions, values, beliefs, principles, strengths, and limitations. 4.2. Manage personal and professional demands for sustainable practice throughout the clinician's life cycle. 4.2.1. Promote a safe, diverse, and inclusive working atmosphere. 4.2.2. Monitor the progress and well-being of individual team members. 4.2.3. Manage competing demands: clinical, research, and personal.

CanMEDS Role	Definition	Key and Enabling Competencies
		4.3. Promote a culture that recognizes, supports, and responds effectively to colleagues in need.

3. Clinician Investigator Program Learning Outcomes

The following learning domains and outcomes are categorized based on the domains of Knowledge (K), Skills (S), and Attitudes (A), providing a comprehensive framework for the "Clinician Investigator Program" to ensure learners acquire the competencies necessary to successfully integrate clinical practice and research.

Role	Learning Outcome
Clinician Investigator Expert	(K): Acquire advanced knowledge relevant to pre-clinical, clinical, or outcome research. (S): Apply skills and techniques with proficiency in pre-clinical, clinical, or outcome research. (A): Develop commitment to lifelong learning and advancing pre-clinical or outcome research.
Communicator	(K): Understand effective communication principles and strategies related to pre-clinical, clinical, and outcome research. (S): Demonstrate effective communication with research subjects and their families. (A): Cultivate empathy and compassion in communication respect diversity, and demonstrate cultural sensitivity.
Collaborator	(K): Understand the importance of interdisciplinary collaboration in research and healthcare. (S): Collaborate effectively within interdisciplinary research teams, colleagues, research collaborators, and research agencies. (A): Foster a culture of collaboration, mutual respect, and shared decision-making in research and healthcare settings.
Leader	(K): Understand the principles and practices of effective leadership in research and healthcare. Furthermore, understand the research regulatory processes and healthcare system dynamics. (S): Demonstrate leadership skills in research projects and advocate for research integration. Effectively manage research projects, including resource allocation, budgeting, and timelines. (A): Commit to mentoring, guiding, and supporting junior colleagues in research activities. Cultivate a systems-thinking mindset, identifying and addressing barriers to implementing research findings in clinical settings.

Role	Learning Outcome
Health Advocate	(K): Understand how research affects healthcare policies and patient outcomes. (S): Advocate for evidence-based approaches in healthcare, integrating research findings into practice. (A): Cultivate a sense of responsibility and activism to address healthcare needs and improve health outcomes.
Scholar	(K): Master research methodologies, including study design, data analysis, and interpretation. (S): Conduct research projects independently, adhering to ethical and regulatory guidelines. (A): Cultivate a scholarly attitude, promoting a critical and evidence-based approach to research.
Professional	(K): Understand ethical principles and professional standards in research and clinical practice. (S): Demonstrate professionalism in research and clinical settings, maintaining integrity and confidentiality. (A): Develop a professional identity grounded in ethical conduct, accountability, and continuous self-improvement.

4. Clinician Investigator Program Milestones

Milestone 1: Novice Level (Attain the foundational knowledge, skills, and attitude as a Clinician Investigator)

1st half of the 1st year of Training Program (24 weeks)

1. Trainees demonstrate knowledge and understanding of the fundamentals of research methodologies and principles.
2. Trainees begin developing foundational skills in research data collection and analysis.
3. Trainees decide on their research project, allocate mentors, and start their research proposal.
4. Trainees actively participate in research projects and conduct literature reviews.
5. Trainees develop their own research proposal or protocol and submit it for IRB approval.

Milestone 2: Competent Level (Attain the necessary knowledge, skills, and attitude as a Clinician Investigator)

2nd half of the 1st year of Training Program (24 weeks)

1. Trainees possess the necessary knowledge, skills, and attitudes to conduct research.
2. Trainees possess advanced knowledge and expertise in their chosen research fields.
3. Trainees independently design and execute research projects while adhering to ethical guidelines.
4. Trainees demonstrate proficiency in data entry and management.
5. Trainees possess the ability to appraise studies and identify study limitations.
6. Trainees demonstrate appropriate communication skills with their mentors, instructors, co-investigators, and collaborators.

Milestone 3: Proficient Level (Attain a high level of knowledge, skills, and attitude as a Clinician Investigator)

1st half of the 2nd year of Training Program (24 weeks)
1. Trainees have a comprehensive understanding of research methodologies and their applications. 2. Trainees contribute significantly to the development and implementation of research projects. 3. Trainees master proficiency in verbal and written communication skills. 4. Trainees demonstrate proficiency in research data analysis and interpretation.
Milestone 4: Expert Level (Attain an extensive level of knowledge, skills, and attitude as a Clinician Investigator)
2nd half of the 2nd year of Training Program (24 weeks)
1. Trainees demonstrate mastery of research methodologies and their integration into clinical practice. 2. Trainees lead and mentor research teams, guiding junior colleagues in research activities. 3. Trainees publish research findings in peer-reviewed, high-impact journals and research collaborations. 4. Trainees contribute substantially to the advancement of knowledge in their research field through disseminating their research at conferences nationally and internationally.

VII. PROGRAM LEARNING AND COMPETENCIES

1. Program Admission Requirements

Please refer to the updated executive policy of SCFHS on admission and registration.
Website: www.scfhs.org.sa

2. Program Duration

The program should be completed within 24 months of enrollment, either parallel to a graduate training program (SCFHS or university-based) or in conjunction with healthcare practice, with a maximum of 48 months for completion. This includes the completion of all program requirements.

3. Program Structure

The CIP includes two main activities, **CIP coursework and research project**, to achieve the program's learning objectives.

1) **CIP Coursework:** All trainees are expected to attend and participate in a centrally monitored academic curriculum led by the CIP TPC. The CIP TPC in each center can lead additional academic activities on demand to complement this curriculum. The list of courses included in the CIP curriculum is provided below.

Clinician Investigator Program Curriculum Course List:

A) Core Courses:

1. Fundamentals of Ethics
2. Good Clinical Practice
3. Introduction to Epidemiology
4. Basics of Study Design
5. Causal Design
6. Fundamentals of Survey Design
7. Qualitative Research Design
8. Foundations of Systematic Review and Meta-analysis
9. Introduction to Clinical Trials
10. Fundamentals of Statistics I
11. Fundamentals of Statistics II
12. Proposal Development I
13. Proposal Development II and Data Collection Planning
14. Grant Writing
15. Evidence-based Medicine
16. Scientific Writing I
17. Scientific Writing II
18. Quality Improvement in Healthcare
19. Data Management
20. Applications of Artificial Intelligence in Research
21. Principles of Health Policy
22. Principles of Population Health
23. Principles of Health and Research Economics
24. Principles of Biotechnology
25. Principles of Genome research
26. Principles of Aerospace research
27. Applied Regression
28. Survival Analysis
29. Advanced Statistics for Clinical Trials
30. Data Synthesis in Meta-analysis
31. Big Data
32. Predictive Analytics
33. Research Career and Leadership
34. Scientific Communication

Clinician Investigator Program Curriculum Course List:
B) Elective Courses (build your own)
Trainee-chosen elective courses to be submitted to the CIP TPC for review and approval by the CIP scientific committee

CIP coursework outline and block targets:

This abovementioned coursework spans two years of training in four specified blocks. At the end of each block, a specific target must be met for the trainee to continue to the second block, as detailed in the table below.

Training Year	Block #	Duration	Core Courses*	Elective Courses**	Block Target
Y1	Block 1	24 weeks	1. Fundamentals of Ethics 2. Good Clinical Practice 3. Introduction to Epidemiology 4. Basics of study design 5. Causal design 6. Fundamentals of survey design 7. Qualitative research design 8. Foundations of systematic review and meta-analysis 9. Introduction to clinical trials 10. Fundamentals of statistics I 11. Fundamentals of statistics II 12. Proposal Development I 13. Proposal Development II and data collection Planning 14. Grant writing		- Proposal presentation and document submission
	Block 2	24 weeks	1. Evidence-based medicine 2. Scientific Writing I 3. Quality improvement in healthcare 4. Data management 5. Applications of Artificial Intelligence in research 6. Principles of Health Policy 7. Principles of Population Health	Build your own elective courses (on-demand) and submit it to the CIP TPC for review and approval	- Research execution - Data entry - Manuscript outline

Training Year	Block #	Duration	Core Courses*	Elective Courses**	Block Target
			8. Principles of Health and Research Economics 9. Principles of Biotechnology 10. Principles of Genome research 11. Principles of Aerospace Research		
Y2	**Block 3**	**24 weeks**	1. Applied Regression 2. Survival analysis 3. Advanced statistics for clinical trials 4. Data synthesis in Meta-analysis 5. Big data 6. Predictive analytics	Build your own elective courses (on-demand) and submit it to the CIP TPC for review and approval	- Data management and analysis
	Block 4	**24 weeks**	1. Research career and leadership 2. Scientific writing II 3. Scientific communication		- Final Project presentation - Manuscript submission

*Core courses: A set of mandatory courses that represent the program's core components

**Elective courses: A set of courses related to the trainee's specialty or research project not covered by the core courses, as determined by the trainee, mentor, or TPC.

2) **Research Project:** All CIP trainees are expected to conduct a qualifying research project during their two years of training. A qualified CIP mentor approved by the CIP scientific committee based on predetermined criteria will be responsible for supervising and mentoring this project.

IX. TEACHING METHODS

CIP Training has two main activities: didactic coursework and a research project.

A. CIP Coursework: Conducted and structured by the CIP Scientific Committee, the courses utilize diverse methods, including but not limited to:

1. Lectures, reading materials, videos, and web-based resources
2. Workshops
3. Journal clubs
4. Seminars and presentations by participants
5. Document review with written feedback

These activities occur virtually through live and on-demand sessions, predominantly during off-hours and weekends. Additionally, some sessions requiring active engagement (e.g., introductory courses, workshops, review sessions, and presentations) will be held in person, when feasible. Assignments or sessions may also be available for self-paced learning. A comprehensive annual schedule for CIP coursework will be issued by the CIP Scientific Committee at the beginning of each academic year. Additional elective courses can be proposed by the training centers according to the requirements of the CIP participants and should be reviewed and approved by the CIP scientific committee before being offered.

To facilitate maximum participation, most coursework activities will be scheduled on Saturdays, anticipating that most CIP participants will be available. The dates and times for the block sessions will be announced in advance to prevent conflicts with other training programs. The frequency at which Saturdays will be allocated for coursework varied by block.

B. Research Project: Overseen by an accredited CIP mentor and supervised by the center's CIP TPC. This component offers participant-specific learning opportunities to conduct a research project aligned with the participant's specialty. Participants are expected to actively engage in the initiation, planning, execution, and writing of their research projects, which is a requirement for completing CIP training. Project milestones and evaluations are structured to run parallel to the CIP coursework. At the end of the first block, the research proposal will be evaluated through a formal presentation with peer

and faculty feedback and an assessment of the written proposal for scientific rigor. At the end of the second year, participants are expected to present their final research project, including the results and discussion points, in a formal presentation and submit their final manuscript for faculty review and feedback.

Program-specific Learning Activities:

CIP coursework will be conducted as follows:

A) Weekend activities (academic half-day)

B) After-hours activities (during weekdays)

C) Self-paced learning activities.

D) Participants' progress/project-oriented meetings

E) In-person activities (e.g., in biostatistics courses)

For optimal engagement, courses are delivered interactively through virtual platforms or in-person settings. Each core course has well-defined learning objectives supported by learning materials. The CIP TPC, in collaboration with academic and training affairs and program directors, should jointly ensure strategic coordination and adherence to training activities, as outlined in the curriculum.

The CIP TPC and their mentors expect participants to actively engage in developing and presenting research topics. This effort may include delivering presentations, formulating methodologies, and critically evaluating research. As appropriate, mentors should ensure that the research includes three distinct learning domains: knowledge, skill, and attitudes. Participants should meet with their mentors regularly to discuss their progress on research projects and coursework. In addition, participants are expected to lead project-oriented meetings and communication with collaborators and the research team.

Block 1 (24 weeks): Each week, a minimum of four hours of formal training is mandated on Saturdays from 1:00–5:00 pm or as announced. Formal teaching time is a pre-arranged activity that includes course directors, tutor(s), scheduled timeslots, and, when required, a specific location. Core coursework will guarantee that important components of the designated objectives are taught effectively.

Blocks 2, 3, and 4 (24 weeks each): The training schedule should be adjusted so that formal sessions are held every other weekend (Saturdays, 1:00–5:00

pm or as announced) and should be organized in advance in collaboration with the course directors.

The scientific committee of the CIP is responsible for coordinating journal clubs that are anticipated to take place after-hours on weekdays. The meetings are scheduled for a duration of 1–2 hours. Additionally, elective courses may be offered in the same after-hours format.

Progress/project-oriented meetings should continue longitudinally, offering participants one-on-one support and advice, addressing their queries, overseeing their evolution, and providing consultations.

CIP Learning Activities Summary*:

Block 1	
Aspect	**Details**
Formal Training Time	**On Saturdays,** a minimum of four hours should be reserved. The number of Saturdays per month will vary based on the block.
Academic Half-day	Formal teaching time involves planned activities with assigned course directors, tutor(s), time slots, and, if applicable, a location.
Teaching Format	Lectures are conducted in an interactive, virtual, or in-person format.
Learning Objectives	Clearly defined learning objectives for each core course, preferably using learning material
Coordination	The CIP TPC, in collaboration with academic and training affairs and program directors, should work together to plan and implement training activities.
Participant Involvement	Participants are actively involved in: • Coursework attendance and participation • Developing and delivering research projects under mentors' supervision • Leading the research team and collaborators.
Progress/Project-oriented Meetings	Participants should meet with their mentors regularly to discuss their progress in research projects and coursework
Supervision	As applicable, participants' supervisors should stratify discussions of research into the three learning domain categories: knowledge, skill, and attitudes.
Blocks 2, 3, and 4	

Block 1	
Aspect	**Details**
Academic Half-day:	Every other weekend (Saturdays), with advanced planning involving course directors.
Journal Club:	Conducts after-hours activities (1–2 hours).
Elective Courses	Offered in the same after-hours format (1–2 hours)
Progress/Project-oriented Meetings	Continued longitudinally, offering the participants one-to-one support and advice, addressing their queries, overseeing their evolution, and providing consultations.

*The recommended number of activities is based on course objectives.

Below is an illustration of a cross-section of Block 2's schedule structure:

Academic Week	Course	Date	Time	Sessions	Presenters
1	**Core Course:** Evidence-based Medicine	Jan-7, 2024 (Sat. pm)	13:00-14:00	Welcoming and Orientation	Rotation director
			14:00-15:00	Topic 1	A
			15:00-16:00	Topic 2	B
			16:00-17:00	Topic 3	C
2	**EBM:** Journal club 1	Jan 9, 2024 (Weekday After hours)	18:00-19:00	Journal Club	Applicant A
			19:00- 20:00	Journal Club	Applicant B
3	**Core course** Scientific Writing I	Jan 14, 2024 (Sat. pm)	13:00-14:00	Topic 4	D
			14:00-15:00	Topic 5	E
			15:00-17:00	Topic 6 OR Workshop	F
4	**EBM:** Journal Club 2	Jan 16, 2024 (Weekday After hours)	18:00-19:00	Journal Club	Applicant C

Academic Week	Course	Date	Time	Sessions	Presenters
			19:00- 20:00	Journal Club	Applicant D
5	**Core Course:** Quality Improvement in Healthcare	Jan 21, 2024 (Sat. pm)	13:00-14:00	Topic 7	G
			14:00-15:00	Topic 8	H
			15:00-17:00	Topic 9 OR Workshop	I
6	**Elective Course**	Jan 23, 2024 (Weekday After hours)	18:00-19:00	Topic 1	J
			19:00- 20:00	Topic 2	K

* Journal clubs can operate in the evenings.

X. ASSESSMENT AND EVALUATION

1. Purpose of Assessment

Assessment can serve the following purposes:

Learning Assessment: Commonly referred to as Formative Assessment, this evaluation is conducted longitudinally to evaluate overall performance. It relies on feedback from mentors and aligns with the learning objectives for each rotation. The primary goal of this is to gather feedback, without assigning a determination of "pass" or "fail," according to the SCFHS Formative Assessment Regulations.

Systems of Assessment: This will depend on an evaluation of the four main requirements of the program:

- At the end of Block 1:
  1) Proposal presentation
  2) Proposal document submission
- At the end of Block 4:
  1) Final project presentation
  2) Final project-ready manuscript paper submission

All presentations will be conducted in front of the CIP TPC, all other participants, and their mentors. The selected CIP instructors will review and assess all submitted documents. The submitted documents will be reviewed and evaluated by designated CIP instructors. Detailed and specialized assessment tools will be employed. The program will incorporate both formative and summative assessments, ensuring that they are integrated and aligned throughout the program.

Feedback and Evaluation: This will include assessment by:

a. The CIP TPC
b. Coursework instructors
c. Mentors
d. Participants

The final assessment for the participants will be graded as pass or fail based on the fulfillment of all the criteria outlined below.

Description	Formative Assessment	Participation in coursework	Proposal Presentation	Proposal Document	Final Project Presentation	Manuscript Document
Pass	Participation in ≥ 90% of the Formative Assessment.	Participation in ≥ 90% of the coursework	≥ 70%	≥ 70%	≥ 70%	≥ 70%
Fail	Participation in < 90% of the Formative Assessment	Participation in < 90% of the coursework	< 70%	< 70%	< 70%	< 70%

2. Formative Assessment

2.1 General Principles

Participants, as adult learners, should strive to develop their performance based on feedback throughout their journey of competency from “novice” to “mastery” levels. Formative assessment, also referred to as assessment for learning, is an assessment component distributed throughout the academic year, aiming primarily to provide participants with effective, actionable feedback. It is a low-to-no-stakes learning encounter that needs to be observable, whether directly or indirectly, for the purpose of having multiple non-threatening, non-judgmental educational learning events and receiving immediate actionable feedback afterward. The purpose is to help participants reach their required competency levels through frequent observations, feedback, and progress monitoring. This helps identify participants who are exceeding their required performance, on track, performing below expectations, or struggling or having difficulties learning (sometimes referred to as borderline or minimally competent participants).

Every one to two weeks, at least 1 hour should be allocated for participants to meet with their mentors or someone equivalent to review their course performance and research project progress, which should be carried out continuously throughout the program. Furthermore, these reviews should not be performed simultaneously. Input from the overall aggregating assessment should be performed a) periodically (recommended at least quarterly) for

monitoring, offering feedback, and providing an action plan for participants' areas of improvement and b) at the end of each block to determine whether individual participants have passed the required milestone for their training level. Formative assessments will be defined based on the CIP TPC, ITC, and CIP Scientific Committee recommendations.

Based on Miller's pyramid, formative assessments will typically have the following features:

a. **Comprehensive:** covers all learning domains (knowledge, skills, and attitudes).
b. **Relevant:** completion of coursework.
c. **Competency milestone-oriented:** reflects participants' expected competencies that match their developmental levels.

Participants should actively seek feedback during training, and mentors should provide timely and formative assessments with actionable feedback. Mentors and participants are expected to follow the recommendations of the CIP Scientific Committee regarding the updated forms, frequency, distribution, and deadlines related to the implementation of evaluation forms.

1.1. Formative Assessment Tools

Learning Domain	Formative Assessment Tools
Knowledge	Knowledge assessment tools such as MCQs and ITER to assess knowledge areas of the coursework: • Identify research gaps. • Differentiate between various study methodologies • Cite research supporting or contrasting hypotheses • Understand the best statistical methods to answer research questions
Skills	ITER Observation and written feedback to assess: • Critical appraisal • Identifying the appropriate study design for research questions • Proposal writing skills • Statistical analysis • Manuscript writing
Attitudes	• ITER by the CIP mentor • Mini-PAT (e.g., during a presentation)
Aggregating Tools	• AITER

The evaluation of each component will be based on the following categories:

To be eligible for the CIP completion certificate, participants must achieve a minimum score of “pass” on all Formative Assessment tools used. For mandatory proposals, manuscript materials, and presentations, participants who do not achieve a passing score will be granted a three-month period for revision and reassessment.

Evaluations will be conducted at the end of each course through the following:

- Evaluation forms for the various activities conducted during the course
- Open discussion sessions for comments and feedback

3. Summative Assessment

3.1. General Principles

Summative assessment is an assessment component that primarily aims to make informed decisions regarding participants’ competency. Unlike formative assessment, *summative assessment* does not aim to provide constructive feedback. Participants will be granted “*Certification of* CIP Training *Completion*” upon successful completion of all training courses.

3.2. Final In-training Evaluation Report (FITER)

In addition to the approval of the completion of all CIP course requirements by the CIP’s Scientific Committee, Program Directors will prepare a FITER for each participant at the end of their final year of training. This report will be the basis for obtaining the *Certification of* CIP Training *Completion* (see Appendix B).

3.3 Certification of the Clinician Investigator Program

When participants satisfy the following requirements, they are eligible to get "*Certification of CIP Training Completion."*

a. Participation in at least 90% of the coursework.
b. Participation in at least 90% of the Formative Assessment.
c. Passing score on Proposal Submission.
d. Passing score on Proposal Presentation.
e. Passing score in the Final Project Submission.
f. Passing score in the Final Project Presentation.
g. Manuscript Submission.
h. Clearance from the Training Center.

i. Recommendation made by the CIP TPC in accordance with the ITC's approved FITER.

The SCFHS shall issue "*Certification of Training Completion*" based on the ITC FITER approval, and the CIP designation is granted for the graduates accordingly, without any resulting modification of the SCFHS Professional Classification.

XI. PROGRAM AND COURSE EVALUATION

The ITC shall apply various measures to evaluate curriculum implementation. The training outcomes of this program will follow the quality-assurance framework endorsed by the CIP Scientific Training Committee at the SCFHS. The results of participant assessments (both formative and summative) will be analyzed and mapped to the curriculum content. Other indicators to be incorporated are as follows:

- Report on the annual participants' satisfaction survey
- Reports from participants' evaluations of mentors and faculty members.
- Reports from participants' evaluations of the CIP center or hospital
- Reports from the annual survey of CIP directors
- Data is available from CIP accreditations.
- Reports from direct field communications with participants, mentors, and faculty members

Goal-based Evaluation: The achievement of intended milestones will be evaluated at the end of each block to assess the progress of curriculum delivery, and any deficiencies will be addressed in the following block.

In addition to subject-matter opinions and best practices from benchmarked international programs, the ITC shall apply a robust method to ensure that this curriculum will utilize all the data available during its revision in the future.

XII. POLICIES AND PROCEDURES

Please refer to the Policies and Procedures of the ITC.

XIII. APPENDICES

A. **Program Specific Assessment Tool Template**

B. **FITER**

C. **Clinical and Practical Skills Definitions**

D. **References**

APPENDIX A: Program Specific Assessment Tool Template

CLINICIAN INVESTIGATOR PROGRAM					
Track					
Assessment Tool	Program Requirement (*Total count, if applicable*)	Details and Description	Final Scoring		Score's Utility (Marking vs. Feedback)
			PASS	**Clear Fail**	
General Comments (Delete this row from final table.)		Not applicable We will translate the table (page 22) here			
Coursework Participation			≥90%	< 90%	
Formative Assessment Participation			≥90%	< 90%	
Proposal Submission			≥70%	< 70%	
Proposal Presentation			≥70%	< 70%	
Final Project Submission			≥70%	< 70%	
Final Project Presentation			≥70%	< 70%	
Manuscript Submission			Submitted	Not Submitted	

APPENDIX B

Final In-Training Evaluation Report (FITER)

(Clinician Investigator Program)

Participant's Name ……..

National ID Number: ……...

Trainee Number: ……..

Name of Training Hospital ……

The CIP Director must complete each of the following sections (A–D) exactly as stated in that section:

A. Participant's General Information:

A.1 Training Requirements		
A 1.1 Fulfillment of First CIP Block and Requirements	□ Yes	□ No
A.1.2 Fulfillment of Second Block and Requirements	□ Yes	□ No
A.1.3 Fulfillment of Third Block and Requirements	□ Yes	□ No
A.1.4 Fulfillment of Fourth Block and Requirements	□ Yes	□ No
A.2 Research Proposal		
A.2.1 Fulfillment of Research Proposal Presentation	□ Yes	□ No
A.2.2 Submission of the Research Proposal Document	□ Yes	□ No
A.3 Formative assessment	□ Yes	□ No
A.4 Coursework Completion	□ Yes	□ No
A.5 Final Project		
A.5.1 Fulfillment of Final Project Presentation	□ Yes	□ No
A.5.2 Fulfillment of Manuscript Document Submission	□ Yes	□ No

C. Training Rotations:

Completed training rotations must be listed here.

D. Comments and Recommendations of the CIP Training Program Director on Participants to be Granted Certification of Training Completion:

……
……
……
……
……
……
……

D.1 I am comfortable that the participant has acquired all the necessary competencies

□ Yes □ No

Note: All supporting documents should be archived by the CIP TPC and retrievable confidentially by the Designated Institutional Official (DIO) and Institution.

D.2 This Form has been prepared by the Program Director:

Name of CIP Director

……

Signature

……

…

Date

……

……..

E. THIS SECTION IS TO BE DISCUSSED AND COMPLETED BY THE CIP TPC (Please Select ONLY one):

□ E.1 Training requirements have been fulfilled, and it is recommended that the participant be granted the CIP Training Completion Certificate.

□ E.2 Training requirements have not been fully met, and the remaining training rotations are ≤ 12 weeks/year, and the participant is required to successfully complete those rotations before granting him/her the Certification of Training

Completion. The participant can be granted a Conditional Letter from the Institution Training Committee for permission to extend his CIP training period.

□ E.3 Training requirements have not been fulfilled and/or the remaining training rotations are > 12 weeks/year. The participant is required to repeat the full final training year.

This Final In-training Evaluation form for …… (Name & Trainee #) ……. has been reviewed and supported by the CIP TPC during its Meeting on ……(Date)…… and has been signed by at least three CIP Faculty TPC Members in addition to the CIP Director (PD), as follows:

Name of the CIP TPC Member ……

Signature ……

Date ……

Name of the CIP TPC Member ……

Signature ……

Date ……

Name of the CIP TPC Member ……

Signature ……

Date ……

Name of the CIP PD Member ……

Signature ……

Date ……

F. Comments and Action Plan for the Participant:

……
……
……
……
……
……
……..

THE PARTICIPANT IS RESPONSIBLE FOR COMPLETING THIS SECTION:

G1.1 Are you in agreement with this assessment, decision, comment, and action plan?

□ Yes □ No

G1.2 Please enter comments you have (if any) on this evaluation.

……
……
……
……

Note:

Please note that if the **CIP** TPC has determined that the participant's demonstration of competence is inconsistent with the present evaluation (i.e., during the period from the date of signature of this document to the completion of training), it may declare the document as invalid and non-binding and replace it with an updated FITER. The eligibility for examination would be dependent on the updated FITER.

Name of CIP Participant ……

Signature ……

Date ……

H. THIS SECTION IS TO BE COMPLETED BY THE DESIGNATED INSTITUTIONAL OFFICIAL:

This Final In-Training Evaluation form for ……(Name & Trainee #)……. has been reviewed and approved by the Institutional Training Committee during its Meeting on ……(Date)…….. and signed by the

Designated Institutional Official for the Complete Training Programs or the Associate Executive Director of Training for the Shared Training Program.

□ H.1 Training requirements have been fulfilled, and the Certification of Training Completion is granted to the Trainee.

□ H.2 Training requirements have not been fully met, and the remaining CIP training rotations are <12 weeks/year, and the participant is required to successfully complete those rotations before granting him/her the Certification of Training Completion. The participant is granted a Conditional Letter for permission to register and sit for the final written exam.

□ H.3 Training requirements have not been fulfilled and/or the remaining training rotations are ≥12 weeks/academic year, and the trainee is required to repeat the full final training year.

Name of the DIO …….

Signature …….

Date …….

APPENDIX C

Clinical and Practical Skills Definitions

Definition of Clinical and Practical Skills Domains	
Skills	**Definition**
Data-Gathering Skills	Defined as the participants' ability to obtain and identify important information and correlate the clinical data to recommend appropriate testing. It includes interviewing and history-taking.
Reasoning And Analytical Skills	Defined as the participants' ability to rationalize recommended effective management plans, evaluate alternative plans, recognize indicators of different appropriate treatments based on relevant and accurate clinical data interpterion.
Decision-Making Skills	Defined as the participants' ability to formulate a logical diagnosis, identify immediate needs, and make accurate inferences regarding the expected outcomes. It includes recognizing potential complications, risks, and benefits.
Professional Attitude	Defined as a commitment to delivering the highest standards of ethical and professional behavior in all aspects of health practice. Attitudes, knowledge, and skills based on clinical and/or medical administrative competence, ethics, societal, and legal duties resulting in the wise application of behaviors that demonstrate a commitment to excellence, respect, integrity, accountability, and altruism (e.g., self-awareness, reflection, life-long learning, scholarly habits, and physician health for sustainable practice).

APPENDIX D

References:

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