NIHS Residency TRAINING PROGRAM

Program: Radiology Specialty

Comprehensive Clinical Examination (CCE)

I. Definition of Comprehensive Clinical Examination (CCE)

CCE is a form of performance-based testing of higher levels of cognition to ensure that the candidate has clinical competence to practice independently as a specialist or consultant. During a CCE, candidates are observed and evaluated through a series of stations in which the stations reflect real-life situations and allow the candidate to explain the rationale behind their thinking. Each station tests one or more clinical competency domains.

II. Comprehensive Clinical Examination (CCE) Exam Format

1. Number of Stations = 8 - 12
2. Duration per station = 10 - 12
3. Duration of the break between the two consecutive stations = 3
4. Examiners per Station =2

III. Clinical/Practical Skill Domains

Proposed Domains for NIHS	DEFINITIONS
Data gathering / History taking	Asks key relevant questions. Sensitively gathers appropriate information. Explores main problems/concerns of patient/parent/career in structured manner.
Physical Examination and practical skills	Demonstrate correct, thorough, systematic, appropriate, fluent, and professional technique of physical examination. Demonstrate proficiency in performing practical and procedural skills at the level of a specialist.
Data interpretation	Correctly interpret the History findings, Physical examination and Investigation results.

Proposed Domains for NIHS	DEFINITIONS
Clinical reasoning and analytical skills (Differential Diagnosis & Provisional Diagnosis)	Formulate & propose likely appropriate differential diagnosis Understand the implications of findings. Able to suggest appropriate steps if the physical examination was inconclusive.
Decision-making & Management	Select or negotiate a sensible and appropriate management plan for a patient, relative or clinical situation. Select appropriate investigations or treatments for a patient. Apply clinical knowledge, including knowledge of law and ethics, to the case.
Communication & Professionalism	Appropriate level of confidence; greeting and introduction; appropriate body language Develops appropriate rapport with patient/parent/carer or colleague. Appropriate tone & pace of speech Behave towards the patient or relative, respectfully and sensitively and in a manner that ensures their comfort (eg. avoid causing pain), safety (eg. washing hands) and dignity (eg. covering patient). Seek, detect, acknowledge and address patients' or relatives' concerns. Demonstrate empathy.

IV. Blueprint Outline

- This will be published on the NIHS website for the candidates.
- This will act as a guideline for Examination Sub-committee for exam design.
- This will be fixed for the next 4 academic years

- ❑ Musculoskeletal
- ❑ Neuroradiology
- ❑ Head and Neck
- ❑ Chest
- ❑ Cardiac
- ❑ Gastrointestinal
- ❑ Genitourinary
- ❑ Vascular & Interventional
- ❑ Pediatrics

- ❑ Nuclear Medicine
- ❑ Breast Imaging

V. Passing Score

- Each station shall be assigned a minimum performance level (MPL) based on the expected performance of a minimally competent candidate using a sound scientific standard-setting method such as regression analysis.
- To pass the examination, a candidate must attain a score equal to or more than the MPL in at least 70% of the number of stations.

VI. Time Management

- The examiner is aware of how much material needs to be covered per station, and it is their responsibility to manage the time accordingly.
- The examiner will want to give you every opportunity to address all the questions within the station.
- They may indicate that "in the interests of time, you will need to move to the next question." This type of comment has no bearing on your performance. It is simply an effort to ensure that you complete the station.
- If you are unclear about something during the station, ask the examiner to clarify.
- Some stations may finish early – if this occurs, the examiner will end the encounter.

VII. Examiner Professionalism

- The examiners have been instructed to interact with you professionally − don't be put
- off if they are not as warm and friendly towards you as usual.
- We recognize this is a stressful situation, and the examiner is aware that you are nervous. If you need a moment to collect your thoughts before responding, indicate this to the examiner.
- The nomination of examiners is based on the principle that candidates are assessed by qualified examiners selected and appointed by NIHS. The examiner is not obligated by any means to share their personal information or professional details with the candidate.

VIII. Conflict of Interest

- The examiners come from across the country. You will likely recognize some of them and may have worked with some of them in your center's clinical/academic capacity. This is completely acceptable to the NIHS and is not a conflict unless if the examiner had a substantial contribution to your training or evaluation, or if you have another personal relationship with the examiner.
- Identify the conflict at the moment of introduction; examiners have been instructed to do the same. Examiners will alert the NIHS staff – every attempt will be made to find a suitable replacement for the station.

IX. Confidentiality

- Electronic devices are NOT permitted.
- Communication with other candidates during the evaluation is prohibited.

X. Link to FAQs on NIHS Website

XI. Textbooks

Janette Collins and Eric J. Stern, 2014. Chest Radiology: The Essentials. 3rd Edition.
• Theresa C. McLoud, 2010. Thoracic Radiology: The Requisites, 2nd Edition.
• W. Richard Webb, 2010. Thoracic Imaging: Pulmonary and Cardiovascular Radiology.
• W. Richard Webb and Nestor L. Muller, 2014. High-Resolution CT of the Lung.
• Jill E. Jacobs, 2010. Cardiac CT, An Issue of Radiologic Clinics of North America.
• Jan Bogaert and Steven Dymarkowski, 2012. Clinical Cardiac MRI, 2nd Edition.
• Elsevier, 2016. Neuroradiology: The Requisites.
• Thieme, 2008. Practical Differential Diagnosis for CT and MRI.
• Elsevier, 2015. Diagnostic Imaging: Brain.
• W. Richard Webb and Wiliam E. Brant, 2014. Fundamentals of Body CT, 4th Edition. Page | 2 Saudi Board Final Written Examination; Diagnostic Radiology-BP (Final) Apr 2020 v.1
• Joseph K.T. Lee, Stuart S. Sagel, Robert J. Stanley and Jay P. Heiken, 2005. Computed Body Tomography with MRI Correlation (2 Volume Set) 4th Edition.
• John R. Haaga, MD FACR FSIR FSCBT FSRS and Daniel Boll MD FSCBT, 2016. CT and MRI of the Whole Body, 2-Volume Set, 6th Edition.
• William E. Brant , Eduard E. de Lange, 2012. Essentials of Body MRI 1st Edition.
• Evan Siegelman, 2004. Body MRI, 1st Edition.
• Richard C. Semelka and Michele A. Brown, 2016. Abdominal-Pelvic MRI, 4th Edition.
• James C. Reed, 2018. Chest Radiology: Patterns and Differential Diagnoses, 7th Edition.
• Rohini Nadgir MD and David M. Yousem, 2016. Neuroradiology: The Requisites, (Requisites in Radiology), 4th Edition.
• Anne G. Osborn Gary Hedlund Karen L. Salzman, 2017. Osborn's Brain, 2nd Edition.
• Nick Watson, 2013. Chapman & Nakielny's Guide to Radiological Procedures:, 6th Edition.
• Jeffrey D. Houston and Michael Davis, 2001. Fundamentals of Fluoroscopy, (Fundamentals of Radiology), 1st Edition.
• Daniel Johnson, 2013. Mayo Clinic Gastrointestinal Imaging Review (Mayo Clinic Scientific Press), 2nd Edition.
• Ronald J. Zagoria and Christopher M Brady, 2015. Genitourinary Imaging: The Requisites, (Requisites in Radiology), 3rd Edition.
• N. Reed Dunnick and Jeffrey H. Newhouse, 2017. Genitourinary Radiology, 6th Edition.
• Michele Walters and Richard L. Robertson, 2016. Pediatric Radiology: The Requisites, (Requisites in Radiology), 4th Edition.
• Harvey A. Ziessman and Janis P. O'Malley, 2013. Nuclear Medicine: The Requisites, (Requisites in Radiology), 4th Edition.
• Barbara S. Hertzberg and William D. Middleton, 2015. Ultrasound: The Requisites, (Requisites in Radiology) 3rd Edition.
• John A. Kaufman and Michael J. Lee, 2013. Vascular and Interventional Radiology: The Requisites, (Requisites in Radiology) Sep 2, 2013, 2nd Edition.
• Professionalism and Ethics, Handbook for Residents, Practical guide, Prof. James Ware, Dr. Abdulaziz Fahad Alkaabba, Dr. Ghaiath MA Hussein, Prof. Omar Hasan Kasule, SCFHS, Latest Edition.

Essentials of Patient Safety, SCHS, Latest Edition. Page | 3 Saudi Board Final Written Examination; Diagnostic Radiology-BP(Final) Apr2020 v.1
• Krishna Kandarpa , Lindsay Machan and Janette Durham, 2016. Handbook of Interventional Radiologic Procedures, 5th Edition.
• Clyde A. Helms, Mark W. Anderson, Nancy M. Major, and Phoebe Kaplan, 2001. Musculoskeletal MRI, 2nd Edition.
• Donald Resnick and Mark Kransdorf,2004. Bone and Joint Imaging, 3rd Edition.
• Clyde A. Helms, 2013. Fundamentals of Skeletal Radiology, 4th Edition.
• Brian Coley, 2013. Caffey's Pediatric Diagnostic Imaging, 2-Volume Set, 12th Edition.
• James Barkovich, Charles Raybaud,2012. Pediatric Neuroimaging (Pediatric Neuroimaging (Barkovich)) 5th Edition.
• Peter M. Som, and Hugh D. Curtin, 2011. Head and Neck Imaging - 2 Volume Set: Expert Consult- Online and Print, 5th Edition
• James Barkovich, 2015. Diagnostic Imaging: Pediatric Neuroradiology, 2nd Edition
• Beth M. Kline-Fath, Dorothy I. Bulas, and Ray Bahado-Singh, 2014. Fundamental and Advanced Fetal Imaging: Ultrasound and MRI, 1st Edition.
• Lane F. Donnelly, 2016. Fundamentals of Pediatric Imaging, (Fundamentals of Radiology) 2nd Edition.
• Lucaya, Javier, Strife, Janet L, 2002. Pediatric Chest Imaging: Chest Imaging in Infants and Children (Medical Radiology / Diagnostic Imaging) 2nd Edition.
• Marilyn J. Siegel, 2011. Pediatric Sonography, 4th Edition.
• Marilyn J. Siegel, 2010. Pediatric Body CT, 2nd Edition.
• Medina, L Santiago, Applegate, Kimberly E., Blackmore, Craig, 2010. Evidence-Based Imaging in Pediatrics: Improving the Quality of Imaging in Patient Care.

XII. Journals

XIII. Others