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FACULTY OF POSTGRADUATE MEDICINE

DOCTOR OF MEDICINE (MD)
CURRICULUM
OBSTETRICS AND GYNECOLOGY (2018)



Khesar Gyalpo University of Medical Sciences of Bhutan

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BACKGROUND

The Residency Program in Obstetrics and Gynecology contains a structured educational experience, planned in continuity with undergraduate and continuing medical education in the specialty areas. The program structure follows international standards in the subject specialties with minor adaptations for considering national situations, taking into account the present needs and available resources.

The training programme will be run by the medical university (KGUMSB) in association with the Jigme dorji wangchuck national referral hospital (Teaching hospital). The postgraduate training will be a limited phase training under the supervision of recognized and competent consultant Obstetrician and Gynecologists working in JDWNRH. After the 4 years of training, the successful resident will be awarded doctor of medicine (MD) after passing the university examination.

With the establishment of Medical University in Bhutan and recognizing the need to train more Obstetrician and Gynecologist, the Royal Government of Bhutan has approved starting of OBGYN residency in Bhutan from July 2014 at the Faculty of Postgraduate Medicine, Khesar Gyalpo University of Medical Sciences of Bhutan.

GOALS

Upon completion of the training, a resident is expected to be a competent specialist in Obstetrics and Gynecology capable of assuming a consultant's role in the specialty. The resident must acquire a working knowledge of theoretical basis of the specialty; demonstrate the required skills, and attitudes for effective patient-centered care and services to a diverse population of Kingdom of Bhutan.

“Contribute to improving the health and well-being of every woman in Bhutan, through quality medical education, research and evidence-based care.”

Objectives

- i. To provide the residents an opportunity to acquire knowledge, skills and attitudes that are fundamental to the practice of Obstetrics and Gynaecology;
- ii. To impart skills to perform emergency and routine gynaecological and obstetric procedures;
- iii. To train the residents in the diagnosis and management of all obstetric and gynaecological illnesses and conditions;
- iv. To familiarize the residents with all the national policies, standards, manuals and guidelines related to the practice of obstetrics and gynecology;
- v. To inculcate the practice of life-long learning and keeping abreast with the recent advances in obstetrics-gynaecology and related fields.

AN OVERVIEW OF ROTATIONAL SCHEDULE

| Sl. No | Activity | PG 1 | | PG 2 | | PG 3 | | PG 4 | |
|--------|--------------------------------|-------------------|--------------|------|-----------------|---------|---|------------------|-------------------|
| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| 1 | Generic Curriculum | | | | | | | | |
| 2 | IPD/OPD placement | | | | | | | | |
| 3 | Lecture class | | | | | | | | |
| 4 | Surgical Rotation | | | | | 4 weeks | | | |
| 5 | Anesthesia | | | | 1 week | | | | |
| 6 | Radio-diagnosis rotation | | 1 week | | | | | | |
| 7 | Adult ICU | | 1 week | | | 2 weeks | | | |
| 8 | Ultrasound (USG Dept &MCH) | 2 weeks | | | 2 weeks | 1 week | | 1 week | |
| 9 | NICU rotation | | 2 weeks nicu | | | 1 week | | | |
| 10 | Community Department | | 2 weeks | | | | | | |
| 11 | Field posting | | | | | August | | October | |
| 12 | Overseas posting 4 weeks/ year | | | | February | | | March | |
| 13 | Assessment Schedule | 2nd week December | | | 3rd Week of May | | | 1st week of June | 3rd&4th Week, May |
| 14 | Continuous assessment | | | | | | | | |

Term: July to December and January to June (6 months), 4 years is divided into 8 terms.

***: refer the section on assessment system for further details

CORE COMPETENCIES

- i. Medical knowledge and patient care.
- ii. Interpersonal and communication skills.
- iii. Professionalism and ethics.
- iv. Practice-based learning and improvement.
- v. Systems-based practice.

Professional attitude and conduct require that Resident must also have developed a style of care which is:

- i. humane (reflecting compassion in providing bad news, if necessary);
- ii. reflective (including recognition of the limitation of his/her knowledge, skills and attitude and try to improve from the past experiences);
- iii. morally and ethical sound;
- iv. Integrative (including involvement in an inter-disciplinary team for the care of pregnant woman and women with gynecological problems); and scientific (including critical appraisal of the scientific literature, evidence-based practice and use of information technology and statistics).

EDUCATIONAL STRATEGIES

TEACHING LEARNING PROGRAM

GENERAL PRINCIPLES:

Acquisition of practical competencies being the keystone of postgraduate medical education, postgraduate training should be skills oriented.

Learning in postgraduate program should be essentially self-directed and primarily emanating from clinical and academic work. The formal sessions are merely meant to supplement this core effort.

The residents will have to maintain a log book of all the learning activities and Formative assessments done in the end of each elective postings aligning with the learning outcomes of the programme. The specialist supervisor during the elective posting will conduct formative assessments as per the mapping with the learning outcomes

Three summative examinations are scheduled at the end of term 1 (Institute examination I – IE I), 4th term (Institute examination II – IE II) and 8th term (University examination – UE).

TEACHING AND LEARNING METHODS:

The Curriculum is based on the following principles of learning:^{1,2}

Competency –based Education;

Competency based education is defined by identifying the outcomes, defining performance levels, framework for assessing competencies and continuous evaluation process. The training of General Obstetrician and gynecologist needs to be focused on gaining knowledge integrating with skill and attitude development.

The Practice- based, learner centered and experiential learning Education;

The training of residents of Obstetrics and gynecology will take place in a supervised clinical setting. During the rotational postings, the residents will work in Out Patient Department (OPD), Maternity ward , birthing center, and Gynaecology ward. During the residency course, the residents will also be posted in NICU, Adult ICU, ultrasound, Radiology department, anaesthesia department, surgery and community health. Regular assessments and feedback by the faculty will be performed. The residents learn from the following methods but not limited to these:

- i. Case managements and discussion
- ii. Case presentations and discussion
- iii. Performing procedural skills under supervision, feedback and reflections
- iv. Learning & practicing communication skills through role plays and de-briefing
- v. Working professionally and ethically as a role model.
- vi. Residents as learners, teachers and leaders;

Residents need to develop educational and leadership skills as an integral part of their professional career. This curriculum aims to incorporate teaching, mentoring and leadership at all levels of professional life. The residents will be learning assessment and evaluation skills, adult learning principles, instructional and supervision skills, and providing feedback and develop skills on how to learn and educate during the foundation course. The following methods allow residents to acquire the above skills.

- i. Paper presentations and question answer session
- ii. Journal clubs and discussion
- iii. Case presentation and discussion
- iv. Bedside teaching followed by demonstration and practice³
- v. Grand rounds and question answer session
- vi. Seminars, Workshops, Conferences
- vii. Teaching interns and allied health staffs

¹ Kern D. Curriculum development for medical education. Baltimore: Johns Hopkins University Press; 1998.

² Key educational principles and concepts [Internet]. Royal Australian College of General Practitioners. 2011 [cited 28 May 2016]. Available from: <http://curriculum.racgp.org.au/statements/common-training-outcomes/>

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Independent Self-Directed Learning;

- i. Reading journals and articles, including web-based material
- ii. Maintenance of portfolio
- iii. Audit and research projects

FORMAL EDUCATIONAL ACTIVITIES:

| ACTIVITIES | FREQUENCY | RESPONSIBILITY |
|--|------------|--------------------|
| Morning Report | Daily | On call Residents |
| Daily inpatient rounds | Daily | Residents |
| Weekly lectures | Weekly | Faculty |
| Grand Rounds | Weekly | Resident/Faculty |
| Case/Topic presentation and discussion | Weekly | Residents/Faculty |
| Journal club | Bi monthly | Residents |
| Mortality and near miss cases discussion or conference | Bi monthly | Residents |
| Symposiums | Quarterly | Residents /Faculty |
| Conference | Annually | KGUMSB |

ASSESSMENT METHODS:

Assessment is a strong driving force behind learning and therefore is a main focus in the curriculum design.^{4, 5} Since it addresses complex competencies; it requires both quantitative and qualitative information from different sources as well as professional judgment. No single assessment method is inferior or superior and all methods have their strengths and weaknesses. A complete assessment programme tries to balance these out by using various assessment tools.

Another important issue is the problem of domain specificity. Any assessment or test is factually a sample of questions (or assignments or observation) and how a candidate performs on one type of question is a poor predictor of their performance on another type of question. This notion of domain specificity^{6, 7} requires examinations to be sufficiently long and diverse.

⁴ Frederiksen N. The real test bias: Influences of testing on teaching and learning. *American Psychologist* 1984;39:193-202

⁵ Cilliers FJ, Schuwirth LWT, Adendorff HJ, Herman N, Van der Vleuten CPM. The mechanisms of impact of summative assessment on medical students' learning. *advances in health sciences education* 2010;15:695-715.

⁶ Eva K. On the generality of specificity. *Medical Education* 2003;37:587-8.

⁷ Eva KW, Neville AJ, G.R. N. Exploring the etiology of content specificity: Factors influencing analogic transfer and problem solving. *Academic Medicine* 1998;73:s1-5.

DOCTOR OF MEDICINE (MD) CURRICULUM

Assessment programmes can be described using the categorization of Miller’s Pyramid (fig. 2). This illustrates a helpful framework for assessment. The base of the pyramid represents knowledge (knows), followed by competence (knows how), performance (shows how) and action in the work place (does)⁸. No single method is able to assess all the layers and therefore multiple methods need to be employed.⁹ The following methods will be utilized for both formative and summative assessments.

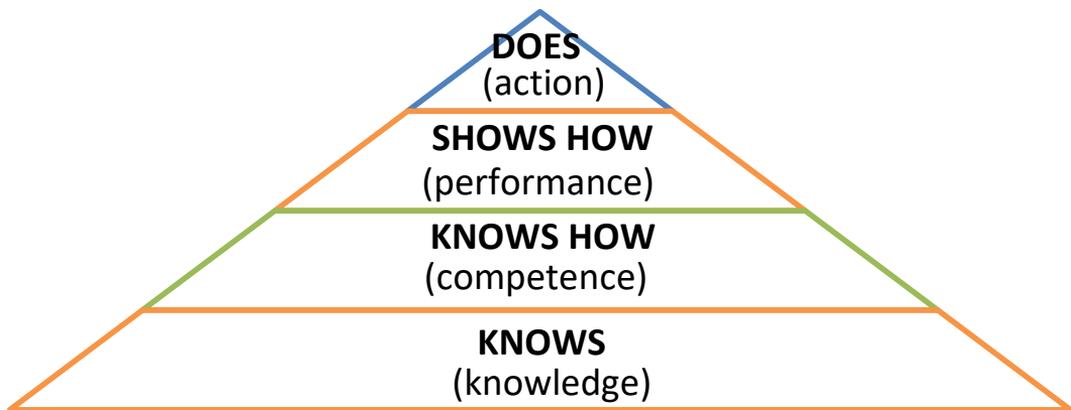


Figure 2: Miller’s Pyramid, framework for clinical assessment

360 degree feedback;

360-Degree/Multisource Assessment consists of measurement tools completed by multiple individuals in a person’s sphere of influence. Assessment by peers, other members of the clinical team, and patients can provide insight into trainees’ work habits, capacity for team work, and interpersonal sensitivity.¹⁰

Mini-CEX;

The Mini-CEX is a 10 to 20 minute direct observation assessment or “snapshot” of a trainee-patient interaction. The competencies that can be assessed by this method are history taking, physical examination, counseling skills, clinical judgment/reasoning and overall clinical competence¹¹.

⁸ Miller G E. The Assessment of Clinical Skills/Competence/Performance. September supplement 1990, Volume 65, Number 9.

⁹ Kern D. Curriculum development for medical education. Baltimore: Johns Hopkins University Press; 1998.

¹⁰ Tabish S. Assessment methods in medical education. International Journal of health Science. 2008;Volume 2(2); 2008 (PMC3068728).

¹¹ Assessment tools [Internet]. American Board of Internal Medicine. 2016 [cited 28 May 2016]. Available from: <http://www.abim.org/program-directors-administrators/assessment-tools/mini-cex.aspx>

Objective Structured Clinical examination (OSCE)/OSPE;

This consists of multiple stations in each of which the candidate is asked to perform a different defined task such as taking a focused history, performing a focused clinical examination of a particular system, performing a procedural skills and conducting counseling sessions. A standardized marking scheme specific for each case is used¹².

The Short Answer Question (SAQ);

This is an open ended, semi-structured question format²⁵. They take more time to answer than for multiple choice questions and therefore their reliability per hour of testing time is lower. Generally, it is recommended that they should be used mainly when testing aspects which cannot be tested by closed questions format.¹³ A structured predetermined marking scheme improves reliability.

Direct Observation of Procedural Skills (DOPS);^{14,25}

This is a structured rating scale for assessing and providing feedback on practical procedures. The competencies that are commonly assessed include general knowledge about the procedure, informed consent, pre-procedure preparation, analgesia, technical ability, aseptic technique, post-procedure management, and counseling and communication.

OSLER**Multiple Choice Questions (MCQ);**

MCQs can be useful for formative and summative assessments and good quality MCQ can be set through peer review process and efficient feedback system¹⁵. Although time consuming to set, these tests typically have a high reliability per hour of testing time (than open ended questions), because they can easily mitigate the impact of context specificity, i.e. a large number of items can be tested and marked within a relatively short time frame¹⁶.

Key Feature Questions (KFQ);

This is a clinical scenario-based question. A description of the cases is followed by a limited number of questions that focus on critical, challenging actions or decisions²⁵.

¹² Tabish, S. A. Assessment methods in medical education. *Int J Health Sci (Qassim)*. 2008 Jul; 2(2): 3–7.

¹³ Schuwirth W T Lambert, Vleuten P M Cees. *ABC of learning and teaching in medicine*.

¹⁴ Norcini J, McKinley D. Assessment methods in medical education. *Teaching and Teacher Education*. 2007;23(3):239-250.

¹⁵ Bunmi S. Malau-Aduli, Dwight Assenheimer, Derek Choi-Lundberg & Craig Zimitat (2014) Using computer-based technology to improve feedback to staff and students on MCQ assessments, *Innovations in Education and Teaching International*, 51:5, 510-522, DOI: 10.1080/14703297.2013.796711

¹⁶ Wass V, Bowden R, Jackson N. ResearchGate. (2014). Principles of Assessment Design. [online] Available at: https://www.researchgate.net/publication/253681539_The_principles_of_assessment_design [Accessed 17 Jun. 2016].

Simulation with standardized patients;²⁷

A standardized patient is a person trained to accurately and consistently portray a patient with a particular medical condition. Based on an encounter between the standardized patient and a student, both the standardized patient and medical professionals can make judgments about the quality of the performance along a number of dimensions (e.g., history-taking, physical examination, interpersonal, and communication skills)

Logbook;

The students keep a record of the patients seen, procedures performed and any other teaching learning activities she/he has attended either in a book or in a computer. It documents the range of patient care and learning experience of students. Logbook is very useful in focusing students on important objectives that must be fulfilled within a specified period of time.¹⁷

Case-based Discussion (CbD);

This is a valuable workplace formative assessment tool and is used to assess the resident's professional judgments in clinical areas. In this method, a comprehensive review of a clinical case is conducted between a resident and an assessor. After the discussion, the assessor provides feedback to help the resident improve and structure their future learning. The clinical areas that can be assessed by this method are history taking, clinical findings and interpretation, management plan; follow up, future planning and record keeping.¹⁸

Portfolio assessment;^{19,20}

This method is another important process that will be utilized to assess the residents. They are required to record every learning experience and reflections and data like a logbook, reflections and all records of learning activity and assessments reflecting five core competencies throughout the training period. It will be seen as both the process and the outcome of the residency programme. As a process, it will enable the residents to monitor their own learning systematically, reflecting on their learning using the five core competencies leading to learning goals. As a product, it holds the work records and documents the resident has produced representing their achievements. The portfolio will be assessed regularly by the residents, specialist supervisor and the GP supervisor. It will be further assessed by internal and external examiner at two low stakes examinations (institute examination I and II – IE 1, IE 2) and finally at high stake examination (University examination - UE), after completion of the residency programme. A good documentation process will be followed to ensure credibility. The following figure (figure 6) illustrates the assessment process of the portfolio. The concept for the flow chart is adapted from the Journal article - Assessing tomorrow's learners: In competency-based education only a radically different holistic method of assessment will work by Lambert Schuwirth and Julie Ash .²¹

¹⁷ Tabish, S. A. Assessment methods in medical education. *Int J Health Sci (Qassim)*. 2008 Jul; 2(2): 3–7

¹⁸ Case-based Discussion [Internet]. RACP. [cited 29 May 2016].

¹⁹ 17. Zaidi S Nasir M. Teaching and learning methods in medicine.

²⁰ Assessing by portfolio [Internet]. UNSW, Australia. [cited 29 May 2016].

²¹ Schuwirth L, Ash J. Assessing tomorrow's learners: In competency-based education only a radically different holistic method of assessment will work. *Six things we could forget. Medical Teacher*. 2013;35(7):555-559.

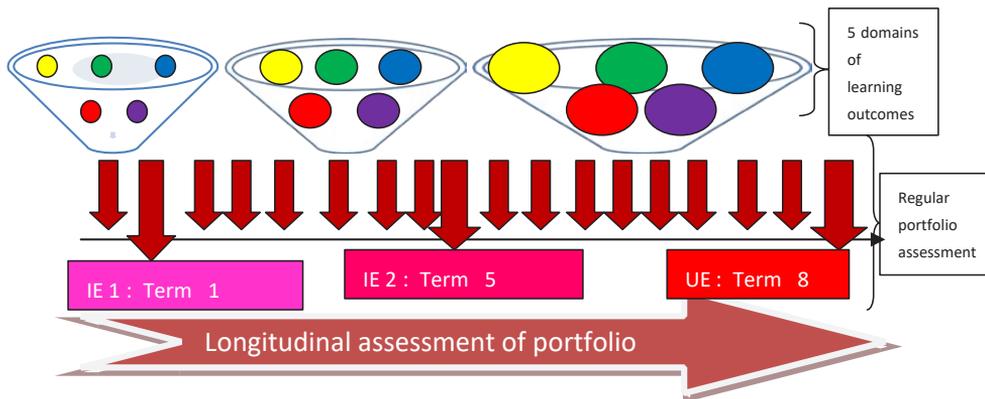


Figure 3: Utility of portfolio as an assessment method

DETAILS OF CORE COMPETENCIES WITH LEARNING METHODS AND TOOLS OF ASSESSMENT

MAPPING OF SPECIFIC LEARNING OUTCOMES WITH TEACHING/LEARNING ACTIVITIES AND ASSESSMENT METHODS

Medical knowledge and patient care:

Residents must demonstrate knowledge and skills about established and evolving biomedical, clinical, and cognate (e.g. epidemiological and social-behavioral) sciences and the application of this knowledge to patient care and be able to provide patient care that is compassionate, appropriate, and effective for the treatment of health problems and the promotion of health. Residents are expected to:

- i. know and apply the basic and clinically supportive sciences which are appropriate to obstetrics and gynecology;
- ii. demonstrate an investigatory and critical thinking approach and use clinical reasoning in various clinical situations;
- iii. gather essential, accurate and relevant information about their patients;
- iv. make informed decisions about diagnostic and therapeutic interventions, based on patient information and preferences, up-to-date scientific evidence and clinical judgment;
- v. develop and carry out patient management plans;
- vi. counsel and educate patients and their families;
- vii. use information technology to support patient care decisions and patient education;
- viii. perform competently the medical and invasive procedures considered essential for the area of practice;
- ix. provide health care services aimed at preventing health problems and maintaining health;
- x. Work with health care professionals, including those from other disciplines, to provide patient-focused care.

DOCTOR OF MEDICINE (MD) CURRICULUM

| Specific Learning Outcome | Teaching/learning Activity | Assessment methods |
|---|---|---|
| <p>1. Demonstrate relevant diagnostic and managerial skills</p> <ul style="list-style-type: none"> - Content - Procedural skills | <p>Real Life Experience in different postings and reflections, Case managements and discussion, Ward rounds(bedside teaching), Grand rounds and discussion, Teaching interns, junior residents and other allied health staffs, Demonstrations of procedural skills, performing the procedural skills under supervision, self-reflections and feedback, Lectures, Symposiums, Case presentations, Topic presentations, Morbidity and mortality meet and discussion Journal clubs and discussions, Conferences, workshops, Simulation with artificial models, simulators and standardized patients,</p> | <p>SAQ SEQ SLAQ MCQ Case based Discussion Mini CEX DOPS OSCE OSLER Short cases 360 degree feed back Portfolio assessment Log book</p> |
| <p>2. Demonstrate holistic and patient-centered care</p> <ul style="list-style-type: none"> -Effective history taking, physical examination and documentation - need and priority based approach - Management plans and continuity of care - Psycho -Socio-cultural factors | <p>Real Life Experience and reflections, Case managements and discussion, Ward rounds(bedside teaching), Grand rounds and discussion, Case discussions Teaching interns, junior residents and other allied health staffs, Role plays and de contextualization to understand relationship Counseling and debriefing</p> | <p>SLAQ Case based Discussion OSCE OSLER 360 degree feed back Portfolio assessment</p> |
| <p>3. Able to remain updated and be innovative</p> <p>Evidence-based medicine and practice</p> <p>Up-to- date prescribing knowledge</p> <p>Innovative approach to patient with multiple problems</p> | <p>Literature review, and critique reflection Journal club and critical appraisal Thesis writing Poster presentation Topic presentation Symposiums/ seminars/ workshops</p> | <p>SAQ, MCQS OSLER Portfolio assessment Thesis assessment</p> |
| <p>4. Able to collaborate and coordinate care</p> <p>Minimize fragmentation of care and multidisciplinary care</p> <p>Effective communication with patient, relatives, caregivers and other specialists</p> <p>Collaborate with other agencies to optimize patient care</p> | <p>Real Life Experience and reflections Role plays and de contextualization</p> | <p>360 degree feedback</p> |

Interpersonal and communication skills:

Residents must be able to demonstrate interpersonal and communication skills that result in effective information exchange and teaming with patients, patients’ families, and professional associates. Residents are expected to:

- i. create and sustain a therapeutic and ethically sound relationship with patients;
- ii. use effective communication skills;
- iii. communicate effectively and demonstrate caring and respectful behaviors when interacting with patients and their families;
- iv. work effectively with others as a member or leader of a health care team or other professional group;

| Specific Learning Outcome | Teaching/learning Activity | Assessment methods |
|--|--|--|
| 1. Communication is clear, respectful, empathetic and appropriate to the person and sociocultural context | Real Life Experience in different postings and reflections, Role play and de contextualization Counselling Patients and debriefing | Mini CEX DOPS OSCE OSLER 360 degree feed back Portfolio assessment Log book |
| 2. Effective communication is used in challenging situations like: Breaking bad news Agitated family or patients Discuss poor prognosis of diseases | | |
| 3. Clear and appropriate communication with family and caregivers Involvement of family member & caregiver in patient management Impact of patient care burden on caregivers Ways to optimize health care of the patients (eg self-care, nutrition and stress management etc) | | |
| 4. Complaints and concerns are managed effectively Approaches to address patient complaints Plans to reduce risk of complaints in future | | |

Professionalism and ethics:

Residents must demonstrate a commitment to carrying out professional responsibilities, adherence to ethical principles, and sensitivity to a diverse patient population. Residents are expected to:

- i. Have moral, ethical, and professional attitudes toward patients, relatives, colleagues, and the community;
- ii. be responsive to the needs of patients and society that supersedes self-interest;
- iii. be accountable to patients, society, and the profession;
- iv. be committed to on-going professional development and strive for excellence;
- v. demonstrate a commitment to professional and ethical principles pertaining to medical care;
- vi. Demonstrate sensitivity and responsiveness to patients' culture, age, gender, and disabilities.

| Specific Learning Outcome | Teaching/learning Activity | Assessment methods |
|---|--|---|
| 1. Adherence to relevant codes and standards of ethical and professional behavior - Ethical dilemmas in practice situations and access to professional support - Evaluate and review professional behavior against appropriate codes of conduct | - Real life experience and Reflections - PBL - Lectures - Role model - Small group discussions | - MCQ, SAQ - OSCE - 360 degree feedback - Portfolio Assessment |
| 2. Standard care is maintained Manage obstacle to provision of standard care Record and report any instances that may have compromised the care | Real life experience and Reflections Small group discussion | - 360 degree feedback - Portfolio Assessment - SAQ, MCQ - OSCE |
| 3. Critical incidents and potential critical incidents are identified and managed. | Small group discussion Real life experience and reflections | - OSCE - Portfolio Assessment |
| 4. Reflection and self-appraisal are undertaken regularly | - Self-reflections | - Portfolio Assessment |
| 5. Personal health and wellbeing is evaluated, maintained and developed | Self-reflection Role Model | -Portfolio assessment |

Practice-based learning and improvement:

Residents must be able to investigate and evaluate their patient care practices, appraise and assimilate scientific evidence, and improve their patient care practices. Residents are expected to:

| Specific Learning Outcome | Teaching/learning Activity | Assessment methods |
|---|--|---|
| analyze practice experience and perform practice-based improvement activities using a systematic methodology locate, appraise, and assimilate evidence from scientific studies related to their patients' health problems; apply knowledge of study designs and statistical methods to the appraisal of clinical studies and other information on diagnostic and therapeutic effectiveness; obtain and use information about their own population of patients and the larger population from which their patients are drawn; use information technology to manage information, access on-line medical information; and support their own education; and; Facilitate the learning of students and other allied health care professionals. | Real life experience and reflections Journal clubs Literature review, critique reflection Scientific seminars National and international conferences | MCQ SAQ 360 degree feed back Case based Discussion Portfolio assessment |

Systems-based practice:

Residents must demonstrate an awareness of and responsiveness to the larger context and system of health care and the ability to effectively call on system resources to provide care that is of optimal value. Residents are expected to:

| Specific Learning Outcome | Teaching/learning Activity | Assessment methods |
|--|---|------------------------------------|
| Have knowledge of the health system of the country. Have knowledge and involvement in quality improvement system for patient care Adhere to system operating procedures and standard operating procedures Practice cost- effective healthcare and resource allocation that do not compromise quality of care; advocate for high quality patient care and assist patient in dealing with system complexities Know how to partner with health care managers and providers to assess, coordinate, and improve healthcare and know how the activities can affect system performance | lectures Small group discussion Workshops Conferences Developing SOPs | SAQ OSCE 360 degree feedback |

GRADED RESPONSIBILITY FOR EACH ACADEMIC YEAR

FIRST YEAR RESIDENT;

The first year focuses on general Obstetrics and gynecological patient care, attend obstetrics and gynecological emergencies, and carry out and get exposed and assist senior in carrying out major obstetrics and gynecological emergencies and assist senior in Gynecological and Obstetrics surgeries, and carry out minor gynecological and Obstetrics procedures

Residents will fulfill the following responsibilities:

- i. Acquiring the experience and education related to all aspects of the care of the hospitalized Obstetrics and gynecological patients.
 - b. Learning common gynecological disease and common Obstetrics case, their diagnosis and management
 - c. Learn about management of normal labour
 - d. Learning and practicing good history taking and physical examination
 - e. Learning to write clear admission notes, daily progress notes and discharge summaries under the supervision of senior residents
 - f. Learning counseling on the disease/condition of the patients and other various management issues and breaking of bad news
 - g. Presenting efficiently in the morning meetings, morning and evening rounds and learning on adequate and proper handing taking of the patients and participating in the departmental CME activities.
- viii. Learning common and minor gynecological procedures, under the supervision of the senior resident/faculty.
- ix. Learning and managing common obstetrics and gynecological emergencies
- x. Getting exposed to Adult and neonatal critical care and manage some problems in these settings.
- xi. Complete BLS/ACLS and EENC Courses
- xii. Self-directed learning skills and preparation for examinations
- xiii. Designing a research project with the assistance of a Supervisor and a co supervisor

SECOND YEAR RESIDENT.

The year focuses on revising and acquiring competency in the above issues, gaining more clinical experience and acumen, more exposure to subspecialties and adopting a more decision making role in day-to-day practice and also carry on development of surgical skills under the supervision of the senior residents and consultants.

Residents will fulfill the following responsibilities in addition to solidifying the above:

- i. Gaining more clinical experience, acumen and judgment and becoming more competent.
- ii. Learning time management and adopting more decision making role

- iii. Acquiring professionally and ethically sound behavior and learn to work as part of a team
- iv. Supervising the work of interns and First year residents
- v. Teaching interns and undergraduate students
- vi. Conducting Ambulatory Clinics under supervision of senior resident/faculty.
- vii. Learning to write good medical reports
- viii. Learning good and effective communication skills
- ix. Getting exposed to subspecialty training
- x. Conducting a research project with the assistance of a Supervisor and co supervisor

THIRD YEAR RESIDENT.

The year focuses on taking higher responsibility in patient care and decision making and adopting a greater supervisory and teaching role to junior residents plus broadening knowledge through exposure and development of more surgical skills.

Residents will add on the following responsibilities to the above:

- i. Assuming a more independent role in patient care in outpatient, inpatient, emergency and ambulatory settings.
- ii. More subspecialty training exposure to provide depth to their knowledge.
- iii. Attending to referral cases from other departments
- iv. Teaching and supervising interns, first year and second residents
- v. Analyzing and submission of a research project with the assistance of a Supervisor and co supervisor
- vi. Preparing residents' duty roster and residents' academic program calendar

FINAL YEAR RESIDENT.

The final year focuses on achieving the role of an independent Obstetrician and gynecologist making decision on all day-to-day patient management and administrative issues and functioning as a leader to junior residents. Residents will also have a wider exposure to subspecialty rotations.

Residents will add on the following responsibilities to the above:

- i. Conducting independent ward rounds and OPD and clinics
- ii. Assuming a more independent role in intensive and critical care
- iii. Under take major surgeries in obstetrics and gynecology under the supervision of the consultants
- iv. Conducting courses to the junior residents.
- v. Formally teaching and supervising students, interns and junior residents
- vi. Spending two rotations as elective time in any clinical or academic pursuit (district posting)
- vii. By the end of this year, residents should be able to function as competent obstetrician and gynecologist, providing the highest level of quality care.

INTRODUCTION TO CONTENTS

The contents outlined in this section are in alignment with the learning outcome of the programme.

GENERIC CURRICULUM

The Generic Curriculum is designed to help resident doctors to develop competency in a number of areas including communication and consultation skills, patient safety and team work as well as the general principles and techniques of basic sciences including diagnostic and imaging and investigative medicine.

The resident doctors are also expected to develop and demonstrate a range of essential interpersonal and clinical skills for managing both acute and long-term conditions, regardless of the specialty. The concepts defined in the Generic Curriculum should continue to be visited, reflected upon, and honed throughout the residency training programme and lifelong professional carrier.

Learning outcomes

At the end of this curriculum, the residents are expected to be able to:

- i. Identify the general and specific learning needs and outcome of the whole residency programme.
- ii. Apply the principles and techniques in basic sciences to clinical setting in the respective Specialty discipline.
- iii. Synthesize the process of history taking, clinical observations, investigations, diagnosis and treatment plans for proper and effective management of the patients.
- iv. Illustrate a range of essential interpersonal and clinical skills for managing patients with both acute and long-term conditions, regardless of the specialty.
- v. Demonstrate different aspects of medical ethics and etiquettes for strengthening professionalism and patient care.
- vi. Identify and address the legal and ethical issues as applicable to clinical practice and healthcare.
- vii. Provide leadership and management oversight in patient management with emphasis on intra-and inter-disciplinary team work.
- viii. Make independent clinical decisions with appropriate support.
- ix. Understand the principles and techniques in epidemiology, biostatistics and research and apply research in clinical practice to promote and strengthen evidence-based care.

**TEACHING METHODS MODULE
MEDICAL HUMANITIES MODULE**

QUALITY IMPROVEMENT PROJECT

Note: Above two modules will be delivered from term 2 to term 7 of residency program with compulsory attendance requirement of 90% to qualify for Institute Examination III.

CLINICAL COURSE CONTENT

Lecture on Obstetrics and gynecology

In addition to the other formal educational activities, residents will have one to two protected hours of teaching once a week.

The following topics will be covered in Obstetrics and gynecology there by resident will be able to develop a comprehensive knowledge on the following topics:

First Year Resident

- I. Pre-conception care
- II. Antenatal care
- III. Normal labour
- IV. Induction and augmentation of labour
- V. Cardiotocography (CTG)
- VI. New born care
- VII. Basic Obstetrics & Gynecology ultrasound
 - a. Pelvic anatomy
 - b. Human embryology and genetics
- VIII. Pre- and post-operative care
- IX. Caesarean section
- X. Miscarriages
- XI. Ante-partum haemorrhage
- XII. Post-partum haemorrhage

SECOND YEAR.

Obstetric Topics

- I. Fetal Monitoring
- II. Lactation
- III. The Normal and Abnormal Puerperium
- IV. Abnormal labor/dystocia
 - a. Labor Dystocia
 - b. Breech
 - c. Twin delivery
- V. Breech Presentations

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- VI. Multiple Pregnancy
- VII. Medical conditions complicating Pregnancy
 - a. Hypertension
 - b. Diabetes mellitus
 - c. Heart Disease
 - d. Renal Disease
 - e. Thyroid disease
 - f. Skin disease
- VIII. Preterm birth
- IX. Thrombo-embolic disorders
- X. Poly-hydramnios/Oligohydramnios
- XI. Hyperemesis gravidarum
- XII. Cervical incompetency
- XIII. Antepartum Hemorrhage

Gynecology Topics

- I. Basic O & G Ultrasound (part 2: Gynecology)
- II. Ectopic pregnancy
- III. GTN
- IV. Menstrual disorders
- V. Endometriosis
- VI. Chronic pelvic pain
- VII. Premenstrual Syndrome
- VIII. Surgical site Infection Management
- IX. Contraception

THIRD YEAR

Obstetric Topics

- I. Prenatal Diagnosis
- II. Clinical genetics
- III. Post term pregnancy
- IV. IUGR
- V. PPROM
- VI. Recurrent Miscarriage
- VII. Obstetric and Perinatal Infections
- VIII. Stillbirth and Fetal Demise
- IX. Medical conditions Complicating Pregnancy
 - a. Psychiatric conditions in pregnancy
 - b. Hematology Disorders
 - c. Rheumatic Disorders
 - d. Gastrointestinal Disorders
 - e. seizure disorders,
 - f. connective tissue disorders,

- g. Respiratory disorders and
- h. Other disorders complicating pregnancy.

Gynecology Topics

- I. Tumors of female reproductive organs
- II. Pelvic infection/STIs
- III. Screening in Obstetrics and Gynecology
 - a. Screening for Cervix cancer
 - b. Screening for Ovarian Cancer
 - c. Breast Screening
- IV. Premalignant Conditions (CIN VAIN)
- V. Pediatric and Adolescent Gynecology
- VI. Polycystic Ovarian Syndrome
- VII. Amenorrhea
- VIII. Sub-fertility management
- IX. Genital Prolapse
- X. Breast Disorders

FOURTH YEAR

Obstetric Topics

- I. Multiple pregnancy
- II. Massive Obstetric hemorrhage
- III. Management of septicemia
- IV. Teratology and substance use in pregnancy
- V. Birth Injuries
- VI. Surgical complications of Pregnancy
- VII. Prescription in Pregnancy and Lactation
- VIII. Obesity and reproduction
- IX. Extremes of age and Pregnancy
- X. Obstetric analgesia and anesthesia
- XI. Maternal Mortality
- XII. Domestic Violence and sexual assault
- XIII. National reproductive Health Programs
- XIV. Recent advances in Obstetrics

Gynecology Topics

- I. Gynecological Cancer
- II. Palliative care in Gynecology
- III. Basics of Chemotherapy
- IV. Stress Incontinence and Fistulas
- V. Urology/Andrology
- VI. Conditions of vulva and vagina
- VII. Premalignant Conditions (CIN VAIN)

- VIII. Adolescent Gynecology
- IX. Assisted Reproductive technology
- X. Menopause and Beyond
- XI. Sexual Dysfunction
- XII. Recent advances in Gynecology

Core Surgical Skills.

The Trainee should be able to:

- I. Obtain valid informed consent to surgical procedures and be aware of the procedure inspecial situations; e.g. Children, adults with incapacity and adults and children inemergency situations;
- II. Name and describe the use of common surgical instruments and sutures;
- III. Adequately describe regional anatomy and histology and general pathological principles;
- IV. Describe commonly encountered infections, and adopt appropriate measures to preventor control infection;
- V. Describe the possible complications of surgery and adopt appropriate measures toprevent or minimize them;
- VI. Describe the early diagnosis and management of possible complications of surgery;
- VII. Understand and describe the principles of nutrition; water, electrolyte and acid basebalance and cell biology;
- VIII. Describe the appropriate use of blood and blood products;
- IX. Interpret pre-operative investigations;
- X. Arrange pre-operative management;
- XI. Recognize potential co morbidity;
- XII. Explain procedures to patient;
- XIII. Advise patient on postoperative course;
- XIV. Choose appropriate operation;
- XV. Exhibit technical competence at the skill level required;
- XVI. Make intraoperative decisions with due regard to degree of urgency, likely pathology andanticipated prognosis;
- XVII. Manage intra-operative problems;
- XVIII. Recognize the need for and initiate collaboration with other disciplines, before, duringand after surgery;
- XIX. Develop the ability to work under pressure and Recognize limitations.

Surgical Procedures.

The Trainee should be able to:

- I. Carry out under indirect supervision; Marsupialization of Bartholin’s abscess, Evacuationof uterus, Diagnostic laparoscopy, Sterilization, Polypectomy, Diagnostichysteroscopy, Minor cervical procedures, Excision of vulval lesions,

Laparotomy forectopic pregnancy, Ovarian cystectomy for benign disease, Elective peritoneal adhesiolysis, Myomectomy, Abdominal Hysterectomy, Vaginal Hysterectomy;

- II. Choose appropriate instruments, sutures, drains and catheters;
- III. Know own limitations and when to seek help;
- IV. Use diathermy, endoscopic and other equipment safely and efficiently;
- V. Think ahead during procedure, anticipate and prevent complications;
- VI. Amend surgical procedure appropriately when necessary, following consultation;
- VII. Work effectively with other members of the theatre team, showing leadership where appropriate.

Endoscopy in Obstetrics and Gynecology.

The trainee should be familiar with:

- I. Endoscopic anatomy and physiology of the peritoneal cavity, pelvic organs, tissue dissection planes and pelvic anatomical spaces, blood supply, innervations and their relationships to each other.
- II. The instruments, assembly and disassembly, sterilization and theatre organization.
- III. The management of specific post operative management, recognition of short and long term complications and appropriate follow up and appreciate the difference of these between open and endoscopic procedures.
- IV. The trainee should be competent in:
- V. Appropriate patient selection, preoperative work up including inputs from other specialties (general surgery, urology and radiology, OBGYN), counseling and obtaining informed consent and preoperative planning.
- VI. Appropriate laparoscopic entry techniques and individualized port placement for different procedures, surgical ergonomics and staff safety.
- VII. Patient positioning, patient safety measures and special anesthetic requirements for endoscopy.
- VIII. The principles of electro surgery, settings for each procedure, safe use of monopolar, bipolar, ultrasonic and laser and instruments with combined energy sources.
- IX. Intracorporeal and extracorporeal suturing techniques,
- X. The techniques of specimen retrieval by the use of morcellator, posterior colpotomy, bag and direct retrieval through ports.
- XI. Recognition of alimentary tract, urinary tract, vascular and neurological complications upon entry, during the procedure and during exit.
- XII. Trainees should have exposure to the following laparoscopic procedures:
- XIII. Salpingectomy, salpingotomy, salpingostomy, tubal sterilization, reversal of sterilization and tubal surgery.
- XIV. Diagnostic fertility procedures such as hydro chromotubation and diagnostic laparoscopy

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- XV. Ovarian cystectomy, ovarian diathermy, Oophorectomy and Oophoropexy
- XVI. Total laparoscopic hysterectomy, Supra cervical laparoscopic hysterectomy, Myomectomy, cornual resections and reconstructive surgery of the uterus
- XVII. Treatment of Endometriosis including adhesiolysis, dissection of pararectal and paravesical spaces, resection of recto vaginal septum endometriosis, and vaginal endometriosis
- XVIII. Incontinence procedures such as Burch colposuspension and anterior compartment repair
- XIX. Trainees should have exposure to the following hysteroscopy procedures:
- XX. Diagnostic hysteroscopy, hysteroscopic guided biopsy, polypectomy and retrieval of IUCD
- XXI. Trans-cervical resection of fibroid, polyps and endometrium, resection of uterine synechiae and septa.

Procedural skills in Obstetrics and gynecology residency.

The residents (OBGYN) must be able to demonstrate skills in the following procedures at the end of the training and maintain a log book as per the sample in appendix 1.

| FIRST YEAR RESIDENT |
|--|
| <i>Dilatation and curettage</i> |
| <i>Insertion of CuT</i> |
| <i>Minilaparotomy tubal ligation</i> |
| <i>Perform obstetrics ultrasound</i> |
| <i>Conduct normal delivery</i> |
| <i>Induce /augment normal labour</i> |
| <i>Conduct instrument delivery - vacuum and forceps delivery</i> |
| <i>Management episiotomy and perineal tear repair</i> |
| <i>Manual removal of placenta (MRP)</i> |
| <i>Manage Postpartum haemorrhage (PPH)</i> |
| <i>Marsupialization</i> |
| <i>Evacuation - Manual Vacuum Aspiration (MVA) /Suction evacuation</i> |
| <i>Assist laparotomy and caesarean section</i> |

SECOND YEAR RESIDENT

Laparotomy under guidance

Assist in Wound debridement /Exploration

Assist total abdominal hysterectomy

Assist Vaginal hysterectomy

Primary caesarean section

Colposcopy/LEEP/Cryotherapy

Assist in Diagnostic Laparoscopy /Hysteroscopy

Paracentesis

Sonohysterogram (SHG)

Perform basic gynae USG

Conduct breech delivery

Conduct twin delivery

Perform cervical cerclage

Perform external cephalic version

THIRD YEAR RESIDENT

Laparotomy

Surgical site infection management

Total abdominal hysterectomy

Vaginal hysterectomy

Assist Myomectomy

Peripartum Hysterectomy

Pelvic arterial ligation to control hemorrhage

Vulval and Perineal Operations

Repeat C/S

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| |
|--------------------------|
| Assist in Cancer surgery |
|--------------------------|

| |
|---|
| Simple Diagnostic Laparoscopy /Hysteroscopy |
|---|

| |
|-----------------------------|
| Laparoscopic Tubal Ligation |
|-----------------------------|

| |
|--------------------------------------|
| Vaginal birth after Caesarean (VBAC) |
|--------------------------------------|

| |
|-------------------------|
| Assist in tubal surgery |
|-------------------------|

FOURTH YEAR RESIDENT

| |
|------------|
| Laparotomy |
|------------|

| |
|------------------------------|
| Total addominal hysterectomy |
|------------------------------|

| |
|----------------------|
| Vaginal hysterectomy |
|----------------------|

| |
|----------------------------------|
| Pelvic floor repair surgery(PFR) |
|----------------------------------|

| |
|--------------------------|
| Repeat caesarean section |
|--------------------------|

| |
|---|
| Laparoscopic surgery like cystectomy , salpingectomy and oophorectomy |
|---|

| |
|-------------------|
| Arterial ligation |
|-------------------|

| |
|------------|
| Myomectomy |
|------------|

| |
|---------------|
| Tubal Surgery |
|---------------|

| |
|---|
| Hysterectomy procedure like polypectomy , and adhesolysis |
|---|

| |
|--|
| Assist total laparoscopic hysterectomy |
|--|

Postoperative Care.

The Trainee should be able to

- I. Describe the general pathological principles of post operative care;
- II. Make appropriate postoperative plans of management;
- III. Describe the principles of Fluid/electrolyte balance and the factors which influence woundhealing;
- IV. Conduct appropriate review of; fluid/electrolyte balance, catheter, surgical drainage sutures;
- V. Describe postoperative complications related to obstetric, gynaecological and non-gynaecological procedures;
- VI. Manage complications including primary haemorrhage, wound infection and thromboembolism;
- VII. Recognize early and deal competently with unexpected complications;
- VIII. e.g. bladder injury or seek assistance when required e.g. Ureteric or bowel injury;
- IX. Describe possible late postoperative complications, including secondary haemorrhage;
- X. Manage possible late postoperative complications, including secondary haemorrhage;
- XI. Give psychological support for patients and relatives;
- XII. Effectively communicate with patients and relatives;
- XIII. Document the surgical procedure with appropriate notes;
- XIV. Recognize the need and initiate collaboration with other disciplines when indicated;
- XV. Effectively communicate with other healthcare professionals;
- XVI. Construct an appropriate discharge letter;
- XVII. Recognize limits and refer appropriately.

Different rotations posting.**NICU****Learning outcome.**

At the end of the NICU attachment, the resident is able to do and knows,

- I. Principles of Essential New Born Care: temperature, nutrition, infection control, recognition of danger signs, neonatal transport and referrals.
- II. Resuscitate and intubate a newborn baby. This includes rapid clinical assessment of neonatal asphyxia, external cardiac compression, use of bag and mask ventilation and use of endotracheal intubation.
- III. Examine a newborn baby and recognize, neonatal abnormalities requiring neonatologist care (e.g. congenital dislocation of hips, esophageal atresia, cardiac murmurs).
- IV. Investigate and provide initial treatment of neonatal jaundice.

Adult Intensive Care Unit

Learning outcome.

At the end of the ICU attachment, the resident is able to do and knows,

- I. Recognize and understand the management of Obs-Gynae patient requiring ICU care, including eclampsia, major obstetric haemorrhage and peripartum collapse.
- II. Understand the principles of cardiopulmonary resuscitation and care of intubated patients.

Ultrasound unit & CHU.

Learning outcome.

At the end of the Ultrasound unit and CHU attachment, the resident knows and is able to,

- I. Perform basic Obstetric ultrasound scans for the purpose of ascertaining placental localization, fetal number and fetal presentation,
- II. Perform basic pelvic (Transabdominal and Transvaginal) ultrasound for common gynecological disorders especially the diagnosis of miscarriage and ectopic pregnancy.

Radio-diagnosis (department of Radiology).

Learning outcome.

At the end of the radio-diagnosis attachment, the resident is able to do and knows,

- I. Principles of taking x-rays in females
- II. Understand the principles of CT and MRI scanning of the pelvis and recognize common pathologies.
- III. Perform Hysterosalpingography (HSG) and sonohysterography.

Community Health Department

Learning outcome.

At the end of the community health department attachment, the resident is able to do and acquire,

- I. Knowledge, skills and competency in all the methods of family planning including insertion of IUD and other long acting reversible contraception (LARC)
- II. Learn about programs on child immunization, Antenatal care, PNC, Lactation Clinic, Well baby Clinic, Pap smear and PMTCT.
- III. Counsel and learn about other National Reproductive Health Programs
- IV. Understand the principles and practice of screening in Obstetrics and Gynaecology

General Surgery

Learning outcome.

At the end of the General surgery attachment, the resident is able to do and knows,

- I. The principles of diagnosis and management of acute surgical emergencies in Obstetrics and Gynaecological settings.
- II. Perform pre-operative work up for patients undergoing minor / major surgeries

- III. Manage post-operative period including common postoperative complications.
- IV. Learn the skills of bladder injuries repair and repair of bowel injuries.

Field Posting

Learning outcome.

At the end of the district hospitals attachment, the resident is able to do and get,

- I. Exposure to community based practices
- II. To learn to take responsibility and independent decision making.
- III. To identify and make timely referrals for high level of specialized care that is not available in the district facility.
- IV. Have more hands on training for surgery
- V. To understand the concept of professionalism and issues of privacy, confidentiality

Elective Attachment Overseas.

Learning outcome.

At the end of the elective overseas attachment, the resident is able to get exposure to the subspecialty services that is not available in Bhutan like,

- I. Sub-fertility managements like IVF, ICSI,
- II. Uro-gynecology managements
- III. Laparoscopic surgery in Gynaecology, Gynae-oncology.
- IV. Exposure to overall service delivery in Obstetrics and Gynecology

FIELD POSTING

Learning outcome

The learning outcomes elaborated here are in alignment with the learning outcomes of the programme.

At the end of the training, the resident will be able to:

- I. Integrate clinical experiences from previous specialty rotations and be able to work competently in a district hospital.
- II. Work with district health administration personnel and be familiar with local public health activities, including those at Basic Health Unit (BHU).
- III. Demonstrate familiarity with the functions and activities of non-government organizations working in the district.
- IV. Demonstrate familiarity with community-based activities and initiatives in health, including the roles of Village Health Workers (VHW).

Content outline

The resident is able to describe and understand working system in district hospital and be able to apply the competencies acquired during earlier postings.

- I. Demonstrate clinical knowledge and skills commensurate with his level of training by managing cases presenting in OBGYN in district hospitals.
- II. Be able to implement the principal strategies for addressing public health problems in the district, particularly those based on Primary Health Care concepts, including:
 - a. Health education
 - b. Essential drugs
 - c. Immunization
 - d. Oral rehydration
 - e. Sanitation
 - f. Vitamin A supplementation
 - g. Water supply
 - h. Family planning
 - i. Nutrition
 - j. Maternal and child health, Safe motherhood
 - k. Community participation
- III. Be able to describe the organization of the health care delivery system at the district level, including public health, clinical services and traditional medicine.
- IV. Be able to describe the role and function of non-government agencies operating in the district.
- V. Be able to identify and refer those patients which require specialized hospital services.
- VI. Make contacts with BHU staff and assist them in making appropriate referrals to the district hospital.
- VII. Participate in the formal or non-formal (i.e. in-service) training of other health care workers and staff in the hospital, BHU and the community.

EXAMINATION SYSTEM AND OVERVIEW

| Term | Examinations | Schedule | Components | | Total Marks | % Weightage* |
|------------------------------------|---------------------------|---------------|---|---|-------------|-----------------------------|
| | | | Written | Practical | | |
| Term 1-2 | Institute Examination I | End of term 1 | Paper I – V (Each paper) MCO: 50 Marks SAQ = 5 marks * 10 | OSPE = 20 stations * 3 mins = 100 marks | 600 | Exams = 10 % (CA = 5 %)* |
| | Continuous assessment(CA) | | Mini-Cex, DOPS, CBD, 360-degree feedback, log book/portfolio | | 100 | |
| Term 3-4 | Continuous assessment(CA) | | Mini-Cex, DOPS, CBD, OSLE, 360-degree feedback, log book | | 100 | (CA = 5 %)* |
| | Institute Examination II | End of term 4 | Paper I & II (Each paper) MCOs: 50 marks SAQ = 5 marks * 6 SLEQ = 10 marks *2 | OSCE, 10 stations (5 mins each) 100 marks short case (2): 50 marks * 2 Long case (1): 100 marks (OSLER) | 400 | Exams = 20 % |
| Term 5-6 | Continuous assessment(CA) | | Mini-Cex, DOPS, CBD, 360-degree feedback, log book/portfolio | | 100 | (CA = 5 %)* |
| | Submission of Thesis | End of term 6 | Thesis content and Presentation: 25 marks each Oral /viva voce: 50 marks | | 100 | Thesis = 20 % |
| Term 7-8 | Continuous assessment(CA) | | Quality improvement project during 7 th term (July-December) with report writing and submission to Dean's office through supervisor for QI project | | 100 | (CA = 5 %)* |
| | Institute Examination III | End of term 8 | Paper I & II (Each paper) MCOs: 50 marks SAQ = 5 marks * 6 SLEQ = 10 marks *2 | OSCE, 10 stations (5 mins) 100 marks short case (2): 50 marks * 2 Long case (1): 100 marks (OSLER) | 500 | Exams = 30 % |
| Total Cumulative percentage | | | | | | 100 % |

Continues assessment (CA): Preferably by a faculty member but in special situations a senior resident can do as a part of peer assessment

CA: will be assessed 6 monthly basis (term)

*** Institute examination I, II, thesis and III are considered bar exams, a candidate must secure minimum of 50% separately in each theory paper, OSCE and Cases

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Institute Examination I:

Paper I: Anatomy and Physiology

Paper II: Biochemistry, Pharmacology and General Pathology

Paper III: Emergency Medicine and Patient safety

Paper IV: Laboratory Medicine, Chemical Pathology and Radiology

Paper V: Biostatistics, Epidemiology and Research

Institute Examination II:

Paper I: General obstetrics, high risk obstetrics, neonatology, and recent advances related to Obstetrics and neonatology.

Paper II: Gynecology and contraception, and recent advances related to gynecology and contraceptions.

Submission of Thesis:

Thesis Defense Examination

Institute Examination III:

Paper I: General obstetrics, high risk obstetrics, neonatology, and recent advances related to Obstetrics and neonatology.

Paper II: Gynecology and contraception, and recent advances related to gynecology and contraceptions.

EVALUATION OF CURRICULUM

Curriculum evaluation will be approached as an ongoing process of continuous information collection and analysis to allow for a prioritization of quality improvement (QI) activities. At regular times, information will be collected from the stakeholders (residents, supervisors, course coordinator, University, Teaching Hospitals, Ministry of Health and District Health officials) with a view to detect where optimization of the quality of the programme is needed. As it will be impossible to engage in quality improvement processes over the whole range, prioritization of QI activities are needed and the curriculum evaluation will be used for this purpose. In line with the assessment strategy, we envision a curriculum evaluation programme that will use a variety of information sources to address the most pressing questions. We foresee a yearly cycle of Plan-Do-Check-Act.

The entire curriculum will be reevaluated every 5th year with the scope to incorporate and keep with the pace of recent development in the field of medical education in order to provide maximum learning opportunities to our learners.

Annexure: I

FoPGM/OBGYN-Portfolio 2018

Name:.....

Batch:

Placement:

Date from:

To:

Portfolio Assessment form: Global assessment of the 5 competency domains of learning

| Portfolio Assessment Scale (Global ratings) | | Domains of learning in OBGYN | | | | | | | | | |
|--|--|------------------------------------|--|----------------------------|---|-----------------------|--|-------------|---------------|-----------|--|
|  Not learned = 1 | | Medical Knowledge and patient care | Interpersonal and communication skills | Professionalism and ethics | Practice-based learning and improvement | System-based practice | | | | | |
|  Needs further training = 2 | | | | | | | | | | | |
|  Satisfactory = 3 | | | | | | | | | | | |
|  Competent = 4 | | | | | | | | | | | |
|  Mastery = 5 | | | | | | | | | | | |
| Frequency Check (✓) as applicable | Assessor Check (✓) as applicable | | | | | | | Total Score | Average Score | Signature | |
| Completion of Term/Rotation | Resident | | | | | | | | | | |
| Completion of Term/Rotation | Specialist Supervisor | | | | | | | | | | |
| At the end of assessment period | Term 1 Term 2-4 Term 5-6 Term 7-8 Course Coordinator | | | | | | | | | | |
| Term Score (T) | Term 1 Term 2-4 Term 5-6 Term 7-8 | | | | | | | | | | |

Guideline for assessors

The residents develop competency in cognitive, psychomotor and affective domains (described under five domains of OBGYN) and progress towards mastery. The milestones are color coded as red, orange, green, blue and grey, representing as not learned, needs further training, satisfactory, competent and mastery respectively. The following descriptions under each domain shall guide the assessors while coding the milestones. Log books, formative assessment tools and professional judgments based on workplace assessment are used to code the milestones

Domain 1: Medical Knowledge and patient care:

- i. know and apply the basic and clinically supportive sciences which are appropriate to obstetrics and gynaecology
- ii. Gather essential, accurate and relevant information, apply appropriate diagnostic intervention, use critical thinking approach and clinical reasoning, and practice evidence based medicine;
- iii. counsel patients and their families and carry out well developed patient management plans using information technology to support the whole process;
- iv. perform the medical and invasive procedures essential for the area of practice competently;
- v. provide health care services aimed at preventing health problems and maintaining health;
- vi. Work with health care professionals, including those from other disciplines, to provide patient-focused care.

Domain 2: Interpersonal and communication skills

- i. create and sustain a therapeutic and ethically sound relationship with patients;
- ii. use effective communication skills;
- iii. Communicate effectively and demonstrate caring and respectful behaviors when interacting with patients and their families;
- iv. Work effectively with others as a member or leader of a health care team or other professional group;

Domain 3: Professionalism and ethics

- i. Have moral, ethical, and professional attitudes toward patients, relatives, colleagues, and the community;
- ii. Demonstrate sensitivity and responsiveness to patient (considering the culture, age, gender, and disabilities) and society that supersedes self-interest, and be accountable to patients, society, and the profession;
- iii. Demonstrate a commitment to professional and ethical principles pertaining to medical care;
- iv. Be committed to on-going professional development and strive for excellence.

Domain 4: Practice-based learning and improvement

- I. analyze practice experience and perform practice-based improvement activities using a systematic methodology;
- II. Search, appraise, and assimilate evidence from clinical and scientific studies related to their patients' health problems and apply knowledge for diagnostic and therapeutic effectiveness;
- III. obtain and use information about their own population of patients and the larger population from which their patients are drawn;
- IV. Facilitate the learning of students and other allied health care professionals.

Domain 5: System-based practice

- i. Have knowledge of the health care system of the country;
- ii. Have knowledge and involvement in quality improvement system for patient care;
- iii. Practice cost-effective health care and resource allocation that do not compromise quality of care;
- iv. Advocate for high quality patient care and assist patients in dealing with system complexities;
- v. Know how to partner with other health care providers and health care managers to assess, coordinate, and improve health care and understand how these activities can affect system performance.

**360 degree feedback form
(Interpersonal and communication skills)**

Residents must be able to demonstrate interpersonal and communication skills that result in effective information exchange and teaming with patients, their families, and professional associates.

1. Assessment by: Self Others

2. Name of Resident:

| Competency group: Communicates effectively to create and sustain a therapeutic relationship with patients and families | | | | | |
|---|----------------|---|--------------------------------------|---|--|
| | Not Applicable | Rarely demonstrates (<25-50% of the time) | Sometimes demonstrates (25% of time) | Demonstrates in most cases (50-75% of the time) | Demonstrates in majority of cases (>75% of the time) |
| Obtains historical information from appropriate individual (patient, caregiver, etc) | NA | 1 | 2 | 3 | 4 |
| Makes appropriate introductions and explains personal roles | NA | 1 | 2 | 3 | 4 |
| Respects privacy of patient/family by using various areas in facility for conversation, exams, etc | NA | 1 | 2 | 3 | 4 |
| Shows evidence of being able to sustain a continuing relationship with the patient | NA | 1 | 2 | 3 | 4 |
| Uses appropriate language at the proper developmental/educational level for the patient and/or caregivers/family members | NA | 1 | 2 | 3 | 4 |
| Uses a variety of techniques to elicit information from the patient | NA | 1 | 2 | 3 | 4 |
| Uses effective listening skills to elicit information | NA | 1 | 2 | 3 | 4 |
| Makes the patient comfortable enough to extract all necessary information when engaging in probing conversation | NA | 1 | 2 | 3 | 4 |
| Ensures the patient understands instructions | NA | 1 | 2 | 3 | 4 |
| Provides instructions to patients in a variety of ways | NA | 1 | 2 | 3 | 4 |

Competency: Work effectively with others as a member or leader of a health care team or other professional group

| | Not Applicable | Rarely demonstrates (<25-50% of the time) | Sometimes demonstrates (25% of time) | Demonstrates in most cases (50-75% of the time) | Demonstrates in majority of cases (>75% of the time) |
|--|----------------|---|--------------------------------------|---|--|
| Familiarizes with the health care team member | NA | 1 | 2 | 3 | 4 |
| Shows respect to team members and provides information when needed | NA | 1 | 2 | 3 | 4 |
| Facilitates team communication when in role of team leader | NA | 1 | 2 | 3 | 4 |
| Assumes the role of consultant where appropriate | NA | 1 | 2 | 3 | 4 |
| Provides constructive verbal and written feedback to other members of the health care team | NA | 1 | 2 | 3 | 4 |
| Medical records are thorough, readable, and done on time | NA | 1 | 2 | 3 | 4 |

Date evaluated:

Case based discussion (CbD)

1. Department:

2. Brief case description:

3. Setting: OPD Ward Emergency ICU

4. Degree of difficulty: Low Moderate High

5. Basis for case discussion:

Inpatient record Discharge summary OPD prescription

Please score the trainee on the scale shown. Please note that your scoring should reflect the performance of the student against that which you would **reasonably expect at their stage of training** and level of experience. Please mark 'Unable to Comment' if you feel you have not observed the behaviour.

| Assessments | Well below expectation | Below expectation | Borderline | Meets expectation | Above expectation | Well above expectation | Unable to Assess |
|-----------------------------|------------------------|-------------------|------------|-------------------|-------------------|------------------------|------------------|
| Clinical assessment | 1 | 2 | 3 | 4 | 5 | 6 | UTA |
| Investigations & referrals | 1 | 2 | 3 | 4 | 5 | 6 | UTA |
| Management plan | 1 | 2 | 3 | 4 | 5 | 6 | UTA |
| Follow up & future planning | 1 | 2 | 3 | 4 | 5 | 6 | UTA |
| Record keeping | 1 | 2 | 3 | 4 | 5 | 6 | UTA |
| Overall clinical judgment | 1 | 2 | 3 | 4 | 5 | 6 | UTA |

Feedback

What went well?

Any suggestion for improvement

11. Assessor's Name and signature:

| |
|--|
| |
|--|

Trainee's reflection. What have I learnt? and Where I need to focus for improvement?

| |
|--|
| |
|--|

12. Trainee's name and signature:

Date: D/M/Y

| |
|--|
| |
|--|

Direct Observation of Procedural Skills (DOPS) form

1. Department:
2. Procedure:
3. Setting: OPD Ward Emergency
4. Conducted: on a patient during simulation exercise
5. Degree of difficulty: Low Moderate High
6. Reason for added difficulty:
7. Time pressure: Elective Critical
8. Number of times same procedure done before:

| 9. Assessment | Significant input required from assessor | Some guidance provided by assessor | Able to manage independently | Unable to assess |
|----------------------------|---|------------------------------------|------------------------------|------------------|
| Clinical knowledge | <i>Understand indications and contraindication, understands relevant anatomy</i> | | | |
| | 1 | 2 | 3 | UTA |
| Consent | <i>Properly explain the procedure to patient and obtains informed verbal consent</i> | | | |
| | 1 | 2 | 3 | UTA |
| Preparation | <i>Properly explains the procedure and appropriately prepares for the procedure ensure assisting staff is present</i> | | | |
| | 1 | 2 | 3 | UTA |
| Infection control | <i>Demonstrates aseptic technique and follows universal precautions</i> | | | |
| | 1 | 2 | 3 | UTA |
| Technical ability | <i>Demonstrates manual dexterity and confidence; demonstrate adequate skill and practical fluency</i> | | | |
| | 1 | 2 | 3 | UTA |
| Patient interaction | <i>Communicates, reassures the patient, eye contact with patient for discomfort</i> | | | |
| | 1 | 2 | 3 | UTA |
| Insight | <i>Knows when to seek assistance, abandon procedure or arrange alternative care to prevent harm to patient</i> | | | |
| | 1 | 2 | 3 | UTA |
| Documentation | <i>Documents the episode including problems and complications; Clear post-procedure to the patients and staffs</i> | | | |
| | 1 | 2 | 3 | UTA |
| Team interaction | <i>Provides clear instructions to assisting staff and conveys relevant information concerning the patient and plans to team members</i> | | | |
| | 1 | 2 | 3 | UTA |
| Overall performance | 1 | 2 | 3 | |

| Feedback | |
|--|--|
| What went well? | |
| Areas that needed supervisory input | |
| Suggestions for getting greater independence | |

11. Assessor's Name and signature:

Trainee's reflection on The procedure & learning

12. Trainee's name and signature:

Date: D/M/Y

**Mini – Clinical Evaluation
(Mini- CEX) Form**

Department: _____ Date: _____

Resident: _____ R-1 R-2 R-3 R-4

Patient Problem/Dx: _____

Setting: OPD Ward Emergency Other _____

Patient: Age: _____ Sex: _____ New Follow-up

Complexity: Low Moderate High

Focus: Data Gathering Diagnosis Therapy Counseling

| | | | | | | | | | |
|--|--|---|---|--------------|---|---|----------|---|---|
| Medical Interviewing skills (O Not Observed) | Facilitates patient’s telling of story; effectively uses questions/directionsto obtain accurate, adequate information needed; responds appropriately to affect, non-verbal cues. | | | | | | | | |
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| | Unsatisfactory | | | Satisfactory | | | Superior | | |
| Physical Examination Skills (O Not Observed) | Follows efficient, logical sequence; balances screening/diagnostic stepsfor problem; informs patient; sensitive to patient’s comfort, modesty. | | | | | | | | |
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| | Unsatisfactory | | | Satisfactory | | | Superior | | |
| Humanistic Qualities/ Professionalism | Shows respect, compassion, empathy, establishes trust;attends to patient’s needs of comfort, modesty, confidentiality, information. | | | | | | | | |
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| | Unsatisfactory | | | Satisfactory | | | Superior | | |
| Clinical Judgement (O Not Observed) | Selectively orders/performs appropriate diagnostic studies, considers risks,benefits. | | | | | | | | |
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| | Unsatisfactory | | | Satisfactory | | | Superior | | |
| Counseling Skills (O Not Observed) | Explains rationale for test/treatment, obtains patient’s consent, educates/ counselsregarding management. | | | | | | | | |
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| | Unsatisfactory | | | Satisfactory | | | Superior | | |
| Organization/Efficiency (O Not Observed) | Prioritizes; is timely; succinct. | | | | | | | | |
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| | Unsatisfactory | | | Satisfactory | | | Superior | | |
| Overall Clinical Competence (O Not Observed) | Demonstrates judgment, synthesis, caring, effectiveness, efficiency. | | | | | | | | |
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| | Unsatisfactory | | | Satisfactory | | | Superior | | |

Mini-CEX Time: Observing _____ Mins Providing Feedback: _____ Mins

Evaluator Satisfaction with Mini-CEX

1 2 3 4 5 6 7 8 9 HIGH

Resident Satisfaction with Mini-CEX

1 2 3 4 5 6 7 8 9 HIGH

Feedback

Which aspect of the encounter went well?

Suggested areas of improvement?

9. Assessor's name and signature:

10. Trainee's reflections on patient and areas of learning:

11. Trainee's name and signature

Date: D/M/Y

Note 1: Reprinted with permission from the American Board of Internal Medicine, www.abim.org.

Note 2: Discussed in: Norcini JJ, Blank LL, Arnold GK, Kimball HR. The mini-CEX (Clinical Evaluation Exercise): a preliminary investigation. *Ann Intern Med* 1995;123:795-9.

Note 3: General Practice Curriculum, KGUMSB,2016

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Name:.....Placement:

Date from:..... To:..... Term.....

| Sl. No. | Date | Learning activity | Remarks (observed, Assisted, Performed, Attended, Presented, Participated etc) | Sig. of supervisor |
|---------|------|-------------------|--|--------------------|
| | | | | |

ANNEXURE II

GENERIC CURRICULUM

Content outline

The resident doctor, irrespective of discipline enrolled, must be able to describe and apply the values during training and throughout the professional life (KGUMSB, 2016)

MEDICAL EDUCATION: (30 Hours)

FUNDAMENTALS OF BASIC SCIENCE

- I. Fundamental principles and applications of anatomy
- II. Fundamental principles and applications of physiology
- III. Fundamental principles and applications of biochemistry
- IV. Fundamental principles and applications of pharmacology
- V. Fundamental principles and applications of pathology

BASIC LIFE SUPPORT AND ADVANCE CARDIAC LIFE SUPPORT SKILLS

BLS

- I. Key changes in basic life support, reflecting the new science from the American Heart Association Guidelines for Cardiopulmonary Resuscitation and Emergency Cardiovascular Care
- II. Critical concepts of high-quality CPR
- III. The American Heart Association Chain of Survival
- IV. 1-Rescuer CPR and AED for adult, child and infant
- V. 2-Rescuer CPR and AED for adult, child and infant
- VI. Differences between adult, child and infant rescue techniques
- VII. Bag-mask techniques for adult, child and infant
- VIII. Rescue breathing for adult, child and infant
- IX. Relief of choking for adult, child and infant
- X. CPR with an advanced airway

ACLS

- I. Key changes in advanced cardiovascular life support, reflecting the American Heart Association Guidelines for Cardiopulmonary Resuscitation and Emergency Cardiovascular Care
- II. Basic life support skills, including effective chest compressions, use of a bag-mask device and use of an AED
- III. Recognition and early management of respiratory and cardiac arrest
- IV. Recognition and early management of peri-arrest conditions such as symptomatic bradycardia
- V. Airway management
- VI. Related pharmacology
- VII. Management of acute coronary syndromes (ACS) and stroke
- VIII. Effective communication as a member and leader of a resuscitation team
- IX. Effective Resuscitation Team Dynamics

RADIO-DIAGNOSIS AND IMAGING

Plain Radiographs

- I. Identify normal anatomy on PA, AP, and lateral chest films
- II. Recognize abnormal chest films including pleural effusion, pneumothorax, pneumonia and lobe location, changes of congestive heart failure, changes of chronic obstructive pulmonary disease, atelectasis, pulmonary nodules and masses, and hyaline membrane disease of the newborn
- III. Identify normal anatomy on four views of the abdomen
- IV. Recognize abnormal abdominal films including ileus, small bowel obstruction, large bowel obstruction, free air, and calcifications
- V. Identify normal anatomy of the spine and long bones in both adults and children
- VI. Recognize abnormal bone radiographs including fractures, degenerative joint disease, osteoporosis (including vertebral collapse), and primary versus metastatic bone malignancy
- VII. Identify normal anatomy on barium enema, and upper gastrointestinal series

Computed Tomography

- I. Recognize and treat contrast allergy, its signs and symptoms, and implications to the patient
- II. Discuss principles of CT function and applications
- III. Discuss differences between CT, MRI, plain film, and US, including the comparative benefits/drawbacks, strengths/weaknesses of each modality
- IV. Discuss general indications of when to use CT as the imaging of choice
- V. Identify normal anatomy found on CT of the head, spine, chest, abdomen, and pelvis
- VI. Recognize abnormal head CTs including acute hemorrhage infarcts, edema, mass effect, and hydrocephalus in an infant and adult
- VII. Recognize abnormal chest CTs including pulmonary nodules and masses
- VIII. Recognize abnormal abdominal/pelvis CTs including diverticular disease, appendicitis, bowel obstruction, abdominal aortic aneurysms, pancreatitis, abdominal abscesses, ascites, and hepatic, pancreatic and renal masses
- IX. Recognize abnormal CTs of the spine, including metastatic disease, degenerative joint disease, and disc disease.

Magnetic Resonance Imaging

- I. Discuss principles of magnetic resonance imaging, including differences in abilities and applications of MRI versus CT
- II. Identify normal anatomy on MRI of the head and spine
- III. Recognize abnormal head and spine MRIs including central nervous system infection, masses, stroke syndromes, multiple sclerosis, disc disease, metastatic vertebral column disease, and cord compression

Ultrasound

- I. Discuss general principles of ultrasound including the differences between 2D, Doppler, and M mode
- II. Discuss indications and limitations of
 - a. ultrasound for specific OB/Gyn situations (molar pregnancy, anencephalic pregnancy, placenta previa, fetal age using biparietal diameter and femur length, and ectopic pregnancy)
 - b. vascular Doppler ultrasound (aneurysm, deep vein thrombosis, and carotid artery and peripheral vascular disease)
 - c. ultrasound for gallbladder, bile ducts and liver
 - d. echocardiogram (transthoracic versus transesophageal echocardiography, chamber size, valvular disease, and pericardial effusions)
 - e. renal ultrasound for cysts and tumors
 - f. prostate ultrasound (for evaluation of nodules and biopsy)
 - g. FAST ultrasound for trauma.

Mammography

- I. Discuss basics of normal and abnormal mammograms
- II. Discuss indications and utility of mammography, including usefulness as a screening method and as a surgical tool for resection and biopsy.

Nuclear Medicine

- I. Discuss general principles and therapeutic uses of nuclear medicine
- II. Discuss mechanisms, indications, and limitations of HIDA scans, bone scans, tagged RBC scans, myocardial perfusion and function scans, bone densitometry scans, and ventilation/perfusion scans.

Angiography

- I. Discuss diagnostic and therapeutic principles of angiography
- II. Discuss indications for obtaining angiograms
- III. Discuss applications and utility of MRA angiograms
- IV. Recognize normal anatomy of the great vessels and other vasculature on angiograms
- V. Discuss indications for angiograms for abnormal processes including subarachnoid hemorrhage and berry aneurysms, vascular stenotic lesions, pulmonary angiogram for PE, aortic dissection, aortic trauma, and gastrointestinal bleeding

Become familiar with the various treatment modalities provided by interventional radiologists

- I. Ultrasound-guided vascular access
- II. Paracentesis
- III. Thoracocentesis, chest tube insertion and management
- IV. Ultrasound-guided cyst aspirations and soft tissue biopsy

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- V. Embolization procedures
- VI. Vertebroplasty
- VII. Vascular stenting
- VIII. Thyroid ablation therapy
- IX. Thrombolytic therapy for PE/DVT

LABORATORY MEDICINE

Foundations of Laboratory Medicine

- I. Concepts of diagnostic sensitivity and specificity of a laboratory test to a specific clinical situation; negative and positive predictive values, situations in which predictive values provide critical information for developing patient care screening, diagnostic, prognostic, and therapeutic pathways/algorithms;
- II. How reference intervals are derived and used and the different types of reference intervals, including those derived from population distributions, from expert consensus recommendation, or from evidence-based determination of “threshold” values based on a test’s predictive value in a clinical algorithm; how reference intervals may be compartmentalized by age, sex, race, clinical state (eg, pregnancy);
- III. Concept of variability in repeated measurements, as well as variability within and between individuals; describe the contributors to analytical uncertainty (precision, accuracy, bias, coefficient of variation);
- IV. Discuss the long-reaching consequences of ordering unnecessary testing; consider whether routine daily monitoring tests constitute unnecessary testing; based on an understanding of reference intervals, explain why unnecessary testing may lead to higher health care costs and increased risk for the patient; similarly, discuss the consequences of failing to utilize noninvasive or minimally invasive diagnostic procedures before proceeding to invasive approaches (tier 1).
- V. Distinction between testing appropriate to the clinical laboratory and those relating to research environment;
- VI. External and internal validation of clinical laboratory tests;

Chemical Pathology and Immunology

- I. Basic principles of toxicology - the diagnosis and management of common clinical toxicology scenarios (eg, overdoses of acetaminophen, antidepressants, salicylates, ethylene glycol, ethanol, opiates, methanol);
- II. Interpretation of the results of “drugs of abuse” panels, including causes for false positive and false negative tests, the role of confirmatory testing, and the impact of specimen adulteration;
- III. Principles of therapeutic drug monitoring, including the determination of peak and trough levels vs random drug levels;
- IV. Uses of metabolic testing, including electrolytes, acid-base balance, osmolality, and blood gases; interpret results for the above tests;
- V. Tests relevant to diagnosis of myocardial infarction and acute coronary syndrome,

- cardiovascular and stroke risk, and congestive heart failure;
- VI. Criteria for the laboratory diagnosis of diabetes mellitus and biochemical changes that are seen in diabetic ketoacidosis and nonketotic hyperosmolar coma;
 - VII. Evaluation of renal function, and criteria for chronic kidney disease; review basic microscopic urinalysis, and describe key abnormal findings;
 - VIII. Laboratory evaluation of hepatic, pancreatic, and gastrointestinal tract pathology;
 - IX. Common tests used for plasma protein analysis, including total protein, albumin, serum protein electrophoresis, and immuno-fixation electrophoresis and their disease-specific relevance;
 - X. Laboratory tests available for the evaluation of organ-specific and systemic autoimmune diseases, vasculitides, and immuno-deficiencies, including autoantibody testing, serum complement levels, and basic immuno-phenotyping of lymphocyte subpopulations;
 - XI. Role of testing for tumor markers, including the differences in their uses for screening, diagnosis, prognosis, and therapeutic monitoring;
 - XII. Tests available for use in reproductive biology, both prenatal and postnatal
 - XIII. Common approaches used in endocrinology testing, including pituitary-adrenal, parathyroid, and thyroid testing; stimulation and suppression test physiology and interpretation.

Molecular Diagnostics

- I. General principles of molecular diagnostics testing in the screening, diagnosis, and/or monitoring of infectious, genetic, and oncologic diseases; describe the place of pharmacogenetic testing in clinical care;
- II. Legal, ethical, and social implications of genetic testing (see law and ethics module);

Hematology

- I. Methods for determination of the complete blood count, including measured vs calculated values, indications for manual vs automated leukocyte differential, and important interferences;
- II. Physiology of normal hematopoiesis and the erythrocyte, leukocyte, and platelet response to pathologic stimuli;
- III. Significance of erythrocyte, leukocyte, and platelet morphologic variations on the peripheral smear; know the types of leukocytes defined in the differential and their significance;
- IV. Laboratory evaluation and differential diagnosis of anemia, erythrocytosis, leukopenia, leukocytosis, thrombocytopenia, and thrombocytosis;
- V. Laboratory evaluation, both cellular and chemical, of body fluids, including urine and cerebrospinal, pleural, peritoneal, pericardial, and joint fluid;
- VI. Physiology of coagulation, including the mechanisms of action of naturally occurring and therapeutic anticoagulants;
- VII. Laboratory tests used to diagnose common bleeding and thrombotic disorders, including the hemophilias, platelet disorders, von Willebrand disease, and

- acquired bleeding diatheses; describe appropriate testing strategies for monitoring hemostatic and anticoagulant therapies;
- VIII. Evaluation of hemoglobinopathies, and be able to diagnose common hemoglobinopathies such as sickle cell disease when presented with patient data;
- IX. General principles of flow cytometric, molecular, and cytogenetic approaches used in the evaluation of leukemias, lymphomas, and related neoplastic disorders;

Microbiology

- I. Describe the pre-analytic variables that determine the quality and yield of microbiologic testing:
 - a. presence of normal microflora on skin and mucous surfaces;
 - b. presence of contaminants in samples and the effect on culture results;
 - c. effects of sample collection techniques, specimen transport media, timing, and storage conditions;
 - d. importance of sample volume in identifying pathologic organisms in normally sterile sites that may be present in very low concentrations;
 - e. effects of timing of samples to increase the recovery of various pathogens; and describe how the microbiologic workup depends on the site/samples submitted to the laboratory, and describe the basics of optimizing this workup;
- II. Most frequent agents (bacterial, viral, fungal, parasitic) causing infections in different body sites or systems; and how an understanding of bacterial, parasitic, and viral pathogenesis impacts sample choice and test interpretations;
- III. Factors affecting turnaround time in microbiologic workups, eg, fastidious organisms requiring special media and longer incubation times, as well as unusual tests performed infrequently;
- IV. Explain the use and limitations of stains as rapid diagnostic tools; understand the use of Gram stain on sites/samples that may contain normal flora, as well as those from normally sterile body sites;
- V. Use and limitations of serology in infectious diseases, to establish immune status, to diagnose acute infection, and as a retrospective means to support diagnosis; recognize the need for the use of paired serology (acute and convalescent phase samples) and for screening and confirmatory methods (such as those used in syphilis); explain why the time course and nature of serologic response is critical in the diagnosis of common disorders, eg, viral hepatitis and HIV;
- VI. Mechanisms of action of antimicrobial drugs of different classes; interpret the antimicrobial susceptibility report ;
- VII. Mechanisms of bacterial resistance to antimicrobials and the spread of resistant organisms in institutions; describe the role of health care providers and of hospital epidemiology and other monitors of infection control in the hospital and the community;

Transfusion Medicine

- I. Explain the following:
 - a. the blood components available for clinical use;
 - b. the recommended and evidence-based thresholds and indications for transfusion of the various blood components;
 - c. the appropriate evidence-based dosing of blood components;
 - d. the types of recombinant and other “blood component substitutes” available; and
 - e. the alternatives to allogeneic blood product infusion (eg, hematopoietic cytokines, autologous donations, and intraoperative blood salvage);
- II. Lifespan of transfused platelets, red blood cells, and the clotting factors present in plasma and how the efficacy of transfusion is monitored by laboratory testing (eg, expected hemoglobin and platelet count increments);
- III. Pathophysiology, presentations, and acute management (and prophylaxis) of the different types of transfusion reactions;
- IV. Common infectious disease risks of blood products that remain despite donor screening and blood product testing, including current data on transfusion-transmitted disease incidence and prevalence;
- V. Importance of blood specimen labeling, with an emphasis on the impact transfusion errors have on patient morbidity and mortality; and the process of issuing and administering blood products, including required patient safety checks, required infusion times, and appropriate blood product storage limitations once products are issued from the blood bank (tier 1).
- VI. Meaning of and rationale for type and screen (type and cross-match) for blood products and the time limits of such testing; explain the appropriate settings and processes for emergency release of blood and the use of “universal donor” blood;
- VII. Define “massive transfusion,” and describe the special needs of the patients in terms of metabolic derangements and the administration of blood products;
- VIII. Various kinds of blood donors (eg, autologous, directed, altruistic) and the important elements of screening pre-donation;
- IX. Clinical use of therapeutic phlebotomy; various types of apheresis procedures, and examples of how each is used;
- X. The HLA system and its role in transfusion and transplantation;

INFECTION CONTROL

- I. Concept of infection prevention and control
- II. Common misconceptions of infection prevention and control
 - a. Incidence of infections at the health care facility
 - b. Prevalence of infections in the community
 - c. How infections are transmitted
 - d. HIV and HBV
 - e. Use of screening
 - f. Feasibility of adhering to appropriate infection prevention and control practices

- III. Need for infection prevention and control in the
 - a. Health care facility
 - b. Home
 - c. Community
 - d. Individual
 - e. Institution
 - f. Home
 - g. Community
 - h. Consequences of non-compliance
- IV. Levels of responsibility.
- V. Definitions:
 - a. Acute care settings
 - b. Ambulatory care settings
 - c. Long-term care settings
 - d. Home-based care
 - e. Community-based care
 - f. Standard Precautions
 - g. Transmission-Based Precautions
 - h. Isolation
- VI. Common infections in each care setting and methods of prevention
- VII. Factors predisposing staff, patients, families, and visitors to infection
- VIII. Description and methods of
 - a. Standard Precautions
 - b. Transmission-Based Precautions
 - c. Isolation
- IX. Antisepsis
 - a. Definition
- X. Antiseptics
 - a. Types and their uses
- XI. Principles of
 - a. Decontamination
 - b. Cleaning
 - c. Disinfection
 - d. Sterilization
- XII. Categories of disinfectant, their uses and limitations
- XIII. Calculation of strengths of disinfectants
- XIV. National standards and regulations governing infection prevention and control in health care facilities, homes and communities
- XV. Barriers to implementation
 - a. Lack of knowledge
 - b. Misunderstanding of associated risks
 - c. Inadequate equipment and supplies
 - d. Poor supervision
 - e. Other

- XVI. Quality assurance process
 - a. Definition
 - b. Standards
 - c. Indicators
 - d. Audit

PATIENT SAFETY

- I. Definition of terms
- II. What is patient safety
- III. What are human factors and why is it important to patient safety?
- IV. Understanding systems and the impact of complexity on patient care
- V. Being an effective team player
- VI. Understanding and learning from errors
- VII. Understanding and managing clinical risk
- VIII. Introduction to quality improvement methods
- IX. Engaging with patients and carers
- X. Minimizing infection through improved infection control
- XI. Patient safety and invasive procedures
- XII. Improving medication safety

MEDICAL LAWS AND ETHICS

- I. Medical Law and Ethics
 - a. Importance in the ambulatory healthcare settings
 - a. Codes of Ethics
 - b. Confidentiality
- II. Medical Practice Management
 - a. Group practices
 - b. Managed Care
 - c. Liabilities
 - d. Licensures, certifications, and registrations.
- III. Liability and Duties
 - a. Types of law- national and international
 - a. Controlled substances
 - b. Contracts
 - c. Statute of Limitations
 - d. Consent
- IV. Workplace Issues
 - a. Medical records
 - b. Employment practices
 - c. Legal implications
- V. Bioethical Issues
 - a. Ethical Issues in Biomedical research
 - b. Life, Death, and Dying and legal documents

BASIC EPIDEMIOLOGY

Principles of epidemiology

- I. Definition
 - a. Epidemiology
 - b. Epidemiology approach
 - c. Uses of epidemiology
- II. Phases of epidemiology approach
 - a. Descriptive epidemiology
 - ◇ What is the problem
 - ◇ Frequency of the problem
 - ◇ Who is involved
 - ◇ Where is the problem
 - ◇ When did it occur
 - b. Analytic epidemiology
 - ◇ Analysis of causes of disease
 - c. Experimental epidemiology
 - ◇ Clinical or community trials
 - d. Evaluation epidemiology
 - ◇ Measuring the effectiveness of different health services
- III. Key components of epidemiology data
 - a. What
 - b. Who
 - c. Where
 - d. When
 - e. How
 - f. Why
- IV. Sources of epidemiology data
 - a. Census
 - b. Vital statistics
 - c. Morbidity data
 - d. Mortality data
 - e. Reports of notifiable diseases
 - f. Hospital records
 - g. Private physicians' offices
 - h. Disease registers
 - i. Community
 - j. Other
- V. Measurements and their calculations
 - a. Ratios
 - b. Proportions
 - c. Incidence rates
 - d. Prevalence rates
 - e. Demographic rates

- VI. Relationship between predictive value and disease prevalence
- VII. Screening
 - a. Definition
 - b. Screening tests
 - c. Validity and reliability of screening tests
 - d. Screening programmes
- VIII. Surveillance
 - a. Definition
 - b. Methods
 - c. Approaches
- IX. Preparation of tables and graphs
 - a. Graphs
 - b. Histograms
 - c. Population pyramids
 - d. Bar charts
 - e. Pie charts
 - f. Scatter diagrams
 - g. Maps.

Infectious disease process

- I. Definition
 - a. Carrier
 - b. Endemic
 - c. Epidemic
 - d. Pandemic
 - e. Immunity
 - f. Immune response
 - g. Herd immunity
 - h. Immunoglobulins
 - i. Host response
 - j. Hypersensitivity
 - k. Infection
 - l. Infectivity
 - m. Pathogenicity
 - n. Virulence
 - o. Immunogenicity
 - p. Sporadic
- II. Dynamics of disease transmission
 - a. Chain of infection
- III. Classification of the mechanisms of disease transmission
 - a. Contact transmission
 - b. Direct transmission
 - c. Indirect transmission

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- d. Droplet transmission
- e. Airborne transmission
- f. Common vehicle transmission
- g. Vectorborne transmission
- IV. Description
 - a. Immunity
 - b. Host response
 - c. Herd immunity
 - d. Carrier
- V. Nosocomial infection
 - a. Definition
 - b. Modes of transmission
 - c. Preventive measures
- VI. Risk factors for the occurrence of communicable diseases among population groups
 - a. Extremes of age
 - b. Presence of underlying disease/infection
 - c. Natural/Passive immunity
 - d. Trauma/Invasive procedures
 - e. Medications
 - f. Lifestyle
 - g. Cultural
 - h. Socio-economic
 - i. Environmental
 - j. Organization of health services

RESEARCH AND BIostatISTICS

Research methods

- I. Definition of common terms and concepts used in research
 - a. Quantitative research
 - b. Qualitative research
 - c. Variable
 - d. Subject
 - e. Sampling
 - f. Population
 - g. Pilot study
 - h. Validity
 - i. Reliability
 - j. Bias
- II. Types of research
 - a. Historical
 - b. Descriptive
 - c. Experimental
- III. Basic research process

- a. Identification of problem
 - b. Statement of problem
 - c. Definition of terms
 - d. Statement of hypothesis
 - e. Identification of assumptions
 - f. Literature search
 - g. Definition of setting: geographical, population, etc.
 - h. Definition of population to be studied
- IV. Problem statement
- a. Characteristics of a problem statement
- V. Methods of sampling and collection
- a. Sampling methods
 - b. Probability methods
 - c. Non-probability methods
 - d. Data collecting methods
 - ✧ Questionnaire
 - ✧ Interview
 - ✧ Observation
 - ✧ Focus group discussion
 - ✧ Document search
- VI. Principles of data collection, analysis, and interpretation
- a. Pre-testing of instrument
 - b. Validity
 - c. Reliability
 - d. Control for bias
 - e. Statistical analysis
 - f. Interpretation
 - ✧ Meaning
 - ✧ Limitation
 - ✧ Usefulness
- VII. Strengths and limitations of sources of health data
- a. Organizing data
 - b. Analyzing data
 - c. Interpreting data
 - d. Implications of findings
 - e. Limitations
 - f. Summarizing
 - g. Conclusion
 - h. Recommendations
- VIII. Ethical and legal issues relevant to research
- a. Consent
 - b. Benefits

- c. Confidentiality
- d. Acknowledgement
- e. Other
- IX. Research methods relevant to clinical practice
 - a. Surveys
 - b. Case studies
 - c. Experiments
 - d. Case-control studies
 - e. Cohort studies
- X. Design a research proposal in one's area of practice or related fields
- XI. Writing the research report
- XII. Presentation of study.

Biostatistics

- I. Definition of terms
 - a. Statistics
 - b. Biostatistics
 - c. Vital statistics
 - d. Descriptive statistics
 - e. Inferential statistics
- II. Purposes of statistics
 - a. Summarization of data
 - b. Comparison of data sets
 - c. Research methodologies
- III. Types of statistics
 - a. Descriptive
 - b. Inferential
- IV. Uses of statistics in clinical practice /public health
 - a. Surveillance
 - b. Presentation of data
 - c. Epidemiology
 - d. Identification of public health problems
 - e. Policy analysis and formulation
 - f. Planning
- V. Calculation of the following measures of central tendency
 - a. Mean
 - b. Median
 - c. Mode
- VI. Measures of variation and their calculation
 - a. Range
 - b. Variance
 - c. Standard deviation

- VII. Theoretical distribution of variables
 - a. Normal distribution
 - b. Binomial distribution
- VIII. Relationship between sample statistics and population parameters
 - a. Sample mean and population
 - b. Sample proportion and population proportion
 - c. Sample variance and population variation

