

RESEARCH ROTATION FY1

Rotation Specific Goals and Objectives with Progressive Changes in Responsibility and Criteria for Advancement

1. OVERVIEW

- 1.1. The *ACGME Program Requirements for Graduate Medical Education in Maternal-Fetal Medicine, 2018*, provides the format required for approval of an MFM fellowship and serves as the basis for the organization of the fellowship.
- 1.2. *The Guide to Learning in Maternal-Fetal Medicine, ABOG 2018* outlines the full breadth and depth of knowledge required of the MFM fellow and serves as the basis for all goals and objective listed below

2. GENERAL CONSIDERATIONS

The practice of obstetrics and gynecology and maternal-fetal medicine requires a commitment to professional as well as personal growth. In addition to practicing technical skills, physicians should cultivate the ability to expand and apply those skills. Knowledge of ethical principles, communication skills, and the ability to acquire and continually update information are important components of professional development. The Accreditation Council on Graduate Medical Education (ACGME) identified six core competencies that should be incorporated into residency and subspecialty fellowship programs.

3. COMPETENCY BASED OBJECTIVES

3.1. PATIENT CARE & PROCEDURAL SKILLS

- 3.1.1. Fellows must be able to provide patient care that is compassionate, appropriate, and effective for the treatment of health problems and the promotion of health.
- 3.1.2. Fellows must be able to competently perform all medical, diagnostic, and surgical procedures considered essential for the area of practice.
- 3.1.3. Fellows must demonstrate competence in the management of complicated pregnancies, including: the treatment of medical and surgical complications of pregnancy; care of pregnant women with medical co-morbidities; fetal evaluation; genetic evaluation of women, families, and fetuses; ultrasound and prenatal diagnosis; critical care of pregnant women; interpretation of perinatal pathology; and, care for patients requiring cesarean hysterectomy.
- 3.1.4. Fellows must demonstrate competence in performing the following procedures; cervical cerclage; antepartum fetal assessment (biophysical profile, non-stress test (NST), etc.); amniocentesis at fewer than 24 weeks gestation; targeted maternal and fetal imaging using ultrasonography; external cephalic version; intrapartum management of multiple gestations, including internal version of the second twin; non-vertex vaginal delivery; and, operative vaginal delivery.
- 3.1.5. Fellows must demonstrate competence in obstetrical critical care, which must include training in the management of acute peripartum medical and surgical complications;
- 3.1.6. Fellows must demonstrate competence in infectious disease as it relates to pregnancy and the puerperium, including the effects of maternal infection on the fetus and newborn

3.2. MEDICAL KNOWLEDGE

- 3.2.1. Fellows must demonstrate knowledge of established and evolving biomedical, clinical, epidemiological and social-behavioral sciences, as well as the application of this knowledge to patient care.

- 3.2.2. Fellows must demonstrate knowledge of: the physiology and pathophysiology of diseases occurring in pregnancy; both normal and abnormal newborn physiology; genetics (including prenatal screening and diagnosis), genomics, teratology, and dysmorphology.
- 3.2.3. Fellows must demonstrate knowledge of -the indications, techniques, complications, and follow-up of the following procedures: cesarean hysterectomy; cervical cerclage; antepartum fetal assessment (biophysical profile, NST, etc.); targeted maternal and fetal imaging using ultrasonography; -pregnancy termination; invasive fetal diagnostic and therapeutic procedures, including amniocentesis at fewer than 24 weeks gestation; chorionic villus sampling; umbilical cord blood sampling; fetal transfusion; and fetal shunt placement; external cephalic version; intrapartum management of multiple gestations – internal version of second twin; non-vertex vaginal delivery; and operative vaginal delivery.
- 3.2.4. Fellows must demonstrate knowledge of obstetrical critical care, including the management of acute peripartum medical and surgical complications;
- 3.2.5. Fellows must demonstrate knowledge of infectious diseases as they relate to pregnancy and the puerperium, including the effects of maternal infection on the fetus and newborn

3.3. PRACTICE-BASED LEARNING AND IMPROVEMENT

- 3.3.1. Fellows must demonstrate the ability to investigate and evaluate their care of patients, to appraise and assimilate scientific evidence, and to continuously improve patient care based on constant self-evaluation and life-long learning.
- 3.3.2. Fellows are expected to develop skills and habits to be able to identify strengths, deficiencies, and limits in one's knowledge and expertise; set learning and improvement goals; identify and perform appropriate learning activities; systematically analyze practice using quality improvement methods, and implement changes with the goal of practice improvement; incorporate formative evaluation feedback into daily practice; locate, appraise, and assimilate evidence from scientific studies related to their patients' health problems) ; use information technology to optimize learning; participate in the education of patients, families, students, residents and other health professionals; participate in multidisciplinary inter-professional conferences devoted to care of the at-risk mother, fetus, and newborn

3.4. INTERPERSONAL AND COMMUNICATION SKILLS

- 3.4.1. Fellows must demonstrate interpersonal and communication skills that result in the effective exchange of information and collaboration with patients, their families, and health professionals
- 3.4.2. Fellows are expected to; communicate effectively with patients, families, and the public, as appropriate, across a broad range of socioeconomic and cultural backgrounds; communicate effectively with physicians, other health professionals, and health related agencies; work effectively as a member or leader of a health care team or other professional group; act in a consultative role to other physicians and health professionals; and, maintain comprehensive, timely, and legible medical records

3.5. PROFESSIONALISM

- 3.5.1. Fellows must demonstrate a commitment to carrying out professional responsibilities and an adherence to ethical principles.
- 3.5.2. Fellows are expected to demonstrate compassion, integrity, and respect for others; responsiveness to patient needs that supersedes self-interest; respect for patient privacy and autonomy; accountability to patients, society and the profession; sensitivity and responsiveness to a diverse patient population.

3.6. SYSTEMS-BASED PRACTICE

- 3.6.1. Fellows must demonstrate an awareness of and responsiveness to the larger context and system of health care, as well as the ability to call effectively on other resources in the system to provide optimal health care.
- 3.6.2. Fellows are expected to work effectively in various health care delivery settings and systems relevant to MFM; coordinate patient care within the health care system relevant to MFM; incorporate considerations of cost awareness and risk-benefit analysis in patient and/or population based care as appropriate; advocate for quality patient care and optimal patient care systems; work in inter-professional teams to enhance patient safety and improve patient care quality; participate in identifying system errors and implementing potential systems solutions.

4. ROTATION SPECIFIC GOALS - RESEARCH ROTATION FY1

- 4.1. The research portion of the MFM fellowship is designed so that each fellow, under the direction of the members of the Division of Maternal Fetal Medicine, is exposed to the full breadth and depth of the subspecialty and thereby fulfilling:
 - 4.1.1. The educational objectives of *Guide to Learning in Fetal-Fetal Medicine, ABOG 2018, Sec IX and XX*. "The fellow should demonstrate sufficient knowledge of epidemiology and statistical methods to design and interpret research." and "A thesis is required by the Division of Maternal-Fetal Medicine" as described in the *Bulletin for Subspecialty Certification* on the ABOG website.
and
 - 4.1.2. The relevant competencies as described in section IV.B. *Fellows' Scholarly Activities* of the "ACGME Program Requirements for Graduate Medical Education in Maternal-Fetal Medicine, 2018".
- 4.2. The fellow, under the direction of the Program Director, the Associate Program Director for Clinical Research and other of members of the Division of Maternal Fetal Medicine, will develop sufficient knowledge of research design and implementation to enable the fellow to investigate medical and pathophysiologic questions that affect the maternal fetal dyad.
- 4.3. The first year fellow is expected to conceptualize a research question or hypothesis and to formulate a strategy to answer the question that will be developed into the fellow's "Thesis Project" The fellow, with the guidance of the PD and Associate PD for Research, will select a faculty research- mentor to appropriately supervise the development and implementation of the research projects(s).
 - 4.3.1. The thesis project should be selected and research mentor(s) assigned by the end of the research rotation in the first year of the fellowship.
 - 4.3.2. The IRB application for the thesis project should approved or near approval by the end of research rotation in the first year of the fellowship.
- 4.4. The first year fellow will begin, and should successfully complete (pass) two graduate level courses in biostatistics and/or epidemiology, to be taken through the *UMB Graduate School*. Depending on the fellow's previous level of statistical expertise more advanced courses can be undertaken. Fully accredited on-line courses taken for credit are acceptable.
- 4.5. All first year fellows will complete the following required series of courses lectures and modules under the direction of the UM-SOM Human Research Protections Office (HRPO) to qualify them to conduct research at UM-SOM;
 - 4.5.1. PREV 616 Introduction to Clinical Investigation at UMB
 - 4.5.2. University of Miami's Collaborative IRB Training Initiative (CITI) for
 - 4.5.2.1. Biomedical Research,
 - 4.5.2.2. HIPAA training
 - 4.5.2.3. Clinical Research Billing training

- 4.6. The fellow is expected to complete a variety of clinical and or basic science research projects in order to show strong scholarly activity and productivity. There also should be progressive involvement by the fellow in research so that the fellow develops the skills to continue to conduct independent research. The fellow shall have the opportunity to present these results of research at national and international meeting such as SMFM, ACOG, SRI, ISUOG, AIUM and IDSOG etc.
- 4.7. The fellow during the all research rotations shall also attend one four-hour session per week in the High Risk Obstetric Clinic. This clinical experience will serve to complete the continuity requirement of the fellow's training. The fellow will also serve as a source of consultation and interaction with the resident house staff and medical students.
 - 4.7.1. The outpatient experience is particularly important and will be closely supervised by the MFM clinical faculty attending the clinic. During the research rotation no more than 4 hours/week (averaged over four weeks) of the fellow's time may be spent in clinical service.
 - 4.7.2. On-call clinical activity will not count against this 4 hour/week limit.

5. COMPETENCY BASED CRITERIA for ADVANCEMENT and PROGRESIVE CHANGES in RESPONSIBILITY (CBCA&PCR)

5.1. Patient Care & Procedural Skills (PC)

5.1.1.PC 1 –Labor and Delivery Procedures

- 5.1.1.1. The starting first year fellow, having completed an ObGyn Residency, is expected to; independently identify appropriate procedures for routine obstetrical patients; independently performs routine obstetrical procedures proficiently, identify complications associated with obstetrical procedures and manage them with appropriate consultation.
- 5.1.1.2. The advancing first year fellow is expected to; assist with complex obstetrical procedures: develop management plans strategy for complications associated with obstetrical procedures; supervise learners during routine, common obstetrical procedures.
- 5.1.1.3. The first year fellow, as he or she approaches the end of the year may begin to advance to the level of the second year fellow as listed in the CLINICAL-MATERNAL-FETAL MEDICINE (MFM) ROTATION for FY2 Goals & Objectives.

5.1.2.PC 2: Sonographic Diagnosis

- 5.1.2.1. The starting first year fellow, having completed an ObGyn Residency, is expected to; proficiently perform limited obstetrical sonography, gestational age assessment, and antenatal assessment.
- 5.1.2.2. The advancing first year fellow is expected to; proficiently performs sonography for cervical length and standard sonography for complete fetal anatomic survey; select appropriate candidates for prenatal diagnosis or therapeutic procedures.
- 5.1.2.3. The first year fellow, as he or she approaches the end of the year may begin to advance to the level of the second year fellow as listed in the CLINICAL-MATERNAL-FETAL MEDICINE (MFM) ROTATION for FY2 Goals & Objectives.

5.1.3.PC 3: Medical Complications of Pregnancy

- 5.1.3.1. The starting first year fellow, having completed an ObGyn Residency, is expected to; demonstrate a comprehensive understanding of the presentation and treatment options for common medical comorbidities in pregnancy.
- 5.1.3.2. The advancing first year fellow is expected to; develop a management strategy for patients with common medical comorbidities in pregnancy; demonstrate an understanding of the presentation and treatment options for complex medical comorbidities in pregnancy.

- 5.1.3.3. The first year fellow, as he or she approaches the end of the year may begin to advance to the level of the second year fellow as listed in the CLINICAL-MATERNAL-FETAL MEDICINE (MFM) ROTATION for FY2 Goals & Objectives.

5.1.4.PC 4: Obstetrical Complications

- 5.1.4.1. The starting first year fellow, having completed an ObGyn Residency, is expected to; demonstrate a comprehensive understanding of the presentation and treatment options for common obstetrical complications.
- 5.1.4.2. The advancing first year fellow is expected to; develop a management strategy for patients with common obstetrical complications; demonstrate an understanding of the presentation and treatment options for obstetrical complications.
- 5.1.4.3. The first year fellow, as he or she approaches the end of the year may begin to advance to the level of the second year fellow as listed in the CLINICAL-MATERNAL-FETAL MEDICINE (MFM) ROTATION for FY2 Goals & Objectives.

5.2. Medical Knowledge (MK)

5.2.1.MK 1: Pathology, Anatomy, and Physiology

- 5.2.1.1. The starting first year fellow, having completed an ObGyn Residency, is expected to; identify normal placental development; demonstrate knowledge of maternal pelvic anatomy; demonstrate knowledge of maternal physiologic adaptations to pregnancy.
- 5.2.1.2. The advancing first year fellow is expected to; identify abnormal placental development; apply knowledge of maternal pelvic anatomy to the management of common obstetric procedures and complications; demonstrate knowledge of fetal physiology.
- 5.2.1.3. The first year fellow, as he or she approaches the end of the year may begin to advance to the level of the second year fellow as listed in the CLINICAL-MATERNAL-FETAL MEDICINE (MFM) ROTATION for FY2 Goals & Objectives.

5.2.2.MK 2: Medical Complications of Pregnancy

- 5.2.2.1. The starting first year fellow, having completed an ObGyn Residency, is expected to; demonstrates knowledge of common medical comorbidities that can affect obstetrical outcomes
- 5.2.2.2. The advancing first year fellow is expected to; apply knowledge of common medical comorbidities to optimize obstetrical outcomes; demonstrate knowledge of treatment modalities of common medical comorbidities in pregnancy; demonstrate knowledge of complex medical comorbidities that can affect obstetrical outcomes.
- 5.2.2.3. The first year fellow, as he or she approaches the end of the year may begin to advance to the level of the second year fellow as listed in the CLINICAL-MATERNAL-FETAL MEDICINE (MFM) ROTATION for FY2 Goals & Objectives.

5.2.3.MK 3: Obstetrical Complications

- 5.2.3.1. The starting first year fellow, having completed an ObGyn Residency, is expected to; demonstrate knowledge of common obstetrical complications.
- 5.2.3.2. The advancing first year fellow is expected to; apply knowledge of common obstetrical complications; demonstrates knowledge of treatment modalities of common obstetrical complications; demonstrate knowledge of complex obstetrical complications.
- 5.2.3.3. The first year fellow, as he or she approaches the end of the year may begin to advance to the level of the second year fellow as listed in the CLINICAL-MATERNAL-FETAL MEDICINE (MFM) ROTATION for FY2 Goals & Objectives.

5.2.4.MK 4: Genetic Principles

- 5.2.4.1. The starting first year fellow, having completed an ObGyn Residency, is expected to; demonstrate knowledge of basic genetic principles and common

hereditary syndromes; demonstrate knowledge of teratogens; demonstrate knowledge of basic genetic screening and diagnostic tests.

5.2.4.2. The advancing first year fellow is expected to; apply knowledge of basic genetics to patient counseling; apply knowledge of teratogens to patient counseling and evaluation; apply knowledge of basic genetic screening and diagnostic tests.

5.2.4.3. The first year fellow, as he or she approaches the end of the year may begin to advance to the level of the second year fellow as listed in the CLINICAL-MATERNAL-FETAL MEDICINE (MFM) ROTATION for FY2 Goals & Objectives.

5.2.5.MK 5: Prenatal Imaging and Diagnosis

5.2.5.1. The starting first year fellow, having completed an ObGyn Residency, is expected to; demonstrate knowledge of imaging modalities used to evaluate obstetric; demonstrate knowledge of normal fetal anatomy and placentation; demonstrate knowledge of normal maternal pelvic sonography.

5.2.5.2. The advancing first year fellow is expected to; demonstrate knowledge of bioeffects and safety of imaging modalities used to evaluate obstetric patients; demonstrate knowledge of abnormal fetal anatomy, growth and placentation; demonstrate knowledge of abnormal maternal pelvic sonography; demonstrate knowledge of indications and complications of prenatal diagnostic procedures.

5.2.5.3. The first year fellow, as he or she approaches the end of the year may begin to advance to the level of the second year fellow as listed in the CLINICAL-MATERNAL-FETAL MEDICINE (MFM) ROTATION for FY2 Goals & Objectives.

5.3. System Based Practice

5.3.1.SBP 1: Computer Systems

5.3.1.1. The starting first year fellow, having completed an ObGyn Residency, is expected to; retrieve basic patient information from the electronic medical record.

5.3.1.2. The advancing first year fellow is expected to; retrieve complex patient information from the EMR; generate orders, communicate with referring physicians, and document communication with patients.

5.3.1.3. The first year fellow, as he or she approaches the end of the year may begin to advance to the level of the second year fellow as listed in the CLINICAL-MATERNAL-FETAL MEDICINE (MFM) ROTATION for FY2 Goals & Objectives.

5.3.2.SBP 2: Value-based Patient Care

5.3.2.1. The starting first year fellow, having completed an ObGyn Residency, is expected to; demonstrate knowledge of general obstetrics and gynecology guideline-based care; demonstrate knowledge of the importance of providing cost-effective care; understands the diversity and roles of all members of the health care team.

5.3.2.2. The advancing first year fellow is expected to; demonstrates knowledge of maternal-fetal medicine guideline-based care; demonstrate knowledge of cost related to diagnostic and treatment plans; demonstrates knowledge of personnel and resources needed to facilitate value-based (high quality, cost-effective) care.

5.3.2.3. The first year fellow, as he or she approaches the end of the year may begin to advance to the level of the second year fellow as listed in the CLINICAL-MATERNAL-FETAL MEDICINE (MFM) ROTATION for FY2 Goals & Objectives.

5.4. Practice-Based Learning and Improvement

5.4.1.PBLI 1: Scholarly Activity

5.4.1.1. The starting first year fellow, having completed an ObGyn Residency, is expected to; critically review and interpret publications with the ability to identify hypotheses, study aims, design, results, and limitations; demonstrate knowledge of commonly used study designs; demonstrate knowledge of basic principles underlying the ethical conduct of research and the protection of human subjects.

5.4.1.2. The advancing first year fellow is expected to; design and begin execution of a hypothesis-driven or hypothesis-generating scholarly thesis, under the direction of a

research mentor; demonstrate knowledge of advanced study designs and statistical methodology; apply the principles of ethics and good clinical practice to the protection of human subjects recruited to participate in research, as indicated.

- 5.4.1.3. The first year fellow, as he or she approaches the end of the year may begin to advance to the level of the second year fellow as listed in the CLINICAL-MATERNAL-FETAL MEDICINE (MFM) ROTATION for FY2 Goals & Objectives.

5.4.2.PBLI 2: Quality Improvement (QI)

- 5.4.2.1. The starting first year fellow, having completed an ObGyn Residency, is expected to; identify problems in health care delivery.
- 5.4.2.2. The advancing first year fellow is expected to; begin working on a QI project, either as an individual or as a team member.
- 5.4.2.3. The first year fellow, as he or she approaches the end of the year may begin to advance to the level of the second year fellow as listed in the CLINICAL-MATERNAL-FETAL MEDICINE (MFM) ROTATION for FY2 Goals & Objectives.

5.4.3.PBLI 3: Education of Team Members

- 5.4.3.1. The starting first year fellow, having completed an ObGyn Residency, is expected to; fully participate in required didactic activities.
- 5.4.3.2. The advancing first year fellow is expected to; teach medical students and residents in the clinical setting; present well-organized, literature-based conference presentations.
- 5.4.3.3. The first year fellow, as he or she approaches the end of the year may begin to advance to the level of the second year fellow as listed in the CLINICAL-MATERNAL-FETAL MEDICINE (MFM) ROTATION for FY2 Goals & Objectives.

5.5. Professionalism

5.5.1.PROF 1: Professional Ethics and Accountability

- 5.5.1.1. The starting first year fellow, having completed an ObGyn Residency, is expected to; demonstrate integrity, respect, honesty, and compassion; understand HIPAA policies and appropriate use concepts; demonstrates timeliness in completion of assigned rotations, reports, state licensure, and duties.
- 5.5.1.2. The advancing first year fellow is expected to; is accountable in completion of duties, records, and patient care; is sensitive and responsive to diverse patient population and needs, regardless of gender, age, race, sexual orientation, religion, or disabilities; demonstrate knowledge of regulations for billing and coding.
- 5.5.1.3. The first year fellow, as he or she approaches the end of the year may begin to advance to the level of the second year fellow as listed in the CLINICAL-MATERNAL-FETAL MEDICINE (MFM) ROTATION for FY2 Goals & Objectives.

5.5.2.PROF 2: Compassion, Integrity, and Respect for Others

- 5.5.2.1. The starting first year fellow, having completed an ObGyn Residency, is expected to; understand the importance of compassion, integrity, and respect for others; demonstrates sensitivity and responsiveness to patients.
- 5.5.2.2. The advancing first year fellow is expected to; consistently show compassion, integrity, and respect in typical situations with patients, peers, and members of the health care team; consistently demonstrate sensitivity and responsiveness to diversity of patients' ages, cultures, races, religions, abilities, or sexual orientations; accepts constructive feedback to improve his/her ability to demonstrate compassion, integrity, and respect for others.
- 5.5.2.3. The first year fellow, as he or she approaches the end of the year may begin to advance to the level of the second year fellow as listed in the CLINICAL-MATERNAL-FETAL MEDICINE (MFM) ROTATION for FY2 Goals & Objectives.

5.6. Interpersonal and Communication Skills

5.6.1.ICS 1: Teamwork and Communication with Physicians & Other Health Professionals

- 5.6.1.1. The starting first year fellow, having completed an ObGyn Residency, is expected to; understand the importance of relationship development, information gathering and sharing, and teamwork.
- 5.6.1.2. The advancing first year fellow is expected to; demonstrate an understanding of the roles of health care team members, and communicates effectively within the team; demonstrates an understanding of transitions of care and team debriefing.
- 5.6.1.3. The first year fellow, as he or she approaches the end of the year may begin to advance to the level of the second year fellow as listed in the CLINICAL-MATERNAL-FETAL MEDICINE (MFM) ROTATION for FY2 Goals & Objectives.

5.6.2.ICS 2: Communication with Patients and Families

- 5.6.2.1. The starting first year fellow, having completed an ObGyn Residency, is expected to; demonstrate adequate listening skills; communicate effectively in routine clinical situations.
- 5.6.2.2. The advancing first year fellow is expected to; checks for patient and family understanding of illness and management plan; allow for opportunities for patient questions; maintain communication with patient and family regarding plan of care.
- 5.6.2.3. The first year fellow, as he or she approaches the end of the year may begin to advance to the level of the second year fellow as listed in the CLINICAL-MATERNAL-FETAL MEDICINE (MFM) ROTATION for FY2 Goals & Objectives.

Recommended Statistics Textbooks

- Guyatt G, Rennie D, Meade M, Cook D. Users, Guides to the Medical Literature. McGraw-Hill Professional; 3rd ed. 2014.
- JAMA Guide to Statistics and Methods. JAMA. 2014; 312(1):35.

Supplemental Research Resources

- UMB Human Research Protections Office, Online Investigator Manual
<http://www.umaryland.edu/hrp/for-researchers/investigator-manual>
- ACP Writing a Research Abstract
http://www.acponline.org/education_recertification/education/program_directors/abstracts/prepare/res_abs.htm
- Agency for Healthcare Research and Quality (AHRQ): What Is Comparative Effectiveness Research
<http://www.effectivehealthcare.ahrq.gov/index.cfm/what-is-comparative-effectiveness-research1/>
- CONSORT Transparent Reporting of Trials <http://www.consort-statement.org/>
- International Committee of Medical Journal Editors (ICMJE) Recommendations for the Conduct, Reporting, Editing, and Publication of Scholarly Work in Medical Journals.
<http://www.icmje.org/recommendations/>
- Agency for Healthcare Research and Quality (AHRQ) - Evidence Based Practice: Evidence based information covers clinical care, research and special populations.
<http://www.ahrq.gov/research/findings/evidence-based-reports/index.html>
- STROBE Statement Strengthening the Reporting of Observational Studies in Epidemiology
<http://www.strobe-statement.org/>

This list is by no means exclusive and should form the nucleus of a far more extensive library.