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. COMPETANCY 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 FY2

4.1. The research portion of the MFM fellowship is designed so that each fellow, under the direction of 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 second year 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 demonstrate sufficient knowledge of research design and implementation to enable the fellow to investigate medical and pathophysiologic questions that affect maternal fetal dyad.

4.3. The second year fellow will complete any outstanding goals listed in the RESEARCH ROTATION PGY6 GOALS & OBJECTIVES.

4.4. The second year fellow during the remainder of the program is expected to continue to perform and complete appropriately supervised experiments. The fellow’s research shall ultimately result in a thesis that will meet the entrance requirements as established by the MFM-Division of ABOG, for the ABOG certifying (oral) examination in MFM. It is expected that each fellow will acquire a thorough knowledge and understanding of the methodologies and analyses used in research protocols that relate to their research.

4.5. 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.

4.6. 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.

4.6.1. 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.
4.6.2. On-call clinical activity will not count against this 4 hour/week limit.

5. **COMPETENCY BASED CRITERIA for ADVANCEMENT and PROGRESSIVE CHANGES in RESPONSIBILITY**

5.1. **Patient Care & Procedural Skills (PC)**

5.1.1. **PC 1 – Labor and Delivery Procedures**

5.1.1.1. The starting second year fellow, having completed the first year is expected to expand and develop the proficiencies and competencies listed in the CLINICAL-MATERNAL-FETAL MEDICINE (MFM) ROTATION for FY1 Goals & Objectives.

5.1.1.1. The advancing second year fellow with supervision is expected to; identify appropriate procedures for complex obstetrical patients; perform complex obstetrical procedures; manage surgical complications; collaborate with and provides subspecialty-specific consultation to other members of the health care team, with supervision

5.1.1.2. The second year fellow, as he or she approaches the end of the year may begin to advance to the level of the third year fellow as listed in the CLINICAL-MATERNAL-FETAL MEDICINE (MFM) ROTATION and FETAL MEDICINE (FM) SUBROTATION for PGY7 Goals & Objectives.

5.1.2. **PC 2: Sonographic Diagnosis**

5.1.2.1. The starting second year fellow, having completed the first year is expected to expand and develop the proficiencies and competencies listed in the CLINICAL-MATERNAL-FETAL MEDICINE (MFM) ROTATION for FY1 Goals & Objectives.

5.1.2.2. The advancing second year fellow with supervision is expected to; perform detailed fetal assessment; perform appropriate procedures for prenatal diagnosis or therapy; anticipate, diagnose, and manage complications associated with prenatal diagnostic procedures; collaborate with and provide subspecialty-specific consultation to other members of the health care team.

5.1.2.3. The second year fellow, as he or she approaches the end of the year may begin to advance to the level of the third year fellow as listed in the CLINICAL-MATERNAL-FETAL MEDICINE (MFM) ROTATION and FETAL MEDICINE (FM) SUBROTATION for PGY7 Goals & Objectives.

5.1.3. **PC 3: Medical Complications of Pregnancy**

5.1.3.1. The starting second year fellow, having completed the first year is expected to expand and develop the proficiencies and competencies listed in the CLINICAL-MATERNAL-FETAL MEDICINE (MFM) ROTATION for FY1 Goals & Objectives.

5.1.3.2. The advancing second year fellow with supervision is expected to; manage complex medical comorbidities in pregnancy; co-manage patients in critical care settings; collaborate with and provides evidence-based subspecialty-specific consultation to other members of the health care team.

5.1.3.3. The second year fellow, as he or she approaches the end of the year may begin to advance to the level of the third year fellow as listed in the CLINICAL-MATERNAL-FETAL MEDICINE (MFM) ROTATION and FETAL MEDICINE (FM) SUBROTATION for PGY7 Goals & Objectives.

5.1.4. **PC 4: Obstetrical Complications**

5.1.4.1. The starting second year fellow, having completed the first year is expected to expand and develop the proficiencies and competencies listed in the CLINICAL-MATERNAL-FETAL MEDICINE (MFM) ROTATION for FY1 Goals & Objectives.
5.1.4.2. The advancing second year fellow with supervision is expected to; manage complex obstetrical complications; collaborate with and provides evidence-based subspecialty-specific consultation to other members of the health care team.

5.1.4.3. The second year fellow, as he or she approaches the end of the year may begin to advance to the level of the third year fellow as listed in the CLINICAL-MATERNAL-FETAL MEDICINE (MFM) ROTATION and FETAL MEDICINE (FM) SUBROTATION for PGY7 Goals & Objectives.

5.2. Medical Knowledge (MK)

5.2.1. MK 1: Pathology, Anatomy, and Physiology
- 5.2.1.1. The starting second year fellow, having completed the first year is expected to expand and develop the proficiencies and competencies listed in the CLINICAL-MATERNAL-FETAL MEDICINE (MFM) ROTATION for FY1 Goals & Objectives.
- 5.2.1.2. The advancing second year fellow is expected to; demonstrate knowledge of metabolic and endocrine functions of the placenta; demonstrates knowledge of clinicopathologic correlation between adverse perinatal outcome and specific etiologies; demonstrates advanced knowledge of newborn adaptation.
- 5.2.1.3. The second year fellow, as he or she approaches the end of the year may begin to advance to the level of the third year fellow as listed in the CLINICAL-MATERNAL-FETAL MEDICINE (MFM) ROTATION and FETAL MEDICINE (FM) SUBROTATION for PGY7 Goals & Objectives.

5.2.2. MK 2: Medical Complications of Pregnancy
- 5.2.2.1. The starting second year fellow, having completed the first year is expected to expand and develop the proficiencies and competencies listed in the CLINICAL-MATERNAL-FETAL MEDICINE (MFM) ROTATION for FY1 Goals & Objectives.
- 5.2.2.2. The advancing second year fellow is expected to; demonstrate knowledge of treatment modalities of complex medical comorbidities in pregnancy; demonstrate knowledge of critical care management.
- 5.2.2.3. The second year fellow, as he or she approaches the end of the year may begin to advance to the level of the third year fellow as listed in the CLINICAL-MATERNAL-FETAL MEDICINE (MFM) ROTATION and FETAL MEDICINE (FM) SUBROTATION for PGY7 Goals & Objectives.

5.2.3. MK 3: Obstetrical Complications
- 5.2.3.1. The starting second year fellow, having completed the first year is expected to expand and develop the proficiencies and competencies listed in the CLINICAL-MATERNAL-FETAL MEDICINE (MFM) ROTATION for FY1 Goals & Objectives.
- 5.2.3.2. The advancing second year fellow is expected to; demonstrate knowledge of treatment modalities of complex obstetrical complications; demonstrate knowledge of obstetric anesthesia principles and complications; demonstrates knowledge of neonatology principles and complications.
- 5.2.3.3. The second year fellow, as he or she approaches the end of the year may begin to advance to the level of the third year fellow as listed in the CLINICAL-MATERNAL-FETAL MEDICINE (MFM) ROTATION and FETAL MEDICINE (FM) SUBROTATION for PGY7 Goals & Objectives.

5.2.4. MK 4: Genetic Principles
- 5.2.4.1. The starting second year fellow, having completed the first year is expected to expand and develop the proficiencies and competencies listed in the CLINICAL-MATERNAL-FETAL MEDICINE (MFM) ROTATION for FY1 Goals & Objectives.
- 5.2.4.2. The advancing second year fellow is expected to; demonstrate knowledge of advanced genetic principles and uncommon hereditary syndromes; demonstrate knowledge of advanced genetic testing.
- 5.2.4.3. The second year fellow, as he or she approaches the end of the year may begin to advance to the level of the third year fellow as listed in the CLINICAL-MATERNAL-
FETAL MEDICINE (MFM) ROTATION and FETAL MEDICINE (FM) SUBROTATION for PGY7 Goals & Objectives.

5.2.5. MK 5: Prenatal Imaging and Diagnosis

5.2.5.1. The starting second year fellow, having completed the first year is expected to expand and develop the proficiencies and competencies listed in the CLINICAL-MATERNAL-FETAL MEDICINE (MFM) ROTATION for FY1 Goals & Objectives.

5.2.5.2. The advancing second year fellow is expected to; apply knowledge of imaging modalities and diagnostic techniques for prenatal diagnosis; demonstrate knowledge of prognosis for specific fetal anomalies and management options, including pregnancy termination; applies knowledge of abnormal fetal growth and placentation.

5.2.5.3. The second year fellow, as he or she approaches the end of the year may begin to advance to the level of the third year fellow as listed in the CLINICAL-MATERNAL-FETAL MEDICINE (MFM) ROTATION and FETAL MEDICINE (FM) SUBROTATION for PGY7 Goals & Objectives.

5.3. System Based Practice

5.3.1. SBP 1: Computer Systems

5.3.1.1. The starting second year fellow, having completed the first year is expected to expand and develop the proficiencies and competencies listed in the CLINICAL-MATERNAL-FETAL MEDICINE (MFM) ROTATION for FY1 Goals & Objectives

5.3.1.2. The second year fellow, having completed the first year, is expected to expand and develop the proficiencies and competencies listed above, and to begin to use the EMR to its full potential, and facilitate integration of computer-based communication with the patient care team.

5.3.1.3. The second year fellow, as he or she approaches the end of the year may begin to advance to the level of the third year fellow as listed in the CLINICAL-MATERNAL-FETAL MEDICINE (MFM) ROTATION and FETAL MEDICINE (FM) SUBROTATION for PGY7 Goals & Objectives.

5.3.2. SBP 2: Value-based Patient Care

5.3.2.1. The starting second year fellow, having completed the first year is expected to expand and develop the proficiencies and competencies listed in the CLINICAL-MATERNAL-FETAL MEDICINE (MFM) ROTATION for FY1 Goals & Objectives

5.3.2.2. The advancing second year fellow, with supervision, is expected to; apply knowledge of maternal-fetal medicine guideline-based care; incorporate cost-awareness into the development of diagnostic and treatment plans; coordinate personnel and resources to facilitate value-based care.

5.3.2.3. The second year fellow, as he or she approaches the end of the year may begin to advance to the level of the third year fellow as listed in the CLINICAL-MATERNAL-FETAL MEDICINE (MFM) ROTATION and FETAL MEDICINE (FM) SUBROTATION for PGY7 Goals & Objectives.

5.4. Practice-Based Learning and Improvement

5.4.1. PBLI 1: Scholarly Activity

5.4.1.1. The starting second year fellow, having completed the first year is expected to expand and develop the proficiencies and competencies listed in the CLINICAL-MATERNAL-FETAL MEDICINE (MFM) ROTATION for FY1 Goals & Objectives

5.4.1.2. The advancing second year fellow is expected to; execute a hypothesis-driven or hypothesis-generating scholarly thesis, under the direction of a research mentor; apply knowledge of advanced study design and statistical methodology to thesis and other research; comply with research oversight regulations.

5.4.1.3. The second year fellow, as he or she approaches the end of the year may begin to advance to the level of the third year fellow as listed in the CLINICAL-MATERNAL-
5.4.2. PBLI 2: Quality Improvement (QI)

5.4.2.1. The starting second year fellow, having completed the first year is expected to expand and develop the proficiencies and competencies listed in the CLINICAL-MATERNAL-FETAL MEDICINE (MFM) ROTATION for FY1 Goals & Objectives.

5.4.2.2. The advancing second year fellow with supervision is expected to; continue to develop a QI project, employing methods to measure and analyze the data.

5.4.2.3. The second year fellow, as he or she approaches the end of the year may begin to advance to the level of the third year fellow as listed in the CLINICAL-MATERNAL-FETAL MEDICINE (MFM) ROTATION and FETAL MEDICINE (FM) SUBROTATION for PGY7 Goals & Objectives.

5.4.3. PBLI 3: Education of Team Members

5.4.3.1. The starting second year fellow, having completed the first year is expected to expand and develop the proficiencies and competencies listed in the CLINICAL-MATERNAL-FETAL MEDICINE (MFM) ROTATION for FY1 Goals & Objectives.

5.4.3.2. The advancing second year fellow with supervision is expected to; teach residents, medical students, and other health care professionals in a formal didactic setting; organize didactic educational activities, including determination of educational content.

5.4.3.3. The second year fellow, as he or she approaches the end of the year may begin to advance to the level of the third year fellow as listed in the CLINICAL-MATERNAL-FETAL MEDICINE (MFM) ROTATION and FETAL MEDICINE (FM) SUBROTATION for PGY7 Goals & Objectives.

5.5. Professionalism

5.5.1. PROF 1: Professional Ethics and Accountability

5.5.1.1. The starting second year fellow, having completed the first year is expected to expand and develop the proficiencies and competencies listed in the CLINICAL-MATERNAL-FETAL MEDICINE (MFM) ROTATION for FY1 Goals & Objectives.

5.5.1.2. The advancing second year fellow is expected to; acknowledge errors with program director, faculty members, and/or patients; respond well to constructive criticism; take on responsibility related to learning, coordination of care, patient care, Continuous Quality Improvement (CQI), and compliance issues.

5.5.1.3. The second year fellow, as he or she approaches the end of the year may begin to advance to the level of the third year fellow as listed in the CLINICAL-MATERNAL-FETAL MEDICINE (MFM) ROTATION and FETAL MEDICINE (FM) SUBROTATION for PGY7 Goals & Objectives.

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

5.5.2.1. The starting second year fellow, having completed the first year is expected to expand and develop the proficiencies and competencies listed in the CLINICAL-MATERNAL-FETAL MEDICINE (MFM) ROTATION for FY1 Goals & Objectives.

5.5.2.2. The advancing second year fellow is expected to; consistently show compassion, integrity, and respect for patients who decline medical advice, request un-indicated tests or treatments, or have psychiatric comorbidities, and, for team members experiencing conflict or high stress; modify his/her own behavior based on feedback to improve his/her ability to demonstrate compassion, integrity, and respect for others.

5.5.2.3. The second year fellow, as he or she approaches the end of the year may begin to advance to the level of the third year fellow as listed in the CLINICAL-MATERNAL-FETAL MEDICINE (MFM) ROTATION and FETAL MEDICINE (FM) SUBROTATION for PGY7 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 second year fellow, having completed the first year is expected to expand and develop the proficiencies and competencies listed in the CLINICAL-MATERNAL-FETAL MEDICINE (MFM) ROTATION for FY1 Goals & Objectives.

5.6.1.2. The advancing second year fellow is expected to; works effectively in interprofessional and interdisciplinary health care teams; participates in effective transitions of care and team debriefing; communicate effectively with physicians and other health care professionals regarding patient care.

5.6.1.3. The second year fellow, as he or she approaches the end of the year may begin to advance to the level of the third year fellow as listed in the CLINICAL-MATERNAL-FETAL MEDICINE (MFM) ROTATION and FETAL MEDICINE (FM) SUBROTATION for PGY7 Goals & Objectives.

5.6.2. ICS 2: Communication with Patients and Families

5.6.2.1. The starting second year fellow, having completed the first year is expected to expand and develop the proficiencies and competencies listed in the CLINICAL-MATERNAL-FETAL MEDICINE (MFM) ROTATION for FY1 Goals & Objectives.

5.6.2.2. The advancing second year fellow is expected to; communicate effectively with patients and families across a broad range of socio-economic and cultural backgrounds; communicate effectively when counseling patients and families in stressful, emergent, and complex situations.

5.6.2.3. The second year fellow, as he or she approaches the end of the year may begin to advance to the level of the third year fellow as listed in the CLINICAL-MATERNAL-FETAL MEDICINE (MFM) ROTATION and FETAL MEDICINE (FM) SUBROTATION for PGY7 Goals & Objectives.

Recommended Statistics Textbooks

Supplemental Research Resources
- ACP Writing a Research Abstract http://www.acponline.org/education_recertification/education/program_directors/abstracts/prepare/res_abs.htm
- CONSORT Transparent Reporting of Trials http://www.consort-statement.org/
- 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

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

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